Graduate Catalog
Archive 2007

Graduate Catalog
About The University

Kansas State University

Kansas State University was founded February 16, 1863, as a land-grant institution under the Morrill Act. Initially located on the grounds of the old Bluemont Central College, chartered in 1858, the University moved to its present site in 1875.

The 664-acre campus is in Manhattan, 125 miles west of Kansas City via Interstate 70 in the rolling Flint Hills of northeast Kansas. The campus is convenient to both business and residential sections of the city. Under an enactment of the 1991 Kansas Legislature, the Salina campus, 70 miles west of Manhattan, was established through a merger of the former Kansas College of Technology with the university.

Additional university sites include 18,000 acres in the four branch locations of the Agricultural Experiment Station at Hays, Garden City, Colby, and Parsons and 8,600 acres in the Konza Prairie Biological Station jointly operated by the AES and the Division of Biology.

One of the six universities governed by the Kansas Board of Regents, Kansas State University continues to fulfill its historic educational mission in teaching, research, and public service.

Accreditation

Kansas State University is fully accredited by the North Central Accrediting Association and by various professional accrediting agencies. Credit earned at K-State is transferable to other institutions.

Equity in Athletics

In accordance with the Equity in Athletics Disclosure Act, an annual report pertaining to K-State's athletic programs is available to prospective students, students, and the public in the following locations:

Department of Intercollegiate Athletics
Office of Admissions
Office of the Registrar
Dean of Student Life Office
Hale Library
http://www.k-state.edu/academicservices/

Any questions regarding the Equity in Athletics Disclosure Act should be directed to the Office of Academic Services, Kansas State University, 204 Anderson Hall, Manhattan, KS 66506-0124.
More information can be found at http://www.k-state.edu/academicservices/

Accounting

Accounting Courses | For more information

Head
Richard L. Ott

Director of Graduate Studies
Jeff Katz

Graduate Faculty:

Dan S. Deines, Ph.D., University of Nebraska.

Dann G. Fisher, Ph.D., University of Missouri.

Stacy E. Kovar, Ph.D., Oklahoma State University.

Mark E. Linville, Ph.D., University of Washington.

Richard L. Ott, Ph.D., Texas Tech University.

David R. Vruwink, Ph.D., University of Arkansas.

Mission Statement

The mission of the Department of Accounting at Kansas State University is to ensure a quality liberal, general business, and accounting education at the undergraduate and master's levels that prepares students to become both productive citizens and successful professional accountants.

Statement of Focus and Commitment

The focus of the faculty of the Department of Accounting in achieving its mission is on maintaining a responsive accounting program that provides students with sufficient technical and conceptual knowledge for a successful career in accounting as well as with the problem-solving and communication skills necessary to apply their knowledge in a professional setting.

To maintain such a program and as a matter of principle, the faculty of the Department of Accounting is committed to and considers its highest priority high-quality teaching, including innovative curriculum and other instructional development. The faculty is also committed to research and other forms of scholarly activity that add to the body of knowledge or support and foster improvement in teaching. In addition, the faculty is committed to participation in service activities that advance the profession and maintain the faculty's professional currentness.

Also to maintain such a program and as a matter of principle, the faculty of the Department of Accounting is committed to attracting and retaining highly motivated students with promise of success both in the Department's academic program and in the accounting profession. To this end, the faculty actively engages in student recruitment and placement, and strives to provide a supportive instructional environment.

The Master of Accountancy Program

The MAcc curriculum is a 30-credit-hour program (click here) of study that may be completed in two regular semesters and a summer term or in three semesters. Students without prior or complete business and accounting training must acquire basic competency in the following business core foundation areas: accounting, statistics, management information systems, economics, finance, marketing, and management. These competencies may be acquired through specified business core foundation course work. The specific number of business core foundation courses required depends on the applicant's prior academic work. The basic competency course work may be taken after admission to the MAcc program, but certain business core foundation courses must be completed prior to taking MAcc courses that are in the same subject or that otherwise require a knowledge of the business core foundation material.

The objective of the master of accountancy program is to provide candidates with a greater breadth and depth in accounting than is possible in the baccalaureate or master of business administration program in preparation for careers as professional accountants in financial institutions, government, industry, nonprofit organizations, and public practice. For complete application information, see the College of Business Administration Graduate Studies Website.

Accounting courses

Undergraduate and graduate credit

ACCTG 631. Accounting Internship. (3) I, II. Provides a full semester of practical accounting experience prior to entering graduate accounting

program.

ACCTG 641. Accounting Theory and History. (3) I, II. The theories which underlie the practice of accounting and financial reporting including a histrorical perspective on the evolution of the theories. Pr.: ACCTG 331.

ACCTG 642. Accounting Research. (3) I, II. Use of the sources of authoritative guidance in resolving complex, professionally oriented problems in auditing, financial reporting, and tax reporting. Analysis and presentation of case material is covered. Pr.: ACCTG 342, 433, and 442. (Note: Students may be enrolled concurrently in ACCTG 442.) For accounting majors only.

ACCTG 731.Advanced Financial Reporting. (3) I. An examination of the reporting requirements of large (often multinational) corporations, e.g., foreign currency translation, interim and segment reporting, and business combinations. Pr.: ACCTG 433.

Graduate credit

ACCTG 810. Accounting Concepts and Analysis. (3) I. A study of the nature of business transactions; identifying relevant economic events for reporting; determining the most appropriate financial measures for those events; and analyzing the effects of those events on firm performance and financial condition. Pr.: MATH 205. (Not open to Master of Accountancy students.)

ACCTG 832. Advanced Auditing. (3) II. An in-depth exposure to authoritative auditing pronouncements and specialized topics, e.g., statistical methods, EDP auditing, internal auditing, operational auditing, and audit management. Pr.: ACCTG 442 and 642.

ACCTG 833. Corporate Taxation. (3) II. A study of the federal taxation of corporations with emphasis on tax planning. Pr.: ACCTG 342 and 642.

ACCTG 834. Partnership Taxation. (3) I. Intensive study of the federal taxation of partnerships. Pr.: ACCTG 342 and 642.

ACCTG 835. Advanced Management Accounting. (3) II. A study of traditional management accounting systems and their limitations with emphasis on newly developed systems. Pr.: ACCTG 432.

ACCTG 841. Advanced Accounting Theory. (3) On sufficient demand. A critical examination of accounting theory with emphasis upon information economics, agency theory, and capital market information. Pr.: ACCTG 641.

ACCTG 842. Estate and Gift Taxation. (3) I. Intensive examination of the federal taxation of estates, gifts and trusts. Emphasis on tax planning. Pr.: ACCTG 342 and 642.

ACCTG 843. Management Accounting and Behavior. (3) On sufficient demand. An investigation of human behavior effects on the collection and use of management accounting information. Pr.: ACCTG 432.

ACCTG 844. Design of Accounting and Business Information Processes. (3) I. This course focuses on understanding and designing contemporary business and information processes in organizations, providing an introduction to database systems, project management and information systems controls and technology. Pr.: ACCTG 810, MANGT 830 and instructor permissions for MBA students or ACCTG 331 for Masters of Accountancy students or instructor permission.

ACCTG 845. International Accounting. (3) I. An examination of comparative international accounting systems, efforts to harmonize accounting standards internationally, problems of international financial analysis, accounting and tax issues of particular relevance to U.S. multinational enterprises. Pr.: ACCTG 342 and ACCTG 641.

ACCTG 860. Management Accounting and Business Problem Solving. (3) I. A study of managerial accounting information for decision making, planning, and control. Pr.: ACCTG 810, ECON 815, FINAN 815, MANGT 810, MANGT 820, MANGT 830, MKTIB 810 and STAT 702. (Not open to Master of Accountancy students.)

ACCTG 870. Problems in Accounting. (Var.) As scheduled. An in-depth study of specified topics in accounting. Pr.: Consent of instructor and department head.

ACCT 884. Enterprise Information Systems Assurance. (3) II. This course focuses on types of assurance available in an enterprise-wide information systems environment and methods for providing assurance from the view of management, external auditors and consultants. Assurance topics discussed include assurances related to systems security, fraud, business and information process integrity, and operational efficiency. Focus is on designing systems to increase the level of inherent assurance as well as auditability. This course also includes a service learning componenet. Pr.: ACCTG 844.

For more information

Jeff Katz, Assistant Dean
Director of Graduate Studies
College of Business Administration
Student Services
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Home Page: http://www.cba.k-state.edu/departments/accounting/index.htm

Admission to Graduate School

Correspondence regarding admission to the Graduate School should be addressed to the appropriate graduate program, which will supply application blanks and supplementary information.

Admission to graduate study is granted by the Dean of the Graduate School only upon the recommendation of the faculty in a graduate program. Applicants should see that each undergraduate or graduate institution previously attended sends official transcripts. The transcripts should be received by the program as soon as possible but no later than three months before the time the student expects to enroll. All transcripts become part of the student's official file and may not be returned.

There is a $30 application fee for U.S. citizens and permanent residents. International applicants must submit with their application an international cashier's check or money order in the amount of $55 payable to the Kansas State University Graduate School. International applications without this fee will not be processed. *PLEASE NOTE: If applying to graduate programs in the College of Architecture, Planning and Design or the College of Business, additional application fees apply. Refer to program websites for more information.*

Applicants who wish to be considered for graduate assistantships or other funding should normally have all materials on file by February 1 for highest priority consideration, although some programs have later deadlines.

Entrance Requirements | International Students

Entrance Requirements

Admission with full standing

An application for admission to the Graduate School ordinarily implies the student's intention to work toward an advanced degree. To be considered for admission with full standing the applicant must have:

A bachelor's degree from an institution accredited by one of the regional accrediting associations.

Adequate undergraduate preparation in the proposed major field or equivalent evidence of an appropriate background for undertaking an advanced degree program.

An undergraduate average of B or better in the junior and senior years.

Individual graduate programs may have additional admission requirements. Prospective applicants should consult the appropriate program entry in this Catalog or contact the program directly.

Applicants to the Graduate School at K-State must have a bachelor's degree substantially the same as the ones granted by K-State. These degrees regularly contain a broad range of courses representing the basic academic disciplines. In addition, a major portion of the courses included should be graded by a multilevel system, usually A, B, C, D, F.

Applicants holding degrees not meeting these standards may be denied admission to graduate degree programs at K-State. Admission will be denied to applicants possessing bachelor's degrees with a significant amount of credit awarded for work experience that was not supervised by a faculty member of an accredited university nor evaluated in units which identify the academic content. However, a limited amount of credit for experience, when awarded as an acceptable part of a bachelor's degree for internships, field experience, or the like, will not be cause for denial of admission, but it must be clearly delineated as graded work.

Probationary admission

For those whose grades do not meet the above standards, probationary admission may be granted, provided there is other evidence that the applicant has the ability to do satisfactory graduate work. Such evidence might include an excellent record of postgraduate work at another institution, or high scores on the Graduate Record Examination or the Miller Analogies Test. Those who wish to take the Graduate Record Examination should obtain *The GRE Information and Registration Bulletin*, available at most university and college testing offices. The fee for either test must be paid by the applicant.

Provisional admission

Students may be admitted provisionally if there is uncertainty in evaluating transcripts, or if there are undergraduate deficiencies which must be removed.

Students admitted on probation or provisionally will be advised of other conditions to be met to attain full standing. Full standing is attained automatically upon completion of at least 9 hours of course work for graduate credit with a grade of B or better, and upon the removal of any deficiency which was specified at the time of the admission. Students admitted on probation may be denied continued enrollment if they do not achieve full standing within the specified time period.

Non-degree graduate students

Students who do not plan to work for an advanced degree may be admitted to the Graduate School as non-degree students. Applications from such students should be sent to the program in which they plan to take courses, together with a copy of the official transcript from the institution which granted the undergraduate degree. A non-degree seeking student who later wishes to enter a degree program must undergo the full application and admission review process. No more than 9 semester hours earned as a non-degree student may be transferred into a regular degree program.

In all cases, applications are initially reviewed by the program, which forwards to the Graduate School those recommended for admission. Students are admitted officially only by the Graduate School.

Standardized Tests

If your graduate program requires standardized tests, you should request the Educational Testing Service to send your scores to Kansas State University. If you indicated where you wanted your scores sent (the academic department and Kansas State University) when you took the test, your scores will automatically be sent. The Graduate School does not accept photocopies as official for admission purposes. Standardized test scores are valid for five years. (If available, please include test scores on the application.)

Primary Language

To demonstrate competence in the English language, an official report of scores on the Test of English as a Foreign Language (TOEFL) or International English Language Testing System - academic exam (IELTS) must be sent to Kansas State University for all applicants whose primary language is not English.

TOEFL: The TOEFL is offered several times a year throughout the world by the Educational Testing Service, PO Box 6151, Princeton, New Jersey 08540, USA, telephone 609-771-7100 or www.toefl.org. Those who have received a degree in the last two years from a United States college or university are not required to submit a TOEFL score but **must take an English proficiency test upon arrival to Kansas State University.**

There are three types of TOEFL scores: paper-based TOEFL, computer-based TOEFL and TOEFL IBT (internet-based TOEFL taken in real time). TOEFL scores are valid for two years from the intial test date.

A score of at least 550 (paper-based test), 213 (computer-based test), or 79 (IBT - internet-based test) on the TOEFL is required to be considered for admission to the Graduate School. (NOTE: Some programs require a TOEFL score higher than stated here.) Applicants with scores of 600 (paper-based), 250 (computer-based) or 100 (IBT - internet based) or above may be considered for regular admission. Applicants with scores between 550/213/79 and 599/249/99 may be admitted provisionally and must at the time of their enrollment demonstrate proficiency in reading and writing English and in understanding spoken American English to the satisfaction of the Graduate School. Those who do not meet the minimum proficiency standard **will be required to complete specified courses** offered by the English Language Program (ELP) at Kansas State. Intensive English training for students who have TOEFL scores below 550/213/79 is also available through the ELP. For information and application to this program write to Director, English Language Program, 205 Fairchild Hall, Kansas State University, Manhattan, Kansas 66506-1106; e-mail: elp@ksu.edu.

IELTS: The International English Language Testing System - academic exam (IELTS) is offered several times a year by the International English Language Testing System, Pasadena, California 91103, USA. Those who have received a degree in the last two years from a United States college or university are not required to submit an IELTS score but **must take an English proficiency test upon arrival to Kansas State University.**

A score of at least 6.1 is required to be considered for admission to the Graduate School. (NOTE: Some programs require an IELTS score higher than stated here.) Applicants with scores of 7.0 or above may be considered for regular admission. Applicants with scores between 6.1 to 6.9 may be admitted provisionally and must at the time of their enrollment demonstrate proficiency in reading and writing English and in understanding spoken American English to the satisfaction of the Graduate School. Those who do not meet the minimum proficiency standard **will be required to complete specified courses** offered by the English Language Program (ELP) at Kansas State. Intensive English training for students who have IELTS scores below 6.1 is also available through the ELP. For information and application to this program write to Director, English Language Program, 205 Fairchild Hall, Kansas State University, Manhattan, Kansas 66506-1106; e-mail: elp@ksu.edu.

IELTS scores are valid for two years from the initial test date.

International Students

International applicants for admission to Kansas State University must meet the same academic standards for admission as those required of native students. In addition, international applicants holding nonimmigrant visas are required by U.S. immigration regulations to be enrolled in a full course of study. University regulations require that international students and their dependents (if they are with the student) purchase or be in possession of a medical insurance policy or equivalent coverage. Medical insurance can be purchased on the campus or from other independent agencies.

Applications from international students must be accompanied by an international cashier's check or money order in the amount of $55 payable to the Kansas State University Graduate School. Applications without this fee will not be processed. *PLEASE NOTE: If applying to graduate programs in the College of Architecture, Planning and Design or the College of Business, additional application fees apply. Refer to program websites for more information.*

A special orientation and advising program is conducted for new international students one week before the date of enrollment.

Graduate School Application: http://www.ksu.edu/grad/application/index.htm

Communications

Head:
Kristina Boone

Graduate Faculty:

Kristina Boone, Ph.D., Ohio State University.

Marcus Ashlock, Ph.D., Oklahoma State University.

Stephen Brown, Ph.D., SUNY.

Lawrence Erpelding, (Emeritus) Ph.D., Kansas State University.

Steven Glen Hill, Ph.D., Texas A&M University.

Roger Terry, Ph.D., Kansas State University.

The department offers no graduate degree.

The following courses may be taken for graduate credit in a minor field.

Agricultural Communications Courses

Undergraduate and graduate credit in minor field.

AGCOM 550. Internship in Agricultural Communications. (1-3) I, II, S. The intern works in a professional capacity in areas such as print journalism, electronic media, advertising, photography, and public relations. Student is supervised by a professional and a faculty member. One hour of credit for each four weeks of supervised work. Internship report and presentation required. Pr.: instructor permission.

AGCOM 712. Environmental Communication. (3) II, in even years. Combines theoretical discussions with practical experience regarding communication about environmental issues and provides introduction to natural and applied science topics related to the communications plan. Three hours lec. a week. Pr.: Senior Standing. (Cross-listed as MC 712.)

AGCOM 810. Agriscience Communication. (3) I. Written, visual, and oral communications for scientists. Attention is focused on literature reviews, scientific papers, graphics, poster presentations, and oral paper presentations. Grant applications, ethics, and communications with non-science audience are discussed. Three hours lecture per week. Pr.: Graduate standing and instructor permission.

For more information

Home Page: http://www.oznet.ksu.edu/xcom

Agricultural Economics

Program description | Admission | Master's requirements | PhD requirements | Research facilities | Financial support | Agricultural economics courses
Master's of Agribusiness Distance Program Description

Head
Bryan Schurle

Director of graduate studies
Sean Fox (on-campus)
Allen Featherstone (MAB)

Graduate Faculty:

Vincent Amanor-Boadu, Ph.D., University of Guelph, Ontario.

Andrew Barkley, Ph.D., University of Chicago.

G. A. Barnaby (Art), Ph.D., Texas A&M University.

David Barton, Ph.D., Purdue University.

Arlo W. Biere, Ph.D., University of California, Berkeley.

Michael Boland, Ph.D., Purdue University.

Robert O. Burton, Jr., Ph.D., Purdue University.

John M. Crespi, Ph.D., University of California at Davis.

Kevin C. Dhuyvetter, Ph.D., Kansas State University.

Allen M. Featherstone, Ph.D., Purdue University.

Barry Flinchbaugh, Ph.D., Purdue University.

John (Sean) Fox, Ph.D., Iowa State University.

Orlen Grunewald, Ph.D., University of Kentucky.

Rodney Jones, Ph.D., Virginia Polytechnic Institute and State University.

Terry Kastens, Ph.D., Kansas State University.

Michael Langemeier, Ph.D., Purdue University.

John Leatherman, Ph.D., University of Wisconsin-Madison.

James Mintert, Ph.D., University of Missouri-Columbia.

David W. Norman, Ph.D., Oregon State University.

Daniel O'Brien, Ph.D., Iowa State University.

Hikaru H. Peterson, Ph.D., Cornell University.

Jeff M. Peterson, Ph.D., Cornell University.

Alexander Saak, Ph.D., Iowa State University.

Ted Schroeder, Ph.D., Iowa State University.

Bryan W. Schurle, Ph.D., Ohio State University.

Jeffery Williams, Ph.D., Michigan State University.

Michael Woolverton, Ph.D., University of Missouri.

Tian Xia, Ph.D., University of California.

On-Campus Program description

The Department of Agricultural Economics offers on-campus studies leading to a Master of Science (M.S.) or Doctor of Philosophy (Ph.D.) degree. The Ph.D. degree is joint with the Department of Economics. The M.S. and Ph.D. programs stress a strong foundation in economic theory and quantitative analysis, and their application in agricultural and rural issues.

The Agricultural Economics program seeks to achieve excellence in teaching, research, and Extension through the development of the individual student. lum is deliberately broad in order to build a framework of fundamental information so that new findings and concepts can be assimilated as they arise in the rapidly changing field of agricultural economics. In addition, the programs are designed to provide graduate students a core body of common knowledge through a number of required courses and limited electives.

Admission

M.S. and Ph.D. Degrees

Most incoming students have degrees in agricultural economics, economics, business, or some other field in agriculture. Some students have degrees in other social sciences, statistics, computer science, or engineering. The most important consideration for applicants is an interest in continued study and intensive research in some area of agricultural, resource or environmental economics with the minimum prerequisites for admission to the program. A strong background in economics and quantitative methods are the most important requirements.

Application for admission to the program in a fall semester should be made in the preceding winter or early spring.

Admission to graduate study in agricultural economics requires a minimum grade point average of 3.0 (B average) in the last two years of undergraduate work that earned a bachelors degree. Undergraduate subject matter requirements are as follows:

a. Two courses in the principles of economics

b. A course in intermediate microeconomics or production economics and agricultural market structures

c. A course in intermediate macroeconomic theory

d. An additional course in agricultural economics or economics

e. A course in statistics

f. A course in calculus

Students whose undergraduate academic performance and program of study warrant admission, although some of the subject matter requirements are not met, may be admitted provisionally. Students admitted provisionally will make up these deficiencies by enrolling in appropriate courses for undergraduate credit.

Master of Science degree requirements

The degrees require that all course work must be at the 700 level or higher. M.S. students in the Department of Agricultural Economics may pursue a M.S. in Agricultural Economics or Agribusiness.

M.S. in Agricultural Economics

Thesis option
The thesis option will include a minimum of 30 semester hours of graduate credit including 24 hours of course work and a Master's thesis for which 6 semester credit hours are given. The 30-credit-hour program with thesis is structured to prepare students for careers in research, analysis, or to continue towards a Ph.D. program. The course requirements are:

Economic Theory			**6**
ECON 720	Microeconomics Theory	3	
	and		
ECON 805	Income and Employment Theory	3	
	or		
ECON 823	Advanced International Economics	3	
	or		
AGEC 810	Price and Income Policies for Agriculture	3	
	or		
AGEC 840	International Markets and International Trade	3	
Agricultural Economic Theory. Select two courses from**:**			**6**
AGEC 805	Agricultural Marketing	3	
AGEC 823	Production Economics II	3	

AGEC 880	Agribusiness Industry Structures	3

Quantitative Methods			**6**
STAT 706	Basic Elements of Statistical Theory	3	
ECON 830	Econometrics I	3	

Electives	
AGEC elective (700 level or higher)	**3**
General elective (700 level or higher)	**3**

Thesis hours	**6**
AGEC 899 Thesis	

Total credit hours	**30**

No-thesis option

The no-thesis option will include a minimum of 36 semester hours of coursework and a final examination. The 36 credit hour no-thesis allows more flexibility to plan and prepare students for careers in public service, commerce, and industry. The course requirements are:

Economic Theory			**6**
ECON 720	Microeconomics Theory	3	
	and		
ECON 805	Income and Employment Theory	3	
	or		
ECON 823	Advanced International Economics	3	
	or		
AGEC 810	Price and Income Policies for Agriculture	3	
	or		
AGEC 840	International Markets and International Trade	3	

Agricultural Economic Theory. Select two courses from:			**6**
AGEC 805	Agricultural Marketing	3	
AGEC 823	Production Economics II	3	
AGEC 880	Agribusiness Industry Structures	3	

Quantitative Methods			**9**
STAT 706	Basic Elements of Statistical Theory	3	
ECON 712	Linear Programming Applications in Agricultural Economics	3	
ECON 830	Econometrics I	3	

Agricultural economics electives (700 level or higher)	**9**
***Agricultural economics or business electives** (700 level or higher)	**6**

Total credit hours	**36**

*Note: 3 hours of agricultural economics and 6 hours of the agricultural economics or business electives may be substituted for by a specialty consisting of 9 hours at the 700 level or above.

The candidate is required to submit a report and take a final oral examination covering a report and the subject matter in the major field and the minor field when a minor is selected.

M.S. Agribusiness Economics

This on-campus Master of Science degree program is geared for students who wish to achieve the next level in the agribusiness industry or academia.

Agribusiness Economics	**12**

ECON 720	Microeconomic Theory	3
AGEC 880	Agribusiness Industry Structures	3
AGEC 890	Advanced Food and Agribusiness Management	3
FINAN 815	Managerial Finance I	3

Quantitative Methods			**9**
STAT 706	Basic Elements of Statistical Theory	3	
AGEC 712	Optimization Techniques in Agricultural Economics	3	
ECON 830	Econometrics I	3	

AG Economics, Finance, Marketing, Management (select one):			**3**
AGEC 800	or higher level course not for other requirements	3	
FINAN 820	Advanced International Financial Management	3	
FINAN 860	Managerial Finance II	3	
MKTG 810	Marketing Concepts and Research	3	
MKTG 842	Advanced Marketing Research	3	
MKTG 860	Advanced International Business	3	
MANGT 810	Operations Management and Analysis	3	
MANGT 825	Advanced Business Law	3	
MANGT 840	Advanced Entrepreneurship	3	

Thesis Research			**6**
AGEC 899	Agricultural Economics Master's Research	6	

Total Credit Hours	**30**

Ph.D. degree requirements

The Ph.D. program is offered in cooperation with the Department of Economics. A Ph.D. program of study must have at least 60 credit hours of graduate course work (the credit received for writing an M.S. thesis or report may be used to help meet the 60 credit hour requirements), and 30 hours of research credits are required for the Ph.D. dissertation. A minimum of 24 credit hours of course work on the program of study must be taken at Kansas State University.

The program of study in agricultural economics shall include course work in four branches: economic research methodology, general agricultural economics, and a specialty branch in agricultural economics. The student may choose to list a minor field in addition.

Economic Theory			**18**
ECON 940	Advanced Microeconomic Theory I	3	
ECON 945	Advanced Microeconomic Theory II	3	
ECON 805	Income and Employment Theory I	3	
ECON 905	Income and Employment Theory II	3	
ECON 735	Mathematical Econometrics	3	

and select one of the following:
ECON 801, ECON 810, ECON 823, ECON 832, ECON 860,
ECON 890, ECON 915, ECON 920, ECON 925, ECON 927,
ECON 947, ECON 948, ECON 955, or ECON 981

Research Methodology			**12**
STAT 770	Theory of Statistics I	3	
	or		
STAT 771	Theory of Statistics II	3	
	or		
ECON 890	Time Series Econometrics	3	
	or		
ECON 890	Microeconomics Panel Data Econometrics	3	
	and		
ECON 930	Econometrics II	3	
AGEC 901	Research Methods in Economics	3	

AGEC 936	Quantitative Topics in Agricultural Economics	3

Required Agricultural Economics Courses			**6**
AGEC 905	Agricultural Demand and Price Analysis	3	
AGEC 923	Economics of Agricultural Production	3	

General Electives* (700 level or higher) **24**
*Includes the following M.S. level course prerequisites:

ECON 830	Econometrics I	3
AGEC 712	Optimization Techniques for Agricultural Economics	3
AGEC 823	Production Economics II	3
AGEC 805	Agricultural Marketing	3
STAT 706	Basic Elements of Statistical Theory	3

Total Course Hours	**60**
Dissertation Hours	**30**
Total Credit Hours	**90**

After completing 12 hours of microeconomics and macroeconomics, the student takes qualifying examinations in microeconomic and macroeconomic theory. After completing all course work on the program of study, the student takes comprehensive examinations in general agricultural economics and a specialty field. After passing the comprehensive examinations the student is admitted to candidacy.

The candidate prepares a written dissertation proposal including an identification of the problem, a review of relevant literature, and an outline of proposed research procedures to be used. The candidate must satisfactorily defend the proposal in a seminar at least six months before the final Ph.D. oral in which the candidate defends the dissertation.

Research facilities

The Department of Agricultural Economics is well equipped for research in agricultural economics. Computing equipment and support staff are available to assist researchers. Interdisciplinary research is encouraged and facilitated.

Graduate programs and research in departments such as economics, statistics, mathematics, computer science, industrial engineering, business administration and the production departments in agriculture provide support for research and graduate education in agricultural economics.

Financial support

The Department of Agricultural Economics financially supports graduate study and development in numerous ways. Students enrolled in the M.S. and Ph.D. programs are eligible for graduate research, teaching, and extension assistantships. Departmental faculty regularly secure research and extension grants from federal agencies, state agencies, commodity commissions, research foundations, and private industry. In addition, the Department routinely supports many teaching and research assistantships. The Department has a successful record of securing USDA National Needs Fellowships and other graduate student fellowships and scholarships. Graduate assistantships are usually on a five-tenths basis. Stipends vary depending upon time worked and level of graduate education. Graduate assistants and instructors are regarded as Kansas residents for enrollment fee purposes.

Agricultural economics courses

Undergraduate and graduate credit in minor field

AGEC 500. Production Economics. (3) I, II. Application of economic principles to problems of agricultural production. Analysis of consumer demand for agricultural products and input and output decisions of the agricultural firm. AGEC 505 is a continuation of this course and they are intended to be taken in consecutive semesters. Three hours rec. a week. Pr.: AGEC 120 or ECON 120 and MATH 205.

AGEC 505. Agricultural Market Structures. (3) I, II. Theory and application of economic principles to marketing problems in agriculture. Pricing of agricultural output and productive services under various forms of economic organization and competition; regional specialization, location, and trade; determinants of economic change; evaluation of economic and consumer welfare. Three hours rec. a week. Pr.: AGEC 500.

AGEC 513. Agricultural Finance. (3) I, II. Analysis of capital investments, interpretation of financial statements, capital structure considerations for agricultural firms, and farm real estate pricing. Three hours rec. a week. Pr.: AGEC 308 or AGEC 318 and ACCTG 231.

AGEC 515. Food and Agribusiness Marketing. (3) I, II. A broad view of marketing; food markets and consumption; marketing functions and institutions; prices, competition, and marketing costs; functional and organizational issues; food marketing regulations; commodity marketing. Three hours rec. a week. Pr.: AGEC 120 or ECON 120.

AGEC 516. Agricultural Law and Economics. (3) I, II. The legal framework for decision making by farm firms, families, and individuals; liabilities, real and personal property, contracts, uniform commercial code, organization of farm firms, intergeneration property transfers, water law, fence law, federal and state regulatory power, insurance, income tax, and social security. Three hours rec. a week. Pr.: ECON 110 or AGEC 120 or ECON 120 and junior standing.

AGEC 520. Market Fundamentals and Futures/Options Trading. (3) I. This is an experiential course in the trading of commodity futures and options. Attention is focused on the study of market price determination, the implications of market efficiency notions, and on actual trading of futures and options. Students invest in a commodity educational trading fund. Class approves recommendations by vote, orders are placed with a broker, and the class monitors open trades. The pool balance at the end of the semester is redistributed to students. Pr.: AGEC 420.

AGEC 525. Natural Resource Economics. (3) I. Emphasis on the application of demand, supply, and price concepts in the study of natural resource use, policies, and management. Interdependence between environmental quality and economic actions are examined through discussion of property rights, economic incentives, externalities, and economic components of environmental policies. Pr.: AGEC 120 or ECON 110 or ECON 120.

AGEC 541. Agricultural Economics and Agribusiness Seminar. (Var.). Seminars of special interest will be offered upon sufficient demand in selected areas relating to agricultural economics and agribusiness.

AGEC 570. Food Manufacturing, Distribution and Retailing. (3) II. Advanced study of the economic and business aspects of the food industry from processing to distribution to retailing. Emerging trends in nutrition, food consumption, food safety and supply chain arrangements along with management and marketing issues in the food industry will be studied. Three hours rec. a week. Pr.: AGEC 318 or MANGT 420 and AGEC 515 or MKTG 400.

AGEC 590. Agricultural Economics and Agribusiness Honors Problems. (2) I, II, S. Problems course for College of Agriculture honors projects. Pr.: College of Agriculture honors program participant and consent of honors project advisor.

AGEC 598. Farm Management Strategies. (3) I. A study of management concepts, tools, and decision strategies applied to farm firms. Alternative measures of farm business performances, as well as planning and evaluation techniques for an uncertain environment, are examined. Pr.: AGEC 308 or AGEC 318, AGEC 500 and AGEC 513 or FINAN 450.

AGEC 599. Food and Agribusiness Management Strategies. (3) II. This course integrates the risk, production, marketing, and financial management strategies of agribusiness firms. Special attention is given to the application of economic theory and quantitative analysis to business decision-making processes. In addition to case studies, a variety of analytical techniques will focus on both markets and firms involved in the production and marketing of food commodities. Three hours lec. a week. Pr.: AGEC 318, AGEC 500, AGEC 513 or FINAN 450. Rec. Pr.: AGEC 515.

Graduate credit

AGEC 605. Price Analysis and Forecasting. (3). II. The analysis of selected agricultural prices; application of regression analysis to price analysis, the role of futures markets and market efficiency, optimal hedging strategies, commodity option pricing, and price forecasting. Three hours rec. a week. Pr.: STAT 325 or 351; AGEC 490; AGEC 505 or ECON 520.

AGEC 610. Current Agriculture and Natural Resource Policy Issues. (3) II. Current issues in agricultural and natural resource policy from divergent perspectives. Classroom discussion, debate, writing assignments, and student presentations. Current events are analyzed and synthesized from both economic and noneconomic perspectives. Topics may include environmental issues, international agricultural development, the politics of farm programs, and the relationship between technology, agriculture, and society. Pr.: AGEC 505 and either AGEC 525 or AGEC 410.

AGEC 623. International Agricultural Trade. (3) II. Applied economics of agricultural trade. Emphasis on why trade occurs, current agricultural trade patterns, the effects of agricultural policy on trade, and the institutions of trade. Pr.: AGEC 505.

AGEC 631. Principles of Transportation. (3) II. Examines the transportation market from the shippers' point of view by examining the impact of transportation on business firm decisions such as location, markets, and prices. Also covers the costs, prices, and service characteristics of railroads, motor carriers, water carriers, oil pipelines, and airlines. The role and impact of government in the transportation market is examined from both a promotion and regulation perspective. Pr.: ECON 120 or AGEC 120.

AGEC 632. Agribusiness Logistics. (3) I. Planning for efficient use of transportation, storage and processing facilities in the handling of raw materials and products for agribusiness firms, controlling shipments and inventory in coordination with warehouse and handling operations, and scientific selection of routes, schedules, and equipment. Pr.: AGEC 120 or ECON 120 and junior standing.

AGEC 641. Agricultural Economics and Agribusiness Seminar. (Var.) Seminars of special interest will be offered upon sufficient demand in

selected areas relating to agricultural economics and agribusinesses. Pr.: Junior standing and consent of the instructor.

AGEC 680. Risk Management. (3) II. Analytical concepts and quantitative tools to make better decisions in risky situations. Identifying various types of risk an operation faces, measuring the degree of risk, and exploring ways to manage risk. Includes portfolio analysis, futures and options, contracting, and insurance. Emphasis on computer applications. Topics are focused on agriculture but are applicable to other industries and household decisions. Pr.: AGEC 420, AGEC 513, and a course in statistics.

AGEC 710. Comparative Food and Agriculture Systems. (3) S. This course provides a comparative analysis of the business and economic situation of the food and agriculture sector around the world. The course will cover the European Union, the Former Soviet Union, MERCORSUR, and Southeast Asia. The course will focus briefly on the historical development, the current situation, and the future outlook of the food and agriculture sector. Upon completion of this course, students will be able to evaluate the comparative advantage of the United States in the production of food and fiber. Pr.: AGEC 120.

AGEC 712. Optimization Techniques for Agricultural Economics. (3) II. Application of optimization techniques including linear programming and nonlinear programming for research and decision analysis in agricultural economics. Pr.: AGEC 500 or graduate standing.

AGEC 750. Agricultural Economics and Agribusiness Problems. (Var.) I, II, S. Pr.: Junior standing and consent of the instructor.

AGEC 805. Agricultural Marketing. (3) II, S. The study of the demand for supply of agricultural commodities, alternative market structures, the dynamics of marketing institutions that affect market structures, governmental intervention in agricultural markets, futures markets in agriculture, and international agricultural commodities trade. Three hours rec. a week. Pr.: AGEC 505 or ECON 520.

AGEC 810. Price and Income Policies for Agriculture. (3) I. A study of the effects of government price, regulatory, and tax policies on (1) farm income levels and variability, (2) farm productivity and output, (3) economic structure of farming, and (4) performance of agricultural markets. Three hours. rec. a week. Pr.: AGEC 500 or ECON 520, ECON 510.

AGEC 812. Advanced Farm Economics. (3) I. A study of managerial techniques and processes applied to farm firms involved in production and marketing of agricultural products. This study includes managerial planning, evaluation, and control of farm businesses. Three hours rec. a week. Pr.: AGEC 308.

AGEC 815. International Agricultural Development. (3) II. Even years. To study the principles of economic development when applied to the development of the agricultural sector. This includes the examination of national and international strategies and policies that inhibit and/or encourage the development of the agricultural sectors in low income countries. Individual study is encouraged to meet student interest: (a) in understanding the process and including an appreciation of the interdependence between low and high income countries and (b) receiving an introduction to agricultural project analysis. Pr..: AGEC 500 or ECON 520.

AGEC 816. Farming Systems Approach to Sustainable Development. (1) II. To examine the farming systems approach to sustainable development in terms of its evolution, the methodologies currently used in its implementation, and challenges it faces in the future in terms of facilitating a farmer participatory or client oriented/empowered approach to appropriate technology generation, dissemination and extension, and to sustainable development. One hour lec. a week. Pr.: AGEC 120 or ECON 120.

AGEC 823. Production Economics II. (3) I. Economic theories of choice under conditions of imperfect knowledge (i.e. under risk and uncertainty) and the application of these theories to production decisions. Pr.: AGEC 500 or consent of instructor.

AGEC 825. Natural Resource Policy. (3) I. The economic tolls of welfare analysis, non-market valuation, and dynamics are used to evaluate natural resource use, natural resource policies, and conflicts among users, conservationists, and preservationists. Pr.: AGEC 505 or ECON 520; and MATH 205.

AGEC 831. Agricultural Marketing Management and Analysis. (Var.) I, II, S. Marketing problems of firms that market or process farm products or handle farm supplies, with special emphasis on tools of analysis for solving marketing problems. Supervision if students' internship programs. Pr.: Consent of instructor.

AGEC 840. International Markets and Agricultural Trade. (3) II. Pure and monetary theories of international agricultural trade. International trade policies and trade negotiations are evaluated in detail. Special consideration is given to the international trade policy influences on agriculture. The international agricultural trade arena, imperfect competition, and exchange rate economics are discussed. Institutions are policies of major trading nations are explored. Three hours. rec. a week. Pr.: ECON 720.

AGEC 880. Agribusiness Industry Structures. (3) II. Applied industrial organization and competitive relationships in agriculture markets. Emphasis on the role of bargaining power, vertical coordination and integration, contracting, and other forms of vertical control. Product differentiation, branding and advertising of commodities and anti-trust laws. Three hours rec. a week. Pr.:ECON 720, ECON 830 (or concurrent enrollment).

AGEC 890. Advanced Food and Agribusiness Management. (3) I. The objective of the course is to demonstrate how economic concepts underscore strategic management principles. Applications to food and agribusiness firms are used to show how managers and firms function when the assumptions of perfect competition are relaxed. Students will complete a market analysis study as part of the course requirements. Pr.: AGEC 599.

AGEC 898. Agricultural Economics Master's Report. (Var.) I, II, S. Master's report.

AGEC 899. Agricultural Economics Master's Research. (Var.) I, II, S. Research for master's thesis.

AGEC 901. Research Methods in Economics. (3) II. A study of scientific methodology in economic research including the history of various debates regarding methodology in economics. The course also deals with problem definitions, formulation of hypotheses, listing of hypotheses, and presentation of research results. Three hours rec. a week. Pr.: Graduate standing.

AGEC 905. Agricultural Demand and Commodity Marketing. (3) II. A study of the demand for and supply of farm products, price information and markets, the causes of price variations and instability, the dynamic analysis of agricultural prices. Three hours rec. a week. Pr.: AGEC 805, ECON 930, ECON 945.

AGEC 922. Seminar in Agricultural Marketing. (Var.) On sufficient demand. Analysis of special problems and current developments faced by firms and agencies associated with the marketing process for agricultural products. Pr.: Consent of instructor.

AGEC 923. Economics of Agricultural Production. (3) I. A study of agricultural production response to prices; methods of estimating supply response and price expectations; the effects of government and institutions on agricultural supply and the role of risk, technical change, and the number and size of farms on agricultural supply. Three hours rec. a week. Pr.: ECON 830, AGEC 823, ECON 945.

AGEC 925. Advanced Resource and Environmental Economics. (3) II. Dynamics analysis of natural resource and environmental problems, including the optimal extraction of nonrenewable resources, optimal management of renewable resources, and the optimal regulation of stock pollutants. Three hour rec. a week. Pr.:ECON 905, ECON 945.

AGEC 936. Quantitative Topics in Agricultural Economics. (3) II. A study of recent developments reported in the literature concerning quantitative methods of analysis in agricultural economics and economics. The study will include assigned projects to apply selected techniques of analysis. Three hours rec a week. Pr.: ECON 930.

AGEC 940. Seminar in Agricultural Economics. (Var.) On sufficient demand. Problems and current developments in agricultural economics. Pr.: Consent of instructor.

AGEC 955. Independent Study of Advanced Topics in Agricultural Economics. (Var.) I, II, S. Advanced independent study of an agricultural economics topic based upon a student proposal approved by the student's supervisory committee. Pr.: Completion of 24 credits of graduate study.

AGEC 999. Agricultural Economics Ph.D. Research. (Var.) I, II, S. Research for Ph.D. dissertation.

The following courses developed for the Masters of Agribusiness are not allowed on a student's program of study: AGEC 700, AGEC 701, AGEC 713, AGEC 720, AGEC 730, AGEC 760, AGEC 761, and AGEC 770.

For more information

For additional information and application materials please contact:
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Master's of Agribusiness Distance Program Description

An off-campus distance Master's of Agribusiness (M.A.B.) degree is offered for working professionals. The M.A.B. program emphasizes the application of economic and management concepts to problems facing the agribusiness professional. The Master in Agribusiness program is designed for off-campus students who wish to continue full-time employment while pursuing the post-baccalaureate degree. The M.A.B. program emphasizes the study of economic and agribusiness management concepts and their application to food and agricultural business situations. The curriculum focuses on current issues facing agribusiness managers while providing tools for making better decisions in the areas of risk management, logistics, financial management, strategic planning, agricultural resource, and trade policy, marketing, human resource management, and institutional changes within agriculture. Two one-week campus sessions are required during each of the first two years of the program.

Students enrolling in the Master of Agribusiness program must have at least two years of post-baccalaureate professional work experience in agribusiness or other organizations in the food and agricultural sector. Students admitted to the Master of Agribusiness program must meet the following subject matter requirements:

1. One course in macroeconomics, introduction to agricultural economics or principles of microeconomics
2. Proficiency in microcomputer operations

3. One course in accounting
4. One course in statistics

Application deadline is October 15th to begin the program in January. Applicants with grades in the final two years of and undergraduate program that averages below 3.0 may, in exceptional cases, be considered for probational admission. Applicants admitted on a probational basis must acquire regular standing by doing satisfactory graduate work during the first semester of graduate study.

Master in Agribusiness degree requirements

The Master in Agribusiness degree requires the completion of 42 credit hours. The curriculum consists of a set of integrated management and economics topics, including 27 hours of agribusiness courses, 9 hours of business courses, and 6 hours of thesis. Students enter the program as a cohort and pace through the program together over a 30 month period.

Course requirements for the Master in Agribusiness are:

Agribusiness Courses		**27**
AGEC 700	Applied Agribusiness Economics	
AGEC 701	Computer Decision Tools for Agribusiness	
AGEC 713	Agribusiness Financial Management	
AGEC 720	Agribusiness Risk Management	
AGEC 730	Applied Agribusiness Logistics	
AGEC 740	Seminar in Agricultural Economics Analysis	
AGEC 760	Applied Econometric Analysis	
AGEC 761	Optimization Techniques for Agribusiness	
AGEC 770	International Agribusiness and Policy Analysis	
AGEC 890	Advanced Food and Agribusiness Management	
Business Courses		**9**
MKTG 810	Marketing Concepts and Research	
MANGT 820	Behavioral Management Theory	
	Business Elective	
Thesis Hours		**6**
AGEC 899	Master's Thesis	
Total credit hours		**42**

The thesis involves the application of concepts and quantitative tools learned in course work to a firm-level agribusiness problem. The candidate is expected to take a final oral examination for the purpose of defending the thesis.

AGEC 700. Applied Agribusiness Economics. (3) S. Applications of economic principles to problems of agricultural production and agribusinesses. Demand theory and economic forecasting will be used to examine changes in demand and business trends. Cost minimization and profit maximization will be used to examine firm and market issues. Pr.: MATH 100, ECON 120 or AGEC 120.

AGEC 701. Introduction to Computer Decision Tools for Agribusiness. (1) II. Development of decision tools for agribusiness using spreadsheets. Topics include internet as a data source, budget development and analysis, financial calculations, regression, search techniques, and optimization. Pr.: CIS 110.

AGEC 710. Comparative Food and Agriculture Systems. (3) S. This course provides a comparative analysis of the business and economic situation of the food and agriculture sector around the world. The course will cover the European Union, the Former Soviet Union, MERCORSUR, and Southeast Asia. The course will focus briefly on the historical development, the current situation, and the future outlook of the food and agriculture sector. Upon completion of this course, students will be able to evaluate the comparative advantage of the United States in the production of food and fiber. Pr.: AGEC 120.

AGEC 713. Agribusiness Financial Management. (3) II. This course covers financial management, long-term investment analysis, the performance of alternative investments, and the theory of efficient markets. Topics covered include comparative financial analysis, short-term budgeting, and capital budgeting. Applications include agribusiness decision making and project analysis. Pr.: ACCTG 231, AGEC 513.

AGEC 720. Agribusiness Risk Management. (3) I. Various forms of risk inherent to firms operating in agricultural and food product markets are explored. Risk management techniques including diversification, insurance, forward contracting, hedging and options are examined through applied problems with the use of simulation. Emphasis is placed on managing risk associated with input prices, output prices, enterprise organization and financial instruments. Pr.: AGEC 713 and AGEC 761.

AGEC 730. Applied Agribusiness Logistics. (3) II. A study of agribusiness logistics and the fundamental concepts underpinning logistical decisions and their impact on a firm's sustainability. Topics include supply chain management, transportation and storage, contracting and out sourcing, strategic logistic planning, network analysis, and B2B e-commerce in food and agriculture. Focus will be on agribusiness logistics issues

in grain and grain-based food supply chains and in the livestock and meat supply chains, including global logistics. Pr.: AGEC 120 or ECON 120, and AGEC 505.

AGEC 740. Seminar in Agricultural Economics Analysis. (Var.) Seminar on methods of economic analysis will be offered upon sufficient demand. Pr.: Consent of instructor.

AGEC 760. Applied Econometric Analysis. (3) II. Use of econometrics to enhance agribusiness decision making is the focus. Concepts of simple and multiple regression and limited dependent variable models are presented. Econometric issues of functional form, relevant variables, predictive performance, and model diagnostics will be examined. Numerous applications of techniques to agribusiness problems are used. Pr.: STAT 330 and AGEC 701.

AGEC 761. Optimization Techniques for Agribusiness. (2) I. This course is an introduction to optimization techniques designed to provide quantitative support for agribusiness decision making. Upon completion of this course, students will be able to construct and evaluate optimization models useful for evaluating linear problems, integer problems, and nonlinear program. Pr.: STAT 330 and AGEC 701.

AGEC 770. International Agribusiness and Policy Analysis. (3) I. Policies affecting agribusiness firms will be examined. These topics may include U.S. agricultural policies, fiscal and monetary policies, international trade agreements, environmental issues, and current policies influencing agribusiness firms. Pr.: ECON 110 and AGEC 701.

For additional information and application materials please contact:
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Agronomy

Program objectives | Facilities and equipment | Admission | Agronomy courses | More information

Interim Department Head:
Gary Pierzynski

Director of graduate studies:
Bill Schapaugh

Graduate Faculty:

R. M. Aiken, Ph.D., Michigan State University.

Kassim Al-Khatib, Ph.D., Kansas State University.

Telmo Amado, (Adjunct) Ph.D., Auburn University.

Guihua Bai, (Adjunct) Ph.D., Purdue University.

Scott R. Bean, (Adjunct) Ph.D., Kansas State University.

Gina Brown-Guedira, (Adjunct) Ph.D., Kansas State University.

D. D. Buchholz, Ph.D., Kansas State University.

Thomas Stanton Cox, (Adjunct) Ph.D., Iowa State University.

P. I. Coyne, Ph.D., Utah State University.

Randall Currie, Ph.D., Texas A&M.

Dan Devlin, Ph.D., Washington State University.

Johanna (Anita) Dille, Ph.D., University of Nebraska.

W. H. Fick, Ph.D., Texas Tech University.

Dale Fjell, Ph.D., Kansas State University.

A. K. Fritz, Ph.D., Kansas State University.

J. O. Fritz, Ph.D., University of Illinois.

W. B. Gordon, Ph.D., South Dakota State University.

L. J. Hagen, (Adjunct) Ph.D., Kansas State University.

J. M. Ham, Ph.D., Texas A&M University.

W. L. Hargrove, Ph.D., University of Kentucky.

K. R. Harmoney, Ph.D., Iowa State University.

Johnathon Holman, Ph.D., University of Idaho.

K. A. Janssen, Ph.D., Michigan State University.

M. B. Kirkham, Ph.D., University of Wisconsin.

G. J. Kluitenberg, Ph.D., Iowa State University.

K. D. Kofoid, Ph.D., University of Nebraska.

P. A. Kulakow, Ph.D., University of California, Davis.

D.F. Leikam, Ph.D., Kansas State University.

G. H. Liang, Ph.D., University of Wisconsin.

L. D. Maddux, Ph.D., University of Nebraska.

T. J. Martin, Ph.D., Michigan State University.

V. L. Martin, Ph.D., Ohio State University.

K. A. McVay, Ph.D., University of Georgia.

D. B. Mengel, Ph.D., Purdue University.

Nathan Nelson, Ph.D., North Carolina State University.

B. L. S. Olson, (Adjunct) Ph.D., Kansas State University.

C. E. Owensby, Ph.D., Kansas State University.

D. E. Peterson, Ph.D., North Dakota State University.

G. M. Pierzynski, Ph.D., The Ohio State University.

G. L. Posler, Ph.D., Iowa State University.

P.V. Vara Prasad, Ph.D., University of Reading.

M. D. Ransom, Ph.D., The Ohio State University.

D. L. Regehr, Ph.D., University of Illinois.

C. W. Rice, Ph.D., University of Kentucky.

C. L. Rife, Ph.D., Kansas State University.

Z. Ristic, Ph.D., University of Alberta.

Kraig Roozeboom, Ph.D., Kansas State University.

W. T. Schapaugh, Jr., Ph.D., Purdue University.

A. J. Schlegel, Ph.D., Purdue University.

John P. Schmidt, Ph.D., North Carolina State University.

Rollin Sears, (Adjunct) Ph.D., Oregon State University.

J. P. Shroyer, Ph.D., Iowa State University.

E. L. Skidmore, (Adjunct) Ph.D., Oklahoma State University.

Scott Staggenborg, (Extension) Ph.D., Texas Tech University.

P. W. Stahlman, Ph.D., University of Wyoming.

L. R. Stone, Ph.D., South Dakota State University.

D. W. Sweeny, Ph.D., University of Florida.

S. J. Thien, Ph.D., Purdue University.

C. R. Thompson, Ph.D., University of Idaho.

Michael Tilley, (Adjunct) Ph.D., Kansas State University.

Mitchell R. Tuinstra, Ph.D., Purdue University.

M. van Ginkel, (Adjunct) Ph.D., Montana State University.

S. M. Welch, Ph.D., Michigan State University.

D. A. Whitney, Ph.D., Iowa State University.

Lori Wiles, (Adjunct) Ph.D., North Carolina State University.

Jianming Yu, Ph.D., University of Minnesota.

Program objectives

The Department of Agronomy offers courses of study leading to degrees of master of science and doctor of philosophy in many diverse crop, soil, and range science specializations. These study areas include: agricultural climatology, crop-climate modeling, crop ecology, crop physiology, crop production, cytogenetics, environmental chemistry, environmental physics, forage management, plant breeding, plant genetics, range science, soil biochemistry, soil fertility, soil genesis and classification, soil microbiology, soil-plant-water relations, soil physics/biophysics, soil/water chemistry, soil/water conservation, soil/water management, and weed science.

The department consists of 55 graduate faculty members, about 65 graduate students, and several postdoctoral fellows and visiting scientists. The faculty are dedicated to providing students individualized training needed to address the many challenges facing agriculture.

Graduate programs are designed to accommodate the interest and objectives of the student. These programs require students to conduct original research. Students receive thorough training in investigative techniques by using modern facilities and through experienced guidance by faculty. Critical parts of the process involve the preparation of research findings in the form of a thesis or dissertation and their publication in a scientific journal. Students are encouraged to develop independent thought as well as a broad spectrum of knowledge. Flexibility in graduate training is possible because of the large number of faculty and the diversity of their research interests.

Facilities and equipment

The Department of Agronomy laboratories are well equipped with modern instrumentation for research in the many areas of specialization. Controlled environment chambers and greenhouses are available. Excellent dryland and irrigated field research facilities are available at the agronomy farms near Manhattan, at seven agronomy experiment fields, and at four Agricultural Research Centers located throughout the state. A large inventory of field, plot and laboratory equipment enable graduate students to plan and implement complex research programs which address challenges facing agriculture. Vehicle support provides student access to the diverse cropping and grazing systems present in Kansas. The Rannells Range Research Unit and the Konza Prairie enable native range investigations to be conducted at Manhattan. Special facilities which can be utilized by graduate students include the USDA Wind Erosion Lab, USDA Grain Marketing Lab, Agronomy Soil Testing Lab, and other service labs. Reference materials from the University Library are complemented by the Agronomy Graduate Library, housed within the department. Graduate students benefit from excellent computer and networking facilities through the mainframe computer center. State-of-the-art personal computers are available for use by all students.

Admission

Incoming students commonly have a bachelor or master of science degree in agriculture, agronomy, crop science, soil science, or a related physical or life science. The most important considerations for applicants are an interest in continued study and intensive research in a specific area of agronomy along with prerequisites for admission to the program. Preparation in the biological, physical, and mathematical sciences is considered fundamental for all areas of graduate study in agronomy. Course requirements for each student are determined by a supervisory committee with consideration given to the student's qualifications and professional interests and goals.

Stipends

Research and teaching assistantships and research fellowships are available to graduate students in the Department of Agronomy. A majority of the students enrolled in Agronomy are supported during their graduate study. Nearly 50 percent of graduate students are appointed to a half-time graduate research assistantship. Stipends are competitive with leading universities. Graduate teaching and research assistants are assessed the in-state rate for tuition and fees. Graduate teaching assistants receive a substantial reduction of in-state tuition. An excellent graduate scholarship program provides additional assistance to several graduate students each year.

Application procedure

Applications are accepted at any time. However, students desiring admission and consideration for an assistantship for the fall semester are urged to submit their applications early, preferably before February 1, to enhance their chances for admission and financial support. The completed application form, statement of objectives, transcripts, and letters of recommendation are used to determine qualifications for graduate work. GRE scores are not required.

Agronomy Courses

AGRON 501. Range Management. (3) I. Fundamental ecological principles of production, conservation, and use of grasslands. Application of these fundamental principles to management. Three hours rec. a week.

AGRON 515. Soil Genesis and Classification. (3) II. Factors and processes of soil formation, classification of soils according to soil taxonomy, and use of soil survey information. Practical field experience describing soil properties. Required field trips. Two hours rec. and three hours lab a week. Rec. Pr.: GEOL 100 or AGRON 305.

AGRON 550. Forage Management and Utilization. (3) II. Production and utilization of forage crops. Development of forage programs for

livestock production, including pasture and stored forages. Three hours rec. a week. Rec. Pr.: AGRON 220 and junior standing.

AGRON 551. Forage Management and Utilization Laboratory. (1) II. Identification of forage species, techniques for estimating forage quality, forage physiology, and field trips. One two-hour lab a week. Pr.: Completion of or conc. enrollment in AGRON 550.

AGRON 560. Field Identification of Range and Pasture Plants. (1) I, in odd years. Identification of range pasture plants through exposure to them in their natural environment.

AGRON 599. Agronomy- The Profession. (1). II. An overview of opportunities, responsibilities, and challenges for the professional agronomist. Discussion of current topics and important issues in crops and soils, range management, and soil and water resources.

AGRON 600. Crop Problems. (Var.) I, II, S. Studies may be chosen in: genetics, crop improvement, forages, ecology, weed control, plant physiology, or crop production.

AGRON 605. Soil and Environmental Chemistry. (3) II. A study of inorganic and organic chemistry of soils with a detailed examination of the solid, liquid, and gaseous phases. Includes discussions of mineral solubility, electrochemical and adsorption phenomena, acidity, salinity, and fertility. Emphasis is placed on the biogeochemical cycling of plant nutrients and important soil contaminants. Three hours of recitation a week. Rec. Pr.: AGRON 375 or 305 and CHM 230.

AGRON 610. Biotechnology. (3) I. The use of biotechnology and molecular genetic approaches in plant and animal sciences. Emphasis is on the use of molecular techniques for plant and animal improvement. Three hours lec. per week. Pr.: ASI 500. Same as PLPTH 610.

AGRON 615. Soil Problems. (Var.) I, II, S. Studies may be chosen in: chemistry, physics, conservation, fertility, genesis, morphology, or classification.

AGRON 630. Crop Improvement and Biotechnology. (3) II. Techniques in basic plant breeding and biotechnology used to genetically improve crops and procedures to increase, distribute, and maintain breeding stocks and varieties. Two lec. and one two-hour lab a week. Rec. Pr.: AGRON 220 and ASI 500.

AGRON 635. Soil Conservation and Management. (3) I. Principles, mechanics, and prediction of water and wind erosion. Influence of soil erosion on soil productivity and environmental quality. Conservation management technologies for erosion control and sustaining soil productivity. Legislation and land-use planning for soil conservation. Course requires microcomputer skills. Two hours rec. and 1 three-hour lab a week. Rec. Pr.: AGRON 305.

AGRON 640. Cropping Systems. (3) I. Principles for developing and managing cropping systems in the Great Plains for the efficient use of natural resources, primarily water. Emphasis on dryland cropping systems, management of crop rotations, and the plant/soil/environment interaction. Includes the efficient use of natural resources via an understanding of yield limiting factors, impact of crop rotations and cultural practices, climate, plant growth, and development. Three hours rec. a week. Rec. Pr.: AGRON 375

AGRON 645. Soil Microbiology. (3) I. The nature and function of soil microorganisms in the soil ecosystem. The role of soil microbial activity to soil organic matter, mineral transformations, plant nutrition, and environmental quality. Three hours rec. a week. Rec. Pr.: AGRON 305 or BIOL 455.

AGRON 646. Soil Microbiology Laboratory. (1) I. Discuss and perform laboratory procedures for enumerating soil microorganisms, quantifying soil biological activities, and nutrient cycling. Three hours lab a week. Pr.: AGRON 645 or conc. enrollment.

AGRON 650. Integrated Weed Management. (3) II. The development of weed management systems based on diagnosis of weed and crop problems, understanding crop-weed associations and interactions with the environment, and integrating weed control tactics such as chemical, biological, cultural, and mechanical practices into recommendations. Three hours of rec. per week. Pr. AGRON 330.

AGRON 655. Site Specific Agriculture. (3) II. Introduction to spatial analysis and management of agricultural and environmental resources using Geographic Information Systems (GIS) technology. Emphasis on collecting, displaying, and analyzing spatial or georeferenced soil, crop, or other land surface data. Two hours lecture, two hours lab, and one hour by appointment per week. Rec. Pr.: AGRON 220 and 305 and GEOG 508.

AGRON 660. Range Research Techniques. (2) I, in even years. Theory in rangeland sampling techniques including the proper number, shape, and size of plots. Methods for determination of plant biomass, cover, frequency, and density. Procedures for measurement of forage quality and utilization. Use of statistical techniques for sampling, analysis, and presentation of data. Meets during the first half of the semester. Three hours rec. and one two-hour lab a week. Rec. Pr.:AGRON 501 and STAT 320.

AGRON 670. Range Management Problems. (Var.) I, II. S.

AGRON 681. Range Ecology. (3) II, in even years. Application of ecological principles to range ecosystem management. Study of plant-soil-animal interactions with rangelands, and discussion of plant succession, environmental influences, and ecological concepts. Two hours rec. a week and one lab credit consisting of field trips to representative range areas. Rec. Pr.: AGRON 501 and BIOL 529.

AGRON 746. Physical Properties of Soils. (3) II. The properties of soils as affected by their physical environment, including water content, water potential, temperature, aeration, flocculation-dispersion, and soil compaction. Three hours of recitation a week. Rec. Pr.: AGRON 305.

AGRON 762. Range Grasses. (2) I, in even years. Field and laboratory study of range and pasture plants, with special emphasis on grasses and their distinguishing characteristics. One hour rec. and two hours lab a week.

AGRON 770. Plant Genetics. (3) I. Concepts and application of basic genetic principles in higher plants. Probability, linkage, chromosome aberrations, aneuploidy analysis, gene transfer in wide crosses, tissue culture and crop improvement, and genetics of disease resistance. Three hours rec. a week. Pr.: ASI 500.

AGRON 790. Range Management Planning. (3) II, in odd years. Inventory and analysis of rangeland resources and development of detailed management plan. Emphasizes range management principles and practices useful in maximizing production from rangelands. Two hours rec. a week and one lab credit including field trips to ranch operations. Rec. Pr.: AGRON 501.

AGRON 810. Agronomy Seminar. (1) I, II. A discussion of agronomic developments. Pr.: Graduate standing.

AGRON 816. Soil Physics. (3) II, in even years. A study of the transport of water, heat, gases, and solutes in soil. Examples are presented that related to both agricultural and engineering land uses. Emphasis is given to understanding how soil physical properties and soil management practices influence transport processes. Three hours rec. a week. Rec. Pr.: AGRON 746 and MATH 220.

AGRON 820. Plant Water Relations. (3) II. Properties of water, terminology in plant and soil water relations, environmental aspects of plant-water relations, soils as a water reservoir, water as a plant component, water movement through the plant, special aspects of transpiration, development and significance of internal water deficits, drought resistance mechanisms, water consumption by crop plants. Rec. Pr.: BIOL 500.

AGRON 822. Herbicide Interactions. (3) I, in even years. Herbicide fate in plants and soils. Physiological and biochemical processes in plants and soils as affected by herbicides. Molecular biochemistry of herbicide resistance that have developed in the field. Biotechnologically derived herbicide-resistant crops. Three hours rec. a week. Rec. Pr.: AGRON 650 or BIOL 500.

AGRON 824. Advanced Weed Ecology. (3) I, in odd years. A study of advanced weed ecology topics including weed/crop interference, weed growth and development, herbicide resistance, biological control, spatial and temporal population dynamics, and ecological approaches to weed management. Three lectures per week. Rec. Pr.: AGRON 650.

AGRON 825. Soil and Plant Analysis. (3) I, in odd years. Theories and procedures for the chemical analysis of soils and plant materials. Applications of analysis in soil fertility evaluations and in research work are discussed. One hour rec. and six hours lab a week. Rec. Pr.: CHM 271.

AGRON 830. Quantitative Genetics in Relation to Plant Breeding. (3) I, in odd years. Application of statistical principles to biological populations in relation to gene and zygotic frequencies, mating systems, and effects of mutation, migration, and selection on equilibrium populations; partitioning of genetic variance, concept and methods of estimating heritability, theoretical basis of heterosis, diallel cross and combining ability, genotype by environment interaction, genetic advance under selection, models on phenotypic expression of various crops; genetics of autopolypoids. Rec. Pr.: AGRON 770, STAT 704, and STAT 705.

AGRON 835. Nutrient Sources, Uptake and Cycling. (3) I, in odd years. An examination of the behavior of plant nutrients in soils emphasizing nutrient sources, the interaction of nutrient with soils, and the role of plant root as nutrient sinks. Includes processes used in the formulation of chemical fertilizers and the assessment of available nutrients in non-commercial plant nutrient sources. Three hours rec. a week. Rec. Pr.: AGRON 375.

AGRON 840. Crop Physiology. (3) II, in odd years. Principles of nitrogen metabolism, mineral nutrition, photosynthesis, growth substances, and hardiness applied to crop production. Three hours rec. a week. Rec. Pr.: BIOL 500.

AGRON 855. Soil Organic Chemistry. (3) II, in even years. This course will cover the basic physical-chemical properties and reactivities of soil organic matter and organic chemicals, the fundamental processes controlling the fate of organic chemicals, and the methods for estimating their environmental behavior in the soil-water system. Three hours lec. a week. Rec. Pr.: CHM 350 and AGRON 605.

AGRON 860. Applied Plant Breeding. (3) II. This course considers in detail the mechanics of an applied plant breeding program for agronomic crops. Rec. Pr.: AGRON 630 or HORT 740, AGRON 770, and STAT 703.

AGRON 893. Agricultural Simulation Modeling. (4) I, in even years. Techniques for developing and testing computer simulation models for research, management, and design applications in agriculture. Three lectures and one three-hour work session per week. Pr.: STAT 705. Rec. Pr.: MATH 211 and AGRON 455.

AGRON 898. Master's Report. (2) I, II, S. Preparation of a written report either of research or of problem work on a topic in the major field.

AGRON 899. Master's Research. (Var.) I, II, S. Research on a problem which may extend throughout the year and furnish data for a master's thesis.

AGRON 900. Micrometeorology. (3) II. A comprehensive analysis of interactions between living organisms and their physical environment. Emphasis is placed on characterizing the transport of heat, water, and carbon within the soil-plant-atmosphere continuum. Includes discussions on aerodynamic transfer, surface energy balances, evapotranspiration, trace gas fluxes, and basic micrometeorology. The potential impact of climatic change on biosphere productivity will be considered. Three hours rec. a week. Pr.: PHYS 115 and AGRON 746 or BIOL 500.

AGRON 901. Environmental Instrumentation. (1) II. A laboratory practicum on the methodology and instrumentation used to measure

environmental parameters. Includes discussions on instrument selection, sensor deployment, and data acquisition. Measurement of temperature, radiation, moisture, wind, carbon dioxide. Two hours lab per week. Pr.: AGRON 900 or conc. enrollment.

AGRON 905. Advanced Soil Chemistry. (3) I, in even years. Application of physical chemistry to soils; cation and anion equilibria, ion activities, sorption, redox reactions, and other physiochemical phenomena in soils. Three hours rec. a week. Rec. Pr.: AGRON 605 and CHM 500.

AGRON 910. Topics in Plant Breeding. (Var.) I, II, S. Discussion and lectures on important papers and contributions in this field. Pr.: Consent of instructor. Joint listing with Department of Horticulture. See HORT 910.

AGRON 916. Advanced Soil Physics. (3) II, in odd years. An advanced study of the transport of water, heat, and solutes in soil. The theory of unsaturated water flow, coupled heat and water flow, and the convection and dispersion of reactive solutes will be studied in detail. Spatial variability of soil physical properties will be discussed, solute transport will be presented. Three hours rec. a week. Pr.: AGRON 816, MATH 240, and PHYS 113.

AGRON 925. Advanced Soil Genesis and Classification. (2) II, in odd years. An advanced study of processes of soil formation and systems of soil classification including soil taxonomy. Two hours rec. a week. Rec. Pr.: AGRON 515.

AGRON 930. Topics in Plant Genetics. (Var.) I, II, S. Discussion and lectures on important papers and contributions in this field. Pr.: Consent of instructor. Joint listing with Department of Horticulture. See HORT 930.

AGRON 935. Topics in Soils. (Var.) I, II, S. Discussion and lectures on important papers and contributions in this field. Pr.: Consent of instructor.

AGRON 945. Soil Mineralogy. (4) I, in odd years. Theory and application of methods for analyzing minerals in soil environments, including X-ray, electron optical, thin section, and wet chemical techniques. Two hours rec. and six hours lab a week. Rec. Pr.: AGRON 605.

AGRON 950. Advanced Crop Ecology. (3) II, in even years. Principles of growth and development of crops in relation to the environment. Three hours rec. a week. Rec. Pr.: BIOL 500, 529, STAT 704, and STAT 705.

AGRON 955. Soil Microbial Ecology. (3) II, in even years. Theories and concepts of the ecology and function of microorganisms in the soil environment. Discussions will include factors regulating microbial activity, the flow of energy (carbon), and nitrogen transformations as they relate to plant productivity and environmental quality. Three hours rec. a week. Rec. Pr.: AGRON 645 and BIOCH 521.

AGRON 960. Topics in Crop Physiology and Ecology. (Var.) I, II, S. Discussion and lectures on important papers and contributions in this field. Pr.: Consent of instructor.

AGRON 970. Advanced Plant Breeding I. (3) I, in odd years. Role of quantitative genetics in plant breeding, heritability, mating designs, selection techniques and theory, population improvement, breeding autopolyploid crops. Rec. Pr. AGRON 860 and AGRON 830 or concurrent enrollment.

AGRON 980. Molecular Tools for Genetic Analyses. (3) I, in even years. Role of biotechnology in plant breeding, mapping and linkage, genetic distances, marker assisted selection, crop evolution and origin, germplasm conservation and utilization, genotype x environment interaction, stability analysis. Rec. Pr. AGRON 860 or ASI 500.

AGRON 999. Ph.D. Research. (Var.) I, II, S. Research on a problem which may extend throughout the year and furnish data for a doctoral dissertation.

For more information

For additional information and application materials please contact:
Department Graduate Coordinator
Department of Agronomy
300B Throckmorton Plant Sciences Center
Manhattan, KS 66506-5501
Home Page: http://www.agronomy.ksu.edu

American Ethnic Studies

Director:
Juanita McGowan

The department offers no graduate degree. Most faculty affiliated with the program are members of the graduate faculty.

American Ethnic Studies courses

Undergraduate and graduate credit in minor field

AMETH 501. Recitation Leadership. (1-3) I, II. Integrative review of concepts in American ethnic studies under faculty supervision. Preparation for leading discussions, workshops and reviews in American ethnic studies. Students attend two lecture sessions per week concurrent with AMETH 160, one additional seminar session focused on planning and preparation for recitations, and are responsible for leading discussions in one or more recitation sections in AMETH 160 per week. May be repeated for a maximum of 6 hours credit.

AMETH 550. Topics in American Ethnic Studies. (1-4) I, II. Selected topics of special interest in American ethnic studies. Repeatable with change of topic. Pr.: AMETH 160.

AMETH 660. Independent Reading and Research in American Ethnic Studies. (1-3) I, II, S. Advanced guided reading and research on a specific topic of student interest, leading to preparation of a research paper or creative work. Topic and credit to be arranged. Pr.: Senior or graduate standing and permission of instructor.

Home Page: http://www.ksu.edu/ameth

Anthropology

Also see: Sociology

The department offers no graduate degree. All faculty affiliated with the program are members of the graduate faculty.

Anatomy and Physiology

Program of study | Admissions | Application procedure |
Anatomy and physiology courses | More information

Head:
Frank Blecha

Director of graduate studies:
Michael Kenney

Graduate Faculty:

Frank Blecha, Ph.D., Washington State University.

Walter Cash, DVM, Ph.D., Kansas State University.

Elizabeth G. Davis, Ph.D, Kansas State Univesity; DVM, University of Florida.

Jon D. Dunn, Emeritus, Ph.D., University of Kansas.

Howard Erickson, DVM, Ph.D., Iowa State University.

Roger Fedde, Ph.D., Emeritus, University of Minnesota.

Peying Fong, Ph.D., University of California, San Francisco.

Lisa Freeman, DVM, Ph.D., Ohio State University.

Michael J. Kenney, Ph.D., University of Iowa.

Judy Klimek, DVM, MS, Purdue University.

Stanley Butch KuKanich, Ph.D., North Carolina State University.

Meena Kumari, Ph.D., Delhi University.

Daniel C. Marcus, D.Sc., Washington University.

Timothy Musch, Ph.D., University of Wisconsin-Madison.

David Poole, Ph.D., University of California-Los Angeles.

Bruce D. Schultz, Ph.D., Cornell University.

Masaaki Tamura, DVM, Ph.D., Azabu Veterinary College.

Deryl Troyer, DVM, Ph.D., Kansas State University.

Dan Upson, DVM, Ph.D., Emeritus, Kansas State University.

A. Philine Wangemann, Ph.D., Albert-Ludwigs University, Freiburg, Germany.

Mark Weiss, Ph.D., University of Pennsylvania-Philadelphia.

Jane A. Westfall, Emeritus, Ph.D., University of California.

Ancillary Faculty

Tom Barstow, Ph.D., University of California-Davis.

Bonnie Rush, DVM, MS, The Ohio State University.

Tom Schermerhorn, DVM, University of Pennsylvania.

Dolores Takemoto, Ph.D., University of Southern California.

Jonathan Tomich, Ph.D., Guelph-Waterloo (Canada) Center for Graduate Work.

Ruth Welti, Ph.D., Washington University.

Program of study

The Department of Anatomy and Physiology offers opportunities for graduate studies leading to both M.S. (Veterinary Biomedical Science) and Ph.D. degrees. Cell and systemic physiology, immunophysiology, neuroscience, and pharmacology are the major themes of research of the department. Specific areas of interest include comparative exercise physiology, food animal immunophysiology, molecular biology of membranes, molecular genetics and gene mapping and expression, neural control of cardiovascular function, ion channel structure and function, and transport processes and pathophysiology of microcirculation. Faculty from other departments comprise a strong ancillary support group. Career options available with an advanced degree in anatomy or physiology include academic positions in various animal and human health science-related institutions such as Colleges of Veterinary Medicine and Schools of Medicine and Dentistry, as well as positions in industry and agribusiness.

Admissions

To be admitted with full standing, the applicant must have an average of B or better in the junior and senior years, a bachelor's or veterinary medical degree from an approved institution, and adequate undergraduate preparation in the proposed field.

For the Ph.D. degree, 90 semester hours of graduate study beyond the bachelor's degree are required, including at least 30 hours of research. For DVM candidates, if 12 hours of dual credit has not been applied to the master of science degree, it may be applied toward the Ph.D.

Application procedure

See Veterinary Medicine in this catalog for additional information.

Applications are considered on a rolling basis. Teaching and research assistantships are awarded on the basis of merit and availability, using many of the same criteria used for admission decisions. Interested students are encouraged to peruse the departmental website http://www.vet.ksu.edu/depts/ap. All students offered admission are considered for financial support.

Anatomy and physiology courses

AP 601. Cardiorespiratory Exercise Physiology. (3) I. On sufficient demand. Intensive study of a selected topic in kinesiology involving either great in-depth study, or application of theory presented in a related course. May be repeated as topic varies. Pr.: 6 hrs in Kinesiology 500 and above. Only 6 hours may be counted toward degree. Cross-listed with Kinesiology. See KIN 796.

AP 603. Cardiovascular Exercise Physiology. (3) II. An examination of the structure and function of the respiratory system and the manner in which oxygen passes from the atmosphere to its site of utilization in the mitochondria. Exercise and environmental stresses will form the basis for examining the capacity, plasticity and limitations to respiratory function. Pr.: KIN 250 and 335. Cross listed with Kinesiology; see KIN 601.

AP 700. Gross Anatomy I. (6) I. Gross dissection of the dog with comparative aspects of the cat. Three hours lec. and nine hours lab a week. Pr.: First-year standing in College of Veterinary Medicine.

AP 705. Gross Anatomy II. (6) II. Gross dissection of the horse and ruminant with comparative aspects of the pig, laboratory animals, and the chicken. Three hours lec. and nine hours lab a week. Pr.: AP 700.

AP 710. Microscopic Anatomy I. (5) I. Origin, development, and microscopic structure and appearance of the cells and tissues of the animal body. Three hours lec. and six hours lab a week. Pr.: First-year standing in College of Veterinary Medicine.

AP 711. Stem Cells and Comparative Biomedicine. (2) II, S. Characteristics of major categories of stem cells. Applicable or potential clinical uses, including their utilization in tissue engineering or targeted delivery of therapeutics.

AP 715. Veterinary Comparative Embryology. (1) I. An overview of developmental anatomy as it relates to clinically important developmental defects and/or normal structure and function of common domestic animals. Pr.: First-year standing in the DVM degree program.

AP 720. Veterinary Neuroscience. (2) II. Study of the normal neuroanatomy, neurophysiology and introductory neuropharmacology of the central nervous system of common domestic mammals. Pr.: First-year standing in the College of Veterinary Medicine or BIOL 505 or equiv.

AP 737. Veterinary Physiology I. (6) Function of the animal body at the cellular level, including nerve and muscle function. Basic pathophysiological mechanisms and intermediary metabolism will be emphasized and correlated with clinical topics. Five hours lec., three hours lab a week. Pr.: First-year standing in College of Veterinary Medicine or consent of instructor.

AP 747. Veterinary Physiology II. (7) II. Function of the cardiovascular, endocrine, respiratory, renal, and reproductive systems of domestic animals with emphasis on physiologic control mechanisms, interrelationships of body systems, and criteria for evaluating animal health. Five hours lec. and six hour lab a week. Pr.: AP 737.

AP 770. Pharmacology. (5) I. The basic principles of pharmacology, the interaction of drugs and living systems which includes: the action of the drug upon the animal's systems, and the actions of the animal's body upon the drug. The application of these principles to the safe and efficacious use of drug regimens in veterinary medical and surgical patients. Four hours lec. and three hours lab a week. Pr.: AP 737 and 747 or equiv.

AP 773. Bioinstrumentation Laboratory. (1) I, in even years. Practical experience with and evaluation of laboratory and clinical techniques

related to electrodes, transducers, computer-based data acquision and analysis. Three hours lab per week. Pr.: AP 747 or equiv. and conc. enrollment in EECE 772.

AP 790. Problems in Anatomy and Physiology. (Var.) I, II, S. Introduction of undergraduate and graduate students to research involving various anatomical and physiological systems. Pr.: Consent of instructor.

AP 796. Topics in Kinesiology. (1-4) I, II, S. On sufficient demand. Intensive study of a selected topic in kinesiology involving either great in-depth study, or application of theory presented in a related course. May be repeated as topic varies. Pr.: 6 hrs in Kinesiology 500 and above. Only 6 hours may be counted toward degree. Cross-listed with Kinesiology. See KIN 796.

AP 800. Advanced Physiology of Exercise. (3) II. Study of the structure and function of the cardiovascular system as it pertains to acute and chronic exercise. Topics include the control of blood pressure, vascular volume and blood flow during orthostasis and exercise. Pr.: KIN 250 and 335. Cross-listed with Kinesiology; see KIN 603.

AP 803. Seminar. (1)I, II, S. Designed primarily for graduate and senior students enrolled for graduate credit in physiology. Each student is required to give a report on some subject related to physiology. The course is intended to stimulate interest in research and evaluation of data. One hour a week. Pr.: Consent of staff.

AP 825. Special Anatomy. (Var.) I, II, S. The gross and/or microscopic study of any system (or systems) of any domestic animal. Pr.: AP 700 or 710 or equiv. and consent of staff.

AP 850. Stem Cell Techniques. (2) I, S. Cellular and molecular techniques and techniques on tissue culture. Lecture and laboratory hours to be determined.

AP 861. Ultrastructural Interpretation of the Nervous System. (3) II. Study of the fine structure of neurons, axons, synapses, neuroglia and choroid plexus, the interconnections among neurons, the location of specific tracers and antibodies which define synaptic terminals, and a survey of methodologies used with transmission electron microscopy. Pr.: Biol. 541 or AP 710.

AP 870. Advanced Cardiovascular Physiology. (2) I. in odd years. Comprehensive overview of cardiovascular physiology in domestic animals with special emphasis on the dog and horse, including current research. Pr.: AP 747 or equiv.

AP 880. Mechanisms of Drug Action. (3) I, in even years. Discussion of pharmacologic mechanisms at the molecular and cellular level, including receptors, second messengers, and pharmacokinetics. Specialized areas of pharmacology such as neuropharmacology and drug design will be discussed. Areas of current research interest will be emphasized. Pr.: BIOCH 521.

AP 890. Problems in Pharmacology. (Var.) I,II,S. Individual investigations of the interactions of pharmaceutical compounds with living systems. Pr.: AP 770.

AP 895. Equine Exercise Physiology. (2) I, in even years. Comprehensive overview of the physiology of exercise in the horse with comparison to other species. Emphasis will be on cardiovascular, respiratory, and musculoskeletal systems, including current research. Pr.: AP 747 or equiv.

AP 898. Master's Report. (2) I, II, S. Pr.: Consent of staff.

AP 899. Research. (1-4) I, II, S. For graduate students in the field of anatomy or physiology working toward the M.S. degree. Pr.: Consent of staff.

AP 901. Molecular Neurobiology. (2) II, in odd years. Topics of neurobiology are covered from a molecular perspective, including neurotransmitters and neuromodulators, the synapse, G-coupled receptors, pumps, ligand-gated and voltage-gated channels, sensory transduction, the action potential and other relevant phenomena. Pr.: BIOCH 521.

AP 925. Advanced Physiology. (3-5) I, II, S. The principles and techniques in the investigation of bioelectrical phenomena in relation to: (a) the physiology of the digestive organs, (b) myophysiology, (c) endocrinology, and (d) neurophysiology. Advanced physiological experiments will be conducted to provide an understanding of the applications of electronic equipment. Rec. and two three-hour labs a week. Pr.: AP 747 and consent of staff.

AP 995. Problems in Physiology. (Var.) I, II, S. Special problem-involving techniques utilized in studying the function of various organ systems of the body. Pr.: Consent of instructor.

AP 999. Research in Physiology. (1-6) I, II, S. For graduate students working toward the Ph.D. degree. Pr.: Consent of staff.

For more information

For additional information and application materials please contact:
Director of Graduate Studies
Department of Anatomy and Physiology
Kansas State University
228 Coles Hall
Manhattan, KS 66506-5802

E-mail: ap@vet.ksu.edu
Veterinary Medicine Home Page: http://www.vet.ksu.edu/
Anatomy and Physiology Home Page: http://www.vet.ksu.edu/depts/ap/

Architecture

Overview | Resources | Master of Architecture | Master of Science in Architecture
Financial aid | Architecture courses | More information

Head:
Peter Magyar

Director of graduate studies:
Carol Martin Watts

Academic Advisor:
G. Rebecca Stark

Graduate Faculty:

Larry Bowne II, M. Arch., Harvard University.

Wayne M. Charney, Ph.D., Northwestern University.

Gary J. Coates, M.Arch., North Carolina State University.

Robert J. Condia, MS, Columbia University.

John Eck, M Arch., Univesity of Virgina, B.Arch. Kansas State Univerisity.

Richard Farnan, B.Arch, University of Kansas.

R. Todd Gabbard, M.Arch., University of Florida.

Richard Raymond Gnat, M.Arch., Cornell University.

Richard Hoag, M.Arch., University of Washington.

Paul F. Holmquist, M.Arch., Southern California Institute of Architecture.

Nathan J. Howe, M.Arch., University of Texas.

James S. Jones, M.Arch., University of Washington.

Matthew A. Knox, M.Arch., University of Virginia.

Eugene R. Kremer, (Emeritus) M.Arch., University of California, Berkeley.

Vladimir Krstic, M.Eng/Arch., Kyoto University, Japan.

Peter Magyar, Ph.D. Technical University of Budapest, Hungary.

Michael McGlynn, M.Arch. University of Oregon.

Michael McNamara, (Emeritus) M.Arch., University of California, Los Angeles.

Miriam Neet, M.Arch., Columbia University.

Torgeir Norheim, M.Arch., California Polytechnic State University.

Lyn Norris-Baker, Ph.D., University of Houston.

Wendy Ornelas, M. Arch., Oklahoma State University.

David H. Sachs, D. Arch., University of Michigan.

David R. Seamon, Ph.D., Clark University.

O. John Selfridge, MCP, Yale University.

Susanne Siepl-Coates, M.Arch., University of California, Berkeley.

Dragoslav Simic, M.Arch., University of Belgrade, Yugoslavia.

Christopher Spaw, M.Arch., Kansas State University.

Raymond Streeter, M.Arch., Harvard University.

Carol Martin Watts, Ph.D., University of Texas, Austin.

Donald Watts, M.Arch., University of California, Berkeley.

Overview

The Department of Architecture offers two degrees at the masters level: a professional Master of Architecture and a research based post-professional Master of Science in Architecture.

The professional program consists of a core of required professional courses supplemented by electives. These courses include an ten semester architectural design studio sequence, a four semester structural systems sequence, a three semester environmental systems sequence, and a two semester building science/construction systems sequence, among others. One hundred seventy (170) credit hours are required for graduation. Thirty (30) of these credit hours are taken at the graduate level, primarily in the ninth and tenth semesters of the program.

The post-professional program of study requires a minimum of 30 semester credit hours for completion of the degree. The program usually requires two years in residence, and is designed to enable students to pursue specialized study in specific architectural topics.

Resources

College of Architecture and Design resources include the Paul Weigel Library, a professionally staffed branch of the university's main facility. It includes over 35,000 bound volumes and approximately 200 periodical subscriptions. Among other facilities supporting instruction and research in the College are the Technical Information Collection, the Computer Laboratory, the Krider Audio-Visual Learning Resource Center, and an artificial sky. Students in the college enjoy a diverse range of lectures, seminars, exhibits, and guest critics throughout the academic year.

Master of Architecture

Philosophy statement

The program prepares students to enter the profession of architecture, a career that is characterized by change and diversity. Design is at the center of a professional and critical discourse reinforced by liberal studies. A body of artistic, theoretical, social and technical knowledge, understanding, and skill - a background that all architects share - is offered as the basis for the development of individual interests and aptitudes.

As part of the Department of Architecture's goal of promoting a socially and environmentally aware professional architect, the department requires a minimum of 18 university general education elective credits, of which at least 6 must be in courses numbered 300 or above. At least 15 must be outside the College of Architecture, Planning, and Design. No more than two university general education courses may be taken in a single discipline.

Beginning students are encouraged to select specific introductory-level general education courses with the intention that they may develop a concentration in the arts, sciences, and/or humanities by taking advanced courses in their later years.

Special activities and programs

An integral part of the architecture curriculum is the opportunity, during the fourth year, to study abroad for a semester at our facility in Castiglion Fiorentino or Orvieto, Italy. Students have also studied in the Czech Republic, England, Finland, France, Denmark, and Australia.

Each spring second-year students spend a week in Dallas and third-year students spend a week in Chicago or Los Angeles studying those cities' rich architecture and urban design heritage. Fourth-year students may elect to participate in architectural internships in professional offices in the United States and abroad.

An accredited degree

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degrees: the bachelor of architecture and the master of architecture.

A program may be granted a six-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards.

Master's degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree, which, when earned sequentially, comprise an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree. The M.Arch degree offered by Kansas State University is an NAAB-accredited professional degree.

Computer applications

The department recognizes digital technology as a valuable asset and is committed to offering access to a variety of opportunities for students to develop their computer skills and understanding.

For updated information regarding recommended computer platforms and software, contact the department.

Environmental design studies curriculum

The curriculum for the first year forms the foundation of the accredited professional programs in architecture, interior architecture and product design, landscape architecture, and regional and community planning.

First semester

DSFN 201	Environmental Design Studio I	4
MATH 100	College Algebra	3
ENVD 250	History of the Designed Environment I	3
DSFN 203	Survey of the Design Professions	1
University general education elective		3
SPCH 105	Public Speaking IA	2
		16

Second semester

DSFN 202	Environmental Design Studio II	4
PHYS 115	Descriptive Physics	5
ENVD 251	History of the Designed Environment II	3
ENGL 100	Expository Writing I	3
		15

Architecture curriculum

Third semester

ARCH 302	Architectural Design Studio I	5
ARCH 248	Building Science	3
ARCH 348	Structural Systems in Architecture I	3
ARCH 350	History of Designed Environment III	3
University general education elective*		3
		17

Supplemental study

Distributed electives***	6

Fourth semester

ARCH 304	Architectural Design Studio II	5
ARCH 325	Environmental Design and Society	3
ARCH 413	Environmental Systems in Architecture I	4
ARCH 449	Structural Systems in Architecture II	3
ENGL 200	Expository Writing 2	3
		18

Fifth semester

ARCH 403	Architectural Design Studio III	5
ARCH 433	Building Construction Systems in Arch	3
ARCH 452	Structural Systems in Architecture III	3
ARCH 472	Computing in Architecture	3
University general education elective*		
		17

Sixth semester

ARCH 404	Architectural Design Studio IV	5
ARCH 453	Structural Systems in Architecture IV	3
ARCH 514	Environmental Systems in Architecture II	3
LAR 500	Site Planning and Design	3
University general education elective*		3
		17

Seventh semester

ARCH 605	Architectural Design Studio V	5
ARCH 515	Environmental Systems in Architecture III	3
ARCH 650	Architectural Programming	3
Planning elective**		3
University general ed. elective (300 level and above)*		3
		17

Eight semester

ARCH 606	Architectural Design Studio VI	5
Professional support electives**		9
		14

or

ARCH 505	Architecture Internship Part A	11
ARCH 506	Architecture Internship Part B	3
		14

Ninth semester

ARCH 806	Architecture Design Studio VII	5
ARCH 805	Project Programming	2
Architecture seminar**		6
Professional support elective**		3
		16

Tenth semester

ARCH 807	Architecture Design Studio VIII	5
ARCH 853	Professional Practice	3
Professional support elective**		3
Architecture seminar**		6
		17

*A minimum of 18 university general education (UGE) elective credits must be taken, of which at least 6 must be in courses numbered 300 or above. Of these 18 UGE credits, 3 credits may be taken within the College of Architecture, Planning, and Design. None, however, can be in a student's major field. No more than two UGE courses may be taken in a single discipline. UGE courses must be taken at K-State. Transfer credits may reduce the number of lower-level UGE courses required; see sliding scale available at http://www.ksu.edu/catl/uge/welc3.htm#trans. Students who participate in study abroad programs approved by K-State will meet UGE credit at the 300 level upon successful completion of the program.

**The MArch degree requires 27 hours of professional support electives. Of these 27 credits, at least 3 hours must be planning elective credits, and at least 9 hours must be architecture seminar credits as defined in the advising handbook. In addition, 9 of the 27 credits must be taken in support of the student's area of concentration as defined in the advising handbook. These 9 hours may include credits taken to fulfill the planning and seminar requirements.

***Distributed electives are defined in the advising handbook and must be taken outside the College of Architecture, Planning, and Design. They may be taken any time prior to or during the architecture program.

Application Procedures

Students are normally admitted to Master of Architecture program as undergraduate students in the College of Architecture Planning and Design (CAPD); they then apply for admission to the graduate school in their fifth semester. Applicants to the graduate school for the M. ARCH degree must have completed ENG 200 for regular admission. Those who have not completed ENG 200 will be admitted provisionally and cannot take courses for graduate credit until they make up the deficiency. Information for prospective CAPD students is available in the Undergraduate Catalog and the college website.

Master of Science in Architecture

The Master of Science in Architecture program at Kansas State University is a post-professional program of study requiring a minimum of 30 semester credit hours for completion of the degree. The program usually requires two years in residence, and is designed to enable students to pursue specialized study in specific Architectural topics. It is not a NAAB accredited degree.

Specializations are available in Design Theory, Ecological and Sustainable Design, and Environment Behavior and Place Studies. These areas of specialized study in the Master of Science in Architecture program accommodate graduates of five or six year programs in architecture, interior architecture, or landscape architecture, and of certain four year baccalaureate degrees. Applicants are considered upon the merits of their academic backgrounds and proposed programs of study. Minimum entrance requirements established by the Kansas State University Graduate School include a bachelor's degree from an accredited university and a grade point average of B (3.0) or better in the last two years of undergraduate study (or a "first class" degree).

This program focuses on research, and therefore does not include the full range of topics required to qualify a student to sit for the examination to become licensed to practice architecture. Since research is the mode of learning at the limits of knowledge, our objective is to develop the capacities needed for independent study and research.

Approximately 10 students matriculate each year, and the total enrollment in the program is about 20.

Required coursework

All MS Arch students will be required to take classes that provide them with the tools to facilitate in-depth academic research. These classes, Research Methods in Architecture and Thesis Proposal Preparation, account for 5 of the 30 credit hours required for graduation. Other coursework will be determined by selected area of emphasis and individual programs of study.

Thesis

Students normally undertake an applied or theoretical research-oriented thesis which involves qualitative and/or quantitative approaches to a problem, or a design-oriented thesis that examines a physical design problem in depth from a number of points of view, including but not limited to theoretical, behavioral, economic, social, and cultural issues.

Non-Thesis Option

A student in the Master of Architecture program may, with the consent of his/her advisory committee, petition the Department of Architecture Graduate Committee to pursue a coursework-only option. A non-thesis option should have defined focus within the general area of emphasis. Students planning to submit a petition should enroll in Thesis Proposal Preparation, which allows for the preparation of a non-thesis as well as a thesis proposal. In some cases the decision as to whether or not to pursue a thesis will not be made until well into the process of writing the proposal.

The graduate school requires a final examination, which for students writing a thesis takes the form of the defense of the thesis. Some other form of final examination will be required by those electing a non-thesis option.

Design Theory Emphasis

The graduate emphasis in Design Theory enables the student to study specific issues in architectural and urban theory and history. The studies are not based on a rigidly defined set of theoretical courses, but an association of the student's academic interests and faculty expertise. In general, studies consist of the development of a theoretical framework, through selected courses and readings, which is subsequently used as an instrument for the analysis and examination of a particular architectural or urban phenomenon. The so defined inquiry ranges qualitatively from the poetic and speculative to the applicative and pragmatic. Analytical methods encompass a wide range of potential techniques from critical literature review to in-depth building design.

Required Curriculum Credits

ARCH 715	Topics in Architecture	3
ARCH 725	Research Methods/Architecture	3
LAR 898	Thesis Proposal Preparation	2
ARCH 899	Thesis*	7
Departmental Electives		9
Other Electives		6
TOTAL CREDITS		30

*other courses may be substituted if student selects the non-thesis option above.

Recommended Electives

Students consult with their advisors to select courses that match their educational and research objectives. Appropriate graduate-level history and theory courses will be identified each semester from among current course offerings. Normally, at least one three hour course on an aspect of contemporary architecture is taken by students in the design theory option. It is recommended that international students take one or more courses concerned with American architecture and urbanism. The Design Theory emphasis requires nine of the sixteen elective credits be taken within the discipline; seven may be taken outside the Department of Architecture. Outside electives should be related to the student's overall program of study, to reinforce or complement other courses and their thesis topic.

ARCH 657	Preservation Principles	3
ARCH 601	Topics in History of Designed Environment	3
ARCH 710	Topics in Design Methods	3
ARCH 715	Topics in Architecture	3
ARCH 830	Advanced Architectural Design	variable
PLAN 710	Planning Analysis	3
PLAN 715	Planning Principles	3
PLAN 745	Urban Design Seminar	3

PLAN 815	Preservation Planning	3

Ecological and Sustainable Design

Ecological and Sustainable Design (ESD) focuses on the theory and practice of architectural and environmental design that makes maximum use of the same renewable energy flows and material cycling processes by which all other living systems on earth are sustained. It is an approach to design that is holistic in nature, encompassing a concern for ecological systems, building technological systems, and socio-cultural/existential systems. Ecological systems are studied not only as the context for architecture but also as models for design, providing the fundamental principles by which sustainable buildings are designed and operated. Energy and resource conserving building technologies as well as healthy and ecologically benign building materials are studied so that ecological design principles can be implemented in environmentally appropriate architecture. The emphasis also stresses the socio-economic, political, and cultural/existential context of design as a complexly structured framework within which questions of sustainability must be considered and building designs implemented. The ESD option necessarily involves the development of a broad understanding of architectural and environmental design that is as much philosophical as it is practical.

Required Curriculum Credits

ARCH 716	Topics in Environmental Systems	3
ARCH 830	Advanced Architectural Design	3
ARCH 725	Research Methods/Architecture	3
LAR 898	Thesis Proposal Preparation	2
ARCH 899	Thesis*	7
Electives		12
TOTAL CREDITS		30

*other courses may be substituted if student selects the non-thesis option.

Recommended Elective Credits

In addition to completing the required courses, students are encouraged to select an area of focus that will support their thesis. The Ecological and Sustainable Design emphasis recognizes the interdisciplinary and collaborative nature of the sustainable approach to design. As such, at least six elective credits should be taken outside the Department. Students consult with their faculty advisors to develop a program of study that meets their individual needs and interests.

AGEC 525	Natural Resource and Environmental Economics	3
ARCH 715	Topics in Architecture	3
ARCH 716	Topics/Environmental Systems	3
ARCH 740	Problems/Building Health	3
ARE 740	Environmental Control Systems	3
BAE 761	Natural Treatment Systems	3
BIOL 529	Fundamentals of Ecology	3
CE 563	Environmental Engineering	3
ECON 527	Environmental Economics	3
GEOG 705	Remote Sensing/Environment	3
GEOG 760	Human Impact/Environment	3
IAPD 625	Lighting Design	2
IAPD 720	Advanced Seminar in Interior Arch	variable
LAR 704	Environmental Landscape Planning and Design	3
LAR 720	Public Lands and Natural Resources Law	3
LAR 758	Land Resource Information	3
PHILO 595	Environmental Ethics	3
SOCIO 536	Environmental Sociology	3

Environment Behavior and Place Studies Emphasis

Environment-Behavior and Place Studies (EBPS) focuses on the behavioral and experiential aspects of person-environment relationships and their implications for environmental design and research. The program examines varying philosophic and methodological approaches to issues in environment-behavior and place experience. Approaches to these issues range from quantitative, explanatory styles of research, emphasizing analytic philosophies, pragmatic strategies and solutions, to qualitative, descriptive styles emphasizing continental philosophical concerns. Within this framework, students' programs of study and research are individualized to meet particular interests and needs. After completing an introductory core curriculum, students may choose to concentrate on a specific environmental problem or approach, or to work creatively to combine several approaches and issues. Within environment-behavior and place studies, areas of focus can include community and facility design for special populations, experience of place and landscape, project planning and programming, or a special focus meeting the particular educational and career goals of an individual student. Students, in consultation with the advisor, combine elective courses within and outside the College to meet the needs of their specific areas of focus.

Required Curriculum Credits

ARCH 720	Environment and Behavior	3
ARCH 704	Topics in Environment & Behavior	3
ARCH 725	Research Methods/Architecture	3
LAR 898	Thesis Proposal Preparation	2
ARCH 899	Thesis*	7
Electives		12
TOTAL CREDITS		30

*other courses may be substituted if student selects the non-thesis option above.

Recommended Elective Credits

ARCH 703	Environmental Aesthetics	3
ARCH 710	Topics in Design Methods	3
ARCH 715	Topics in Architecture	3
ARCH 730	Environment and Aging	3
ARCH 740	Problems/Building Health	3
ARCH 680	Development Analysis	3
IAR 730	Facility Management	3

Any of the thirteen elective credits in the Environment-Behavior and Place Studies Emphasis may be taken outside the Department. Courses in other Departments including Philosophy, Anthropology, Art and History may be considered, pending approval of the student's advisory committee.

Graduate Emphasis in Gerontology

An optional interdisciplinary program, the Gerontology emphasis is designed to be taken concurrently with or in addition to a disciplinary graduate degree program. Six of the thirty required hours for the MS Arch degree can be applied to this emphasis. This program requires an additional six credit hours taken within the curriculum of the Center for Aging.

Application procedures for the Master of Science in Architecture Program

In addition to the application form and transcripts required by the Graduate School, the following items are required to apply to the Master of Science in Architecture program:

- A completed statement of educational and career objectives form.
- Three letters of recommendation from professors or employers.
- Samples of academic/professional work, including a description of each project, its objectives, and your role and responsibilities. The portfolio of design work should be in a format no larger than 8.5 by 11 inches or A4 paper. Samples of written work are highly recommended. (A stamped self-addressed envelope must be included if the applicant wishes the return of the portfolio to an address within the United States. Portfolios will not be returned to other countries, so high quality xerox copies are recommended.)

There is a non-refundable application fee of $70.00 US for domestic students and $80.00 US for international students (which includes the department and Graduate School fees). Applications will not be considered without this fee. There are instructions detailing how to pay this fee online, in step 4 of the online application, with a credit card that is issued by a U.S. financial institution. Visa, Master Card, American Express, Discover are accepted. Applicants can pay by check issued from a U.S. financial institution, payable to Kansas State University Graduate School.

The required forms are included in the application packet, available upon request from the department. To be assured consideration, applications for fall should be received by March 1st. A limited number of new students may be admitted to begin studies during the spring semester. To be assured consideration for spring, application should be received by October 1st. Additional application requirements for international students Official report of the TOEFL (Test of English as a Foreign Language) exam score. The Department of Architecture requires a score of 600 on the paper test (or 250 on the computer test) for admission into the master of architecture program, since English language proficiency is an important factor in the ability of a student to complete the degree. In addition, graduate teaching assistantships require a minimum score of 50 on the TSE (Test of Spoken English). This test should be taken at the same time as the TOEFL.

Financial aid

A limited number of graduate teaching assistantships are available for students with particularly strong qualifications. Appointment as a teaching assistant requires knowledge in the subject matter of the course, human relations skills, and excellence in spoken and written English. Appointment to a GTA is made by the head of the department in which a specific course is taught and does not guarantee successive appointments. Specific instructions and application forms are available in the graduate section of the department webpage. Limited scholarship aid may be awarded to one or two incoming graduate students each year. The amount of these scholarships ranges between $500 and $1,000.

Architecture courses

Undergraduate and graduate credit in minor field.

ARCH 505. Architectural Internship, Part A. (9) II. Off-campus work study program with an approved professional, building industry,

government, or non-profit agency sponsor. Must be enrolled concurrently with ARCH 506, and each course must be successfully completed before credit is awarded in either. This course is graded CR/NCR. Pr.: ARCH 605 and approval of the internship coordinator.

ARCH 506. Architectural Internship, Part B. (3) II. Preparation of internship journals and employer profiles, during the approved off-campus work-study program in ARCH 505. Must be enrolled concurrently with ARCH 505, and each course must be successfully completed before credit is awarded in either. This course is letter-graded only. Pr.: ARCH 605 and approval of the internship coordinator.

ARCH 507 Architectural Internship, Part C. (2) S. A continuation of the approved off-campus internship of ARCH 505 and ARCH 506. Preparation of internship journals, employer profiles, and a final internship analysis paper based on the entire 30-week internship experience. This course must be completed in order for internship to count as an equivalent of ARCH 606. Pr. ARCH 505 and 506.

ARCH 514 and ARCH 515. Environmental Systems in Architecture II and III. (3 each) Criteria for selection and application of natural and mechanical environmental control systems in architecture. Focus on the integration of thermal, illumination, sanitary, movement, and acoustical systems with the building fabric and the natural environment. Contemporary and developing approaches are explored.

ARCH 514. Environmental Systems in Architecture II.(3) II. Pr.: ARCH 413.

ARCH 515. Environmental Systems in Architecture III. (3) I. Pr.: ARCH 413.

ARCH 566. Problems in Architectural Design. (Var.) Study of specific design problems under the direct supervision of a member of the architectural faculty.

ARCH 605. Architectural Design Studio V. (5) I. A design studio that integrates a design project with design development, (including structural, mechanical, lighting and movement systems) and construction documentation. Twelve hours studio a week. Pr.: ARCH 404 and not more than one grade of D in an architectural design course, LAR 500, ARCH 433, ARCH 453, ARCH 514 and concurrent enrollment in ARCH 515.

ARCH 606. Architectural Design Studio VI. (5) I, II. Continuation of ARCH 605. Increased complexity of function and space definition systems. Relating environmental technology to total design. Twelve hours studio a week. Pr.: ARCH 605 and not more than one grade of D in an architectural design course.

ARCH 654. Study Abroad Orientation. (Var.) I, II. Preparation for participation in study abroad with a focus on specific information pertaining to the design professions and the analysis of the built and natural environment.

ARCH 655. International Field Study. (Var.) I, II, S. Group observation of design examples (ancient or modern) of a selected region, conducted in situ, to study significant aspects of environment, culture, and technology as relating to design solutions.

Undergraduate and graduate credit

ARCH 650. Architectural Programming. (3) I, II. An introductory course surveying the basic philosophies and methodologies for architectural programming; emphasis on the comparative evaluation of different strategies and their integration within the process of design. Pr.: Senior standing or permission of the instructor.

ARCH 654. Study Abroad Orientation. (Var.) I, II. Preparation for participation in study abroad with a focus on specific information pertaining to the design professions and the analysis of the built and natural environment.

ARCH 655. International Field Study. (Var.) I, II, S. Group observation of design examples (ancient or modern) of a selected region, conducted in situ, to study significant aspects of environment, culture, and technology as relating to design solutions.

ARCH 656. Preservation Documentation. (3) I, II. Investigation of existing buildings and their settings; documenting design qualties, history, materials, systems, construction techniques, landscape, and physical and functional changes over time, using Historical building Survey Standards. Pr.: Senior standing and proficiency in drafting.

ARCH 657. Preservation Principles. (3) I. Examination of theoretical and practical aspects of preservation; background and current issues; design considerations. Pr.: Senior or permission of instructor.

ARCH 700. Topics in History of the Designed Environment. (3) I, II. Seminar on topics involving specific periods or subjects in the history of the built environment. May be repeated with credit for different topics. Pr.: ARCH 350 or M. S. ARCH standing.

ARCH 703. Environmental Aesthetics. (3) I, II. Problems involving aesthetics in areas related to student's major field. Three hours a week. Pr.: Senior standing.

ARCH 704. Topics in Environment and Behavior. (3) I, II. Seminar on topics in human behavior as it relates to physical environments. May be repeated for credit with different topics. Pr.: ARCH 304 or IAPD 320 or LAR 320 or M. S. ARCH standing or junior standing if outside CAPD.

ARCH 705. Project Programming. (2) I, II. The development of a program for ARCH 707, Architectural Design VIII under direction of a faculty member. Pr.: ARCH 606, or ARCH 505/506, ARCH 650, and approval of the faculty committee.

ARCH 706. Architectural Design Studio VII. (5) I, II. Integration of the physiological, psychological, and sociological parameters in the design of environments. Analysis, programming, and planning problems, increased complexity of function and space definition systems. Relating environmental technology to total design. Twelve hours studio a week. Pr.: either ARCH 505 and ARCH 506 or ARCH 606; not more than one D in an architectural design course; ARCH 434, ARCH 453 and ARCH 515.

ARCH 707. Architectural Design Studio VIII. (5) I, II. Development of the student's project programmed in ARCH 705, under the direction of a faculty committee. Project must demonstrate a high level of achievement in systematic and comprehensive thinking, application of resources, and communication of total process. Twelve hours studio a week. Pr.: ARCH 705, ARCH 706, not more than one D in an architectural design course.

ARCH 711. Topics in Architectural Design Methods. (3) I, II. Intensive review of selected design methodologies, including systematic and computer-based approaches to problem definition and project design; emphasis upon the comparative evaluation of problem-solving strategies within the architectural design process. May be repeated for credit with different topics. Pr.: Arch 304 or IAPD 320 or LAR 320 or M. S. ARCH standing or junior standing if outside CAPD.

ARCH 715. Topics in Architecture Seminar. (3) I, II. Seminar on topics in architecture with readings, class discussion, student presentations, research papers or projects. May be repeated for credit with different topics. Pr.: ARCH 304 or permission of instructor.

ARCH 716. Topics in Environmental Systems in Architecture. A concentrated study of a particular subject related to the environmental systems of the built environment. May be repeated for credit with different topics. Pr.: ARCH 413 or M.S. ARCH standing.

ARCH 720. Environment and Behavior. (3) I, II. Investigates the relationship between human behavior and design of the physical environment. Includes identification of psychological, social, cultural concepts which influence and are influenced by the built environment. Emphasizes applying this knowledge in design. Three hour seminar per week. Pr. ARCH 325 or equivalent or permission of instructor.

ARCH 725. Architecture Research Methods. (3) I, II. An introductory course surveying the basic philosophies and methodologies of science and research as they apply to the field of architecture. Special emphasis will be placed on those methods appropriate for investigating human response to the built environment.

ARCH 730. Environment and Aging. (3) I, II. An exploration of the aging process related to those factors in the architecturally designed environment that hinder and facilitate successful adaptation by the aging individual.

ARCH 735. Topics in Building Construction Systems in Architecture. (1-4) I, II. Advanced study of the relationship of conceptual and/or technological factors of building construction to architecture. May be repeated for credit with different topics. Pr.: ARCH 433. or M.S. ARCH standing.

ARCH 740. Building-Related Health and Safety. (3) I, II. Multi-disciplinary concepts and applications of building-related health and safety in the design, construction, and operations of residential, commercial, and institutional buildings. Lecture/recitation followed by field work analysis, documentation, and reporting. Pr.: Senior standing or above.

ARCH 746 and 846. Urban Design Studio I and II. (4) I, II. Interdisciplinary design studios involving large scale design; projects with extensive time implementation sequence, responses to socio-economic, cultural, environmental, and technical needs, and implementation strategies. Design methods are applied to selected urban areas of the Midwest.

ARCH 752. Topics in Structural Systems in Architecture. (3) I, II. Study of the relationship of conceptual and/or technological factors of structure to architectural design. May be repeated for credit with different topics. Pr.: ARCH 453 or M.S. ARCH standing.

ARCH 753. Professional Practice. (3) I. Studies of conventional and newly developing methods of professional design practice. Instruction in the relationships of architects, landscape architects, interior architects and other professions to users, clients, construction industry, society, government, and one another. Two hours lecture and one hour recitation. Pr.: ARCH 433.

ARCH 765. Problems in Architecture. (Var.) I, II. A study of specific architectural problems under the direction of a member of the department faculty.

ARCH 770. History of American Architecture and Allied Design I. (3) I, II. The history of American architecture including aspects of interior architecture, landscape architecture, urban planning, and preservation. This course investigates how the built forms of various colonial settlers in America responded to a new environment and how a distinctive American culture eventually took shape by the end of the 1800s. Pr.: ARCH 350 or M.S. ARCH standing.

ARCH 771. History of American Architecture and Allied Design II. (3) I, II. The history of American architecture including some aspects of interior architecture, urban planning, landscape architecture, and preservation. This course surveys those distinctively American styles of design which originated in the late 1800s and traces their impact on world architecture and how outside influences shaped American design from that time period up to present. Emphasis is placed upon the interplay of formal and functional concerns in architectural design. Pr.: ARCH 350 or M. S.ARCH standing.

ARCH 780. Development Analysis. (3) I, II. An examination of various development characteristics and components and their crucial interactive nature which leads toward success or failure of building and land developments. Development factors investigated include: market analysis, location uses and users, cost/benefits, nonmonetary benefits, financial returns expected and needed, financial incentives for investors, and

feedback into the design process.

Graduate credit

ARCH 801. Topics in History of the Designed Environment. (3) I, II. Seminar on topics involving specific periods or subjects in the history of the built environment. May be repeated for credit with different topics. Pr.: ARCH 350.

ARCH 803. Environmental Aesthetics. (3) I, II. Problems involving aesthetics in areas related to student's major field.

ARCH 804. Topics in Environment and Behavior. (3) I, II. Seminar on topics in human perceptions, reactions, and behavior as they relate to physical environments. May be repeated for credit with different topics.

ARCH 805. Project Programming. (2) I, II. Development of an architectural program for ARCH 807. Identify evaluation criteria and prepare statement of objectives; perform appropriate research and analysis; and create programming document. Pr.: ARCH 650; either ARCH 606 or ARCH 507.

ARCH 806. Architecture Design Studio VII. (5) I, II. Integration of the physiological, psychological, and sociological parameters in the design of environments. Analysis, programming, and planning problems, increased complexity of function and space definition systems. Relating environmental technology to total design. Twelve hours studio a week. Pr.: either ARCH 507 or ARCH 606; not more than one D in an architectural design course; ARCH 434, ARCH 453 and ARCH 515.

ARCH 807. Architectural Design Studio VIII. (5) I, II. Final design studio course in the professional curriculum in architecture. Using the program established in ARCH 805, demonstrate mastery in systematic and comprehensive thinking, project research, application of resources, architectural design, and communication of total process. Pr.: ARCH 805 and 806.

ARCH 811. Topics in Architectural Design Methods. (3) I, II. Intensive review of selected design methodologies, including systematic and computer-based approaches to problem definition and project design; emphasis upon the comparative evaluation of problem-solving strategies within the architectural design process. May be repeated for credit with different topics. Pr.: Arch 304.

ARCH 815. Topics in Architecture. (3) I, II. Seminar on topics in architecture with readings, class discussion, student presentations, research papers or projects. May be repeated for credit with different topics. Pr: ARCH 304.

ARCH 816. Topics in Environmental Systems in Architecture. (3) I, II. A concentrated study of a particular subject related to the environmental systems of the built environment. May be repeated for credit with different topics. Pr.: ARCH 413.

ARCH 820. Environment and Behavior. (3) I, II. Investigates the relationship between human behavior and design of the physical environment. Includes identification of psychological, social, cultural factors which influence and are influenced by the built environment. Emphasizes applying this knowledge in design. Three hour seminar per week.

ARCH 830. Advanced Architectural Design. (Var.) I, II. Studies related to a comprehensive program in architecture. Topics vary.

ARCH 831. Environment and Aging. (3) I, II. An exploration of the aging process related to those factors in the architecturally designed environment that hinder and facilitate successful adaptation by the aging individual.

ARCH 835. Topics in Building Construction Systems in Architecture. (1-4) I, II. Advanced study of the relationship of conceptual and/or technological factors of building construction to architecture. May be repeated for credit with different topics. Pr.: ARCH 433.

ARCH 840. Building-Related Health and Safety. (3) I, II. Multidisciplinary concepts and applications of building-related health and safety in the design, construction, and operations of residential, commercial, and institutional buildings. Includes fieldwork analysis, documentation, and reporting.

ARCH 852. Topics in Structural Systems in Architecture. (3) I, II. Study of the relationship of conceptual and/or technological factors of structure to architectural design. May be repeated for credit with different topics. Pr.: ARCH 453.

ARCH 853. Professional Practice. (3) I, II. Studies of conventional and newly developing methods of professional design practice. Instruction in the relationships of architects, landscape architects, interior architects, and other professions to users, clients, construction industry, society, government, and one another. Pr.: ARCH 433.

ARCH 870. History of American Architecture and Allied Design I. (3) I. The history of American architecture including aspects of interior architecture, landscape architecture, urban planning, and preservation. This course investigates how the built forms of various colonial settlers in America responded to a new environment and how a distinctive American culture eventually took shape by the end of the 1800s. Pr.: ARCH 350.

ARCH 871. History of American Architecture and Allied Design II. (3) II. The history of American architecture including some aspects of interior architecture, urban planning, landscape architecture, and preservation. This course surveys those distinctively American styles of design which originated in the late 1800s and traces their impact on world architecture and how outside influences shaped American design from that time period up to present. Emphasis is placed upon the interplay of formal and functional concerns in architectural design. Pr.: ARCH 350.

ARCH 880. Development Analysis. (3) I, II. An examination of various development characteristics and components and their crucial interactive nature which leads toward success or failure of building and land development. Development factors investigated include: market

analysis, location uses and users, cost/benefits, non-monetary benefits, financial returns expected and needed, financial incentives for investors, and feedback into the design process. Pr.: Admission to the professional program.

ARCH 899. Thesis. (Var.) Study in architecture and related fields leading to thesis.

For more information

For additional information and application materials please contact:
Master of Science in Architecture Program
Department of Architecture
Kansas State University
211 Seaton Hall
Manhattan, KS 66506-2901

785-532-5953
E-mail: architecture@ksu.edu
Home Page: http://capd.ksu.edu/arch/

Architectural Engineering

The department | The master of science degree | Architectural engineering courses
Construction science courses | More information

Head:
David R. Fritchen

Director of graduate studies:
Kimberly Kramer, P.E.

Graduate Faculty:

Charles L. Burton, P.E., M.S., University of Kansas.

David R. Fritchen, M.S., University of Washington.

James F. Goddard, M.S., University of Florida.

Julia Keen, M.S., Kansas State University.

Kimberly W. Kramer, P.E., M.S., University of Texas at Arlington.

Thomas D. Logan, M. Construction Management, University of Kansas.

Darren Reynolds, M.S., Kansas State University.

Thomas Roberts, P.E., M.S., Kansas State University.

Carl O. Riblett, M.S., Texas A&M University.

Sutton F. Stephens, P.E., S.E., Ph.D., University of Missouri-Rolla.

Rhonda Wilkinson, M.S., Kansas State University.

Raphael A. Yunk, M.S., Kansas State University.

The department

The Department of Architectural Engineering and Construction Science offers courses of study leading to the master of science degree. The department has ABET accreditation (Accreditation Board for Engineering and Technology, Inc.).

The department consists of 14 full-time faculty members. The research interests of the staff cover major areas of modern building systems design: lighting/electrical, heating and air conditioning, plumbing, structural analysis, cold-formed steel design, energy analysis, energy auditing, acceptance testing, and indoor air quality. Several faculty members direct research and utilize this research in the enhancement of both graduate and undergraduate teaching. The objective of the program is to provide advanced studies in engineering, analysis and design of all the disciplines in building systems. The department has excellent facilities, which include design drafting rooms, classrooms, faculty offices, an outstanding electrical and lighting laboratory for research and teaching, and access to the most recent computer technology.

The master of science degree

The minimum requirement for course work is 30 semester hours of graduate credit with options as specified in this catalog and required undergraduate work in an engineering program accredited by the Accreditation Board for Engineering and Technology (ABET) and subject to the approval of the department. Depending on the selected degree options a student has a significant range of elective courses from which to choose with the approval of the student's graduate committee. The program is structured to permit the student, by diligent work, to complete the M.S. requirement in one calendar year. Substitution for one or more of the specified courses may be made if the department judges that equivalent study has been successfully completed.

A combination B.S. and M.S. degree program is offered to undergraduates in Architectural Engineering (ARE) at Kansas State University. This professional M.S. degree challenges top students in Architectural Engineering with research experiences, faculty mentoring and advanced course work. The program allows the student an opportunity to specialize in an emphasis area of systems engineering applied to building design and analysis.

The combined B.S./M.S. program builds on the broad-base, generalist emphasis of the B.S. ARE program and allows top students to specialize with additional research experiences, faculty mentoring and advanced course work. Students and faculty are matched by interest and capability to determine an emphasis area, program of study, and graduate committee. Current emphasis areas include: mechanical systems, electrical power distribution, illumination and building structural design.

This program allows Architectural Engineering students meeting the following requirements to be admitted to the graduate school:

- Completed 135 or more credit hours of the Architectural Engineering Curriculum.
- Obtained a cumulative grade point average of 3.25 or higher in the Architectural Engineering Curriculum and in the two years prior to entry into the combined MS/BS program.
- Accepted by the Department of Architectural Engineering Graduate Faculty.
- Met all entrance requirements of the graduate school with the exception of completing a B.S. degree (1.B. of the graduate handbook).

This program allows accepted students to reduce their undergraduate program by 15 credit hours and replace these hours with 15 credits towards the requirements of the M.S. degree. All of the requirements of the graduate school will be met or exceeded. The undergraduate program will be reduced by 3 credits of free electives and 12 credits of complementary electives.

Architectural engineering courses

Undergraduate and graduate credit in minor field

ARE 522. Loading and Stability of Structures. (2) I, II. Review of code loading requirements, applications, design, and bracing criteria for buildings. Two hours rec. a week. Pr.: CE 533, CE 534 and CNS 210.

ARE 524. Steel Structures. (3) I, II. Analysis and design of steel structures following the AISC/LRFD specifications for buildings. Includes background on the probability-based LRFD method. Three hours rec. a week. Pr.: CE 537 and ARE 522.

ARE 528. Reinforced Concrete Structures. (3) I, II. Design of reinforced concrete building frames; floorings, columns and floor systems, attention being given to costs and economical design. Three hours rec. a week. Pr.: CE 537 and ARE 522.

ARE 532. Lighting Systems Design. (2) I, II. Study of human needs in lighting, lighting sources, lighting systems design and application. Two hours rec. a week. Pr.: PHYS 114 or 214.

ARE 533. Building Electrical Systems. (3) I, II. Study of basic design of building electrical systems including circuit design, power distribution and service equipment. Three hours rec. a week. Pr.: EECE 519.

ARE 534. Thermal Systems. (3) I, II. Study of man's physiological needs, principles of heat transfer, principles of building thermal balance, comfort systems, and space-use relationships involving heating, ventilating, and cooling as integral parts of architectural engineering design. Three hours a week. Pr.: PHYS 214 and CNS 321.

ARE 536. Plumbing/Fire Protection Systems Design. (3) I, II. Sewage disposal systems, building plumbing and fire protection systems, space relationships, equipment requirements as related to architectural design, structural systems, construction materials, and techniques. Three hours rec. a week. Pr.: PHYS 213 and CNS 321.

ARE 537. Acoustic Systems. (2) I, II. Hearing and the ear, sound generation, acoustical correction, noise reduction, and sound transmission all as integral parts of architectural design. Two hours rec. a week. Pr.: PHYS 113 or 213.

ARE 539. Architectural Engineering Management. (3) I, II. General business and management procedures. Drawings, specifications, and conceptual estimating. Contracts, bonds, liability, arbitration, and insurance. Project financing. Three hours rec. a week. Pr.: ME 560. Must be taken concurrent with ARE 690.

ARE 540. Building Mechanical Systems. (3). I, II. Study of heat loss and heat gain using computers, various types of HVAC air systems selection and application, HVAC hydronic systems, and an introduction to mechanical systems controls. Three hours rec. a week. Pr.: ARE 534 and ME 513.

ARE 590. Integrated Building System Design. (3) I, II. Methods for integration and coordination of structural, mechanical, electrical, and lighting systems in the building architectural design process. Two hours rec., four hours lab per week. Pr.:ARE 411, 524, 528, 532, 533, 536, and 640. Must be taken the semester immediately prior to ARE 690 Senior Project.

ARE 620. Problems in Architectural Engineering. (Var.) I, II, S. A study of specific design problems under the direct supervision of a member of the architectural engineering faculty. Pr.: Approval of the department head.

ARE 690. Senior Project. (3) I, II. Student working individually with laboratory support will prepare and present a project of appropriate scope and complexity with emphasis on structural, mechanical, acoustical, electrical, and lighting requirements. Nine hours lab a week. Pr.: ARE 590 and CE 522. Must be taken concurrently with ARE 539.

Undergraduate and graduate credit

ARE 710. Building Energy Analysis. (2) I. Study of building energy consumption and current modeling techniques to analyze overall energy usage including: economic evaluation and energy efficient system selection for new construction. Two hours rec. a week. Pr.: ARE 640 or

instructor permission.

ARE 720. Topics in Architectural Engineering. (V) I, II, S. A study of specific design problems in architectural engineering. Pr. or conc.: ARE 590.

ARE 723. Timber Structures. (3) II. Analysis and design of timber structures including dimension lumber, glu-lam members, and engineered wood products. Three hours rec. a week. Pr.: CE 537 and ARE 522.

ARE 724. Advanced Sanitation Systems. (3) I. Water quality and treatment, pressure control, and hydraulics in domestic water and waste systems. Three hours rec. a week. Pr.: ARE 536 or CNS 536.

ARE 731. Advanced Lighting Design. (3) II. Lighting modeling and analysis used in lighting design practice, and computer-assisted lighting analysis. Two hours rec. and two hours lab a week. Pr.: ARE 532 and 533.

ARE 734. Building Thermal Systems Design. (3) II. Design and specifications of selected thermal and mechanical systems for structures. The course uses all the modern techniques of thermal/mechanical system design for buildings. Students are required to develop term research design projects. Two hours rec. and three hours lab a week. Pr.: ARE 640.

ARE 735. Electrical Systems Design. (3) I. Complete design and specifications of electrical systems for a selected structure. The course uses the National Electrical Code in conjunction with all the modern techniques of electrical systems design for buildings. Two hours rec. and three hours lab a week. Pr.: ARE 533.

ARE 740. Environmental Control Systems in Buildings. 3) II. Electric, electronic, and pneumatic control systems to optimize energy usage and environmental comfort in buildings. Three hours rec. a week. Pr.: ARE 640 and EECE 519.

ARE 741. Building Communication Systems. (3) I. Detailed design and analysis of special electrical systems for buildings including, fire alarm, and communication systems. Three hours rec. a week. Pr.: ARE 533.

ARE 760. Masonry Structural Design. (3) I. Introduction to masonry materials, specifications, testing and construction methods. The design of unreinforced and reinforced masonry structures according to applicable building codes. Three hours rec. a week. Pr.: ARE 528 or equivalent first course in reinforced concrete design.

ARE 780. Advanced Structural Topics. (3) II. Continuation of of Steel Structures and Reinforced Concrete Structures with special emphasis on the complete problem of the structure as a whole. Three hours rec. a week. Pr.: ARE 524 and ARE 528.

ARE 890. Problems in Architectural Engineering. (Var.) I, II, S. A study of a specific problem under the direct supervision of a member of the architectural engineering faculty. Pr.: Approval of Major Professor. May be repeated.

ARE 898. Master's Report. (Var.) I, II, S. Topics selected with approval of major professor and department head.

ARE 899. Master's Thesis. (Var.) I, II, S. Topics selected with approval of major professor and department head.

Construction Science and Management courses

Undergraduate and graduate credit in minor field

CNS 510. Computer Applications in Construction Science. (V) I, II. On sufficient demand. Applications of specialized computer techniques to the solution of problems in construction science. By appointment. Pr.: CNS 210.

CNS 522. Theory of Structures. (3) I, II. The elastic analysis of determinate and indeterminate structures. Emphasis on equilibrium equations, shear and moment diagrams and solving forces in trusses. Includes solutions of indeterminate structures by moment distribution and matrix stiffness method with microcomputer applications. Three hours rec. a week. Pr.: CE 331.

CNS 523. Timber Construction. (2) I, II. Principles of design, fabrication, and erection of timber structures including both solid and laminated materials. Two hours rec. a week. Pr.: CNS 522.

CNS 524. Steel Construction. (3) I, II. Principles of design, fabrication, and erection of structural steel in conformance with codes. Two hours lec. and three hours lab a week. Pr.: CNS 522.

CNS 528. Concrete and Masonry Construction. (3) I, II. Principles of design, fabrication, and erection of concrete and masonry structures. Two hours lec. and three hours lab a week. Pr.: CNS 522.

CNS 534. Heating and Air Conditioning. (3) I, II. Principles of designing, applying, installing, and estimating heating and air conditioning systems for buildings. Three hours rec. a week. Pr.: PHYS 113 and CNS 321.

CNS 535. Electrical Service and Installation. (3) I, II. Basic design and construction of building electrical, lighting, and distribution systems with emphasis on the National Electrical Code and installation. Three hours rec. a week. Pr.: PHYS 114 and CNS 321.

CNS 536. Water Supply and Plumbing. (3) I, II. Principles and practices of plumbing and fire protection systems in buildings including code

requirements and estimating. Three hours rec. a week. Pr.: PHYS 113 and CNS 321.

CNS 540. Construction Methods and Equipment. (3) I, II. Operations, costs, productivity of construction equipment. Investments/life cycle costing of the equipment. Equipment selection criteria and analysis. Construction methods. Three hours rec. a week. Pr.: CNS 321, 330, and 522.

CNS 544. Problems in Construction Science. (Var.) I, II, S. A study of specific design problems under the direct supervision of a member of the construction science faculty. Pr.: Junior standing.

CNS 545. Heavy Construction Methods. (3) I. Principles of asphalt, asphalt and concrete paving operations, concrete batch plant operations, heavy construction equipment and applications. Three hours recitation a week. Pr.: CNS 325, 540.

CNS 634. Building Systems Commissioning. (2). I, on sufficient demand. Principles and methods of proper procedures for installing, commissioning and maintaining efficient performance of mechanical, plumbing, fire protection, electrical, and lighting systems in building. Two hours rec. a week. Pr.: CNS 534, 535, and 536.

CNS 641. Construction Estimating. (4) I, II. Understanding estimating procedures, quantity surveying, specification reviews, pricing of an estimate, market analysis, subcontractor and supplier solicitation, and risk management, following the CSI format. Two hours rec. and six hours lab a week. PR.: CNS 325 and 540. Conc.: CNS 645. Pr. or Conc.: CNS 642.

CNS 642. Construction Management. (3) I, II. An introduction to the business of construction; study of legal considerations, contract documents, bonds and insurance. Evaluation of the characteristics of the construction firm, organization structure, and financial performance. Three hours rec. a week. Pr.: CNS 540.

CNS 644. Topics in Construction Management. (V) I, II. On sufficient demand. Topical material of importance in the management of construction such as marketing, ethics, personnel management, etc. Pr. or conc.: CNS 642.

CNS 645. Construction Scheduling and Cost Control. (3) I, II. Construction cost reporting and control. Construction planning, both long-term and short-interval, construction scheduling, monitoring, and controlling. Computer application. Two hours rec. and two hours lab a week. Pr.: CNS 540 and conc. enrollment in CNS 641.

CNS 650. Construction Safety. (2) II. Introduction to safety and safety programs, workers' compensation, OSHA organization and structure, safety policies and record keeping, safety standards. Emphasis will be on communication and job-site safety management. On-site safety inspections will be required within class presentation and written reports to be submitted. Two hours rec. a week. Pr. or conc.: CNS 535 and CNS 540.

CNS 660. Construction Operations. (3) I, II. Shop drawing and submittal processes, field and office practices, change orders, construction safety standards and practice, pre-construction planning, expediting, short-interval planning. Two hours rec. and three hours lab a week. Pr.: CNS 641, CNS 642, and CNS 645. Pr. or Conc.: CNS 650.

CNS 738. Mechanical and Electrical Estimating. (2) II. Techniques of mechanical and electrical building systems estimating. Procedure for evaluating relative costs of different systems. Development of computer-aided finite and conceptual estimating techniques. Two three-hour labs per week. Pr.: ARE 534 or CNS 534, ARE 536 or CNS 536, and Pr. or conc.: ARE 533 or CNS 535.

For more information

For additional information and application materials please contact:
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Art

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Head:
Gerry Craig

Director of graduate studies:
Elliott Pujol

Graduate Faculty:

Lynda Andrus, M.F.A., University of Iowa.

Thomas Bookwalter, B.A., Emporia State University.

Glen R. Brown, Ph.D., Stanford University.

Gerry Craig, M.F.A., Cranbrook Academy of Art.

Douglas Dow, Ph.D., Pennsylvania State University.

Daniel Hunt, M.F.A., Southern Illinois University.

Yoshiro Ikeda, M.F.A., University of California, Santa Barbara.

Nancy Morrow, M.F.A., University of Washington.

Duane P. Noblett, M.F.A., University of Iowa.

Mervi Pakaste, M.F.A., Penn State University.

Elliott Pujol, M.F.A., Southern Illinois University.

Roger Routson, M.F.A., University of Illinois.

Jason Scuilla, M.F.A., Temple University.

Teresa Tempero Schmidt, M.F.A., Washington State University.

Jeff Smith, M.F.A., Kansas State University.

Graduate Faculty Emeriti:

LouAnn Faris Culley, Ph.D., Stanford University.

Margo Kren, M.F.A., University of Iowa.

Oscar Vance Larmer, M.F.A., Wichita University.

Judith Love, M.F.A., University of Nebraska.

James C. Munce, M.F.A., Indiana University.

John William O'Shea, M.F.A., State University of Iowa.

Rex Replogle, M.F.A., University of Kansas.

Edward Sturr, Ed.D., Illinois State University.

James P. Swiler, M.F.A., Wichita State University.

John L. Vogt, M.F.A., University of Illinois.

Gary L. Woodward, M.F.A., University of Washington.

Master of fine arts

As established by the College Art Association and accepted by all accredited universities, the master of fine arts degree is the terminal degree in

visual arts education and is equivalent to terminal degrees in other fields, such as the Ph.D. or Ed.D. It is a graduate program wherein the emphasis is placed upon the studio practice of art, with the intent of educating students for professional careers as artists and designers or as university teachers of the visual arts.

First and foremost, the profession demands from the recipient of the M.F.A. a certifiable level of technical proficiency and the ability to make art. When work toward the M.F.A. has been concentrated in a particular medium, there should be complete professional mastery of that medium. The generalist, whose preparation has been broader and less specialized, must still meet the critical demands of the profession by convincingly demonstrating expertise and knowledge in a number of areas. In any case, the need for thorough training of the mind, the eye, and the hand is self-evident.

The Department of Art offers a 60-hour graduate program leading to the master of fine arts degree in the fields of painting, drawing, sculpture, ceramics, printmaking, metalsmithing and jewelry, and graphic design and digital media. There are 15 full-time graduate faculty members who, in addition to their teaching, are active in exhibiting or publishing.

The department has fully equipped workshop facilities and also provides some individual studios for graduate students. Graduate teaching assistantships are available, with the added benefit of 100 percent tuition remission for full-time GTAs.

The university provides a variety of experiences for learning and development through a stimulating series of exhibitions, lectures, theatre presentations, concerts and recitals. Additionally, the art department sponsors its own regular series of visiting lecturers, artists, and critics-including, during the past several years, Garo Antresian, Lynda Benglis, Michael Fried, Lucy Lippard, Robert Morris, Rudy Pozzatti, Miriam Schapiro, Alan Schields, Nathan Goldstein, Ruth Duckworth, Brent Kington, Ken Ferguson, Arline Fisch, and Dale Eldred.

Admission procedures

Upon receipt of a request, the department will supply application blanks and such supplementary information as may be needed to complete the application.

A complete application file must be received in the Department of Art on or before the following deadlines:

- Fall admission: the deadline is February 15, preceding the first fall semester the applicant wishes to attend.
- Spring admission: the deadline is October 15, preceding the first spring semester the applicant wishes to attend.

The application file must include all of the following. Absence of any one of the requirements will constitute an incomplete application and will not be processed by the graduate studies committee of the department:

1. A completed application form, with an indication of a major area of concentration.

2. Two official copies of transcripts from all colleges or universities attended (transcripts, bearing an official seal, must be sent from each institution directly to the Department of Art).

3. Three letters of recommendation (preferably from former art instructors).

4. A statement of purpose, outlining why the applicant wishes to pursue graduate work in the visual arts.

5. A portfolio of 15 slides of recent work or a CD of recent work, along with a list of those works by title, date, medium, and size.

6. An international applicant whose native language is not English must submit his/her TOEFL score.

7. The Graduate School requires that a signed statement of financial responsibility accompany the application of an international student.

8. If the applicant wishes to apply for a graduate teaching assistantship, a statement to that effect, along with an explanation of any teaching experience the applicant might have had, should be included.

9. A $55 fee for international students and a $30 fee for domestic students must accompany the completed application.

Entrance requirements

To be admitted as a graduate student in the M.F.A. program, the applicant must have a B.A., B.S., or B.F.A. degree from an accredited institution, adequate undergraduate education in the visual arts, and an undergraduate average of B (3.0) or better in the junior and senior years. The applicant should have at least 60 undergraduate semester credit hours in visual arts, with a minimum of 20 semester hours in the area of concentration.

All international students applying to the M.F.A. program must meet the same level of achievement as U.S. students.

M.F.A. requirements

The graduate course requirements for the M.F.A. of 60 semester credit hours would normally be distributed over six semesters of a three-year

program. In any case, the student will be required to spend a minimum of three semesters in the M.F.A. program with one academic year in residency as a full-time student. The 60 semester credits of course work include courses in art history and cognate areas of study. These required credits may not include course work that is required as make-up for undergraduate deficiencies.

Course requirements:	
Area of concentration	35-40 semester credit hours
Supporting studio course	3-10 semester credit hours
Art history	9 semester credit hours
Free electives	11 semester credit hours

Courses outside the area of concentration (supporting and free electives) should be taken from faculty other than the major professor, in order to get as much experience as possible with others on the graduate faculty. Students are also encouraged to take a portion of their free electives outside the art department.

Each student's program of study is subject to the approval of the major professor and the supervisory committee. It is emphasized that this is a committee/departmental option and not a student's option. The thesis requirement for the M.F.A. degree consists of the following:

The graduate exhibition: a substantial body of original works of art to be exhibited on campus during the final semester of the student's program.

A written document in which the candidate demonstrates proficiency in conducting research and in analyzing, interpreting, and organizing material, as well as evidencing the ability to communicate perceptions, insights, and conclusions. A slide portfolio of the graduate exhibition is required and will be kept by the Department of Art for the record. Satisfactory completion of both the visual and written portions of the thesis is required for the awarding of the M.F.A. degree. The final oral examination for the M.F.A. degree will be taken when the student has completed the program of study, has hung his or her graduate exhibition, and has delivered a copy of the written document to each member of the supervisory committee.

Applicants with the M.A. degree

Students with an M.A. degree from an accredited institution who wish to apply for the M.F.A. program at Kansas State University should follow the same general application procedures outlined above.

Students who hold an M.A. degree may apply up to 20 hours of that degree toward an M.F.A. The number of hours to be accepted will depend on the relevance of the course work to the M.F.A. After the applicant has been accepted into the M.F.A. program, the director of graduate studies will meet with the graduate studies committee, the proposed major professor and the coordinator of the student's studio area to evaluate the student's transcript and to determine the number of credits which may be applied to the M.F.A. degree.

Art courses

Undergraduate and graduate credit in minor field

ART. 545 Twentieth Century Art History I. (3) I. Origins and development of twentieth century art from 1980 to 1914. Pr.: ART 195 or 196.

ART 550. Twentieth Century Art History II. (3) II. Origins and development of twentieth century art from 1914 to 1950. Pr.: ART 195 or 196.

ART 560. Art for the Exceptional Individual. (3) I, II. Using art concepts and activities to meet the needs of the mentally retarded, physically impaired, emotionally disturbed, or gifted. Three hours lec. Pr.: PSYCH 110. Same as EDCI 560.

ART 561. Intermediate Oil Painting. (3) II. Continuation of Introduction to Oil Painting, with emphasis on direct observation from still life and the human form. Six hour lab. Pr.: ART 220 and ART 245.

ART 563. Photography in Art II. (3) Creative exploration of broad-based approaches to photographic images. Both camera and dark-room manipulations will be used in the process of image making. Six hours lab. May be repeated for credit. Pr.: ART 295.

ART 565. Ceramics II. (3) I, II. Advanced work on potter's wheel combined with hand-built forms. Consideration of simple kiln design, firing techniques, and procedures using various fuel burning kilns. Six hours lab. May be taken for four semesters. Pr.: ART 265.

ART 570. Mixed Media Painting Workshop. (3) I, II. Experimental approaches to painting within varied media. Focus on media, idea and composition, using traditional painting materials, including assemblage. Six hours lab. Pr.: ART 245.

ART 575. Graphic Design and Illustration. (3-4) I, II, S. Problems in layout design and illustration for newspapers, magazines, and general advertising. Six hours lab. May be taken for four semesters. Final semester will include a portfolio project. Pr.: ART 205.

ART 576. Advanced Typography. (3) I, II, S. Typographic theory and use exploring formal and informal structures with an analysis of historic of historic styles from the Dadaists through current typographic concepts. Multipage layouts emphasized. Six hours lab. Pr.: ART 205, ART 290 and ART 400

ART 577. Matrix Studio and Business Practices. (3) I, II, S. Students are selected by portfolio review, design projects are completed to

client specifications. Professional design management, ethics, setting up a business, client/designer relationships, contractual options, billing practices, and operating procedures will be covered. Six hours lab. May be repeated. Pr.: ART 576.

ART 580. Visual Communication Senior Studio. (3) I, II, S. Directed senior thesis project, portfolio and resume preparation. Selected topics in design. Six hours lab. May be repeated once. Pr.: Instructor's permission, ART 576.

ART 582. Internships in Visual Communication. (0-3) I, II, S. Emphasis on problem solving and related skills in visual communications in a professional setting. May be repeated for up to 9 hours credit. Pr.: ART 575.

ART 601. Graphic Desigh History/Theory/Criticism. (3) I. II. Study of significant works from late nineteenth century to the present to provide understanding of the development and character of graphic design, artists, and designers. Three hours lecture.

ART 602. Twentieth Century Art History III. (3) I, II, S. Art movements beginning with abstract expressions and continuing through pop, op, minimal, and conceptual art movements up to 1980. Pr.: ART 195 or 196.

ART 603. Twentieth Century Art History IV. (3) I, II, S. The art movements of the 1980s beginning with photo-realism and continuing through pattern and decoration, new image art, neo-expressionisms, and neo-abstraction. Pr.: ART 195 or 196.

ART 604. Greek Art History. (3) I, II. The art of classical Greece, from its Aegean origins through the Hellenistic period. Pr.: ART 195 or 196.

ART 611. Digital Photography and Advanced Techniques.(3) I, II. Introduction to the principles and aesthetics of digital image processing as well as continued exploration of chemical photography techniques. May be repeated for credit. Pr.: ART 400 and 563.

ART 612. Renaissance Art History. (3) I, II. Renaissance art of northern and southern Europe in the fifteenth and sixteenth centuries, with a brief discussion of its fourteenth century origins. Pr.: ART 195 or ART 196.

ART 622. Baroque Art History. (3) I, II. The development of the baroque period in northern and southern Europe, from its beginnings in the early seventeenth century to the rococo style of the eighteenth century. Pr.: ART 195 or 196.

ART 630. Foreign Studies in Studio Art (1-6) I, II, S. Participation in studio art study abroad. Pr.: 3 credit hours of studio art and consent of instructor.

ART 631. Contemporary Media Seminar. (3), I, II. A review of current trends in contemporary media and visual communications. Studio/Lecture. Pr.: ART 400.

ART 632. The Development of American Art. (3) I, II. American art from the Colonial period to the beginnings of abstract expressionism in the early 1940s, with major emphasis on the late nineteenth and early twentieth century developments. Pr.: ART 195 or 196.

ART 634. History of Modern Sculpture. (3) I, II. Directions in sculpture since the time of Rodin. Pr.: ART 195 or 196.

ART 642. Nineteenth Century Art History. (3) I, II. Painting, sculpture, and architecture of the late eighteenth and nineteenth centuries, with emphasis on the art of France. Pr.: ART 195 or 196.

ART 654. Women in Art. (3) I, II. The work of women artists from early Middle Ages to the twentieth century, with emphasis on the contemporary period. Pr.: ART 195 or 196.

ART 662. Southwestern Indian Arts and Culture. (3) I, II. The development of southwestern Indian silversmithing, weaving, pottery, basketry, and painting from the prehistoric period through the twentieth century. Pr.: ART 195 or 196.

Undergraduate and graduate credit

ART 600. Advanced Drawing. (1-5. Credits over 3 hours must be approved by the instructor.) I, II. Upper-level drawing, development, and personal motivation. Lectures and problems directed toward an understanding of the historical development of drawing as well as investigations of contemporary studies. May be taken for four semesters. Pr.: ART 225, 240.

ART 610. Figure Drawing II. (3) I, II. Continuation of Figure Drawing I, with emphasis on individual expression. Six hours lab. May be taken for four semesters. Pr.: ART 225.

ART 611. Digital Photography and Advanced Techniques. (3) I, II. Introduction to the principles and aesthetics of digital image processing as well as continued exploration of chemical photography techniques. May be repeated for credit. Pr.: ART 400 and 572.

ART 623. Advanced Concepts in Computer Art and Design. (3) I, II, S. Studio exploration of computers as a tool/medium for art disciplines. Two hours lec., four hours lab. Pr.: ART 575. May be repeated for up to 6 credit hours.

ART 625. Independent Study-Art Education. (1-5) I, II, S. Work offered in art education after competency has been achieved. Personal development is emphasized. Pr.: Full sequence of courses related to art education subject matter.

ART 631. Contemporary Media Seminar. (3) I, II. A review of trends in contemporary media and visual communication. Studio/lec. Pr.: ART 575. May be repeated for up to 6 credit hours.

ART 635. Advanced Printmaking. (3) I, II. Advanced work in relief, serigraphy, lithography, and intaglio. Six hours lab. May be taken for six semesters. Pr.: ART 235.

ART 645. Sculpture II. (3) I, II. Emphasis on artistic development through exploratory experiences in the various media. Advanced wood working processes, mold making, foundry techniques and welding processes. Six hour lab. May be taken for four semesters. Pr: ART 230.

ART 650. Advanced/Senior Painting Studio. (3) I, II. Individualized studio work in varied painting media. Focus on strengths and exploration of media for personal expression. Emphasis for graduating seniors will be on producing a cohesive body of work in preparation of BFA exhibition. May be taken four times. Six hours lab. Pr.: ART 561 and ART 570.

ART 655. Metalsmithing Techniques. (3) I, II. Surface embellishment, container construction of various techniques, linkage, and mechanical problems will be explored in addition to stone setting. Nine hours lab. May be taken for three semesters. Pr.: ART 270.

ART 660. Sculpture III. (1-5) I, II. Continuation of Sculpture II. Further exploration of media and technique, emphasizing the development of individual direction and expression. Primarily for undergraduate sculpture majors. May be taken for four semesters. Pr.: ART 645.

ART 665. Ceramics III. (1-5) I, II. Individual exploration and further development of ceramic design and glaze technology; continuation of kiln design and construction. Six hours lab. May be taken for three semesters. Pr.: ART 565.

ART 675. History of Ceramics. (3) I, II. History and development of ceramics; study of the use of pottery and other aspects of ceramics from earliest known records to present day. Use of slides and other visual materials. Pr.: ART 195 or 196.

ART 679. Color Experiments, Theory and Application. (3) Intersession only. Explores the interaction of color through a variety of exercises, both practical and experimental. Emphasis on visual perception and the relative use of color. Color's potential in illusionist structures and visual communication, color systems. Pr.: ART 100.

ART 680. Metals Workshop. (1-5) I, II. A number of metalsmithing techniques will be explored by the upper division student with emphasis on experimental problems and possibilities. The development of an individual point of view will predominate throughout the course. May be repeated twice. Pr.: ART 655.

ART 685. Advanced Independent Study Design. (Var.) I, II, S. Advanced work in design-related subjects. Pr.: Full sequence of courses related to problem subject matter.

ART 690. Techniques in Teaching Art. (Var.) I. Lectures and class discussion of methods, consideration of suitable laboratory equipment, use of illustrative material, and preparation of courses of study. Pr.: Twelve hours in art or consent of instructor.

ART 695. Topics in Art History. (Var.) I, II, S. Independent exploration in selected problems in art history. Pr.: Twelve hours art history.

Graduate credit

ART 820. Graduate Graphic Design/Visual Communications. (Var.) I, II, S. Advanced creative work with emphasis on technical and visual research.

ART 825. Professional Practices. (3) I, II. Selected topics dealing with career preparation skills such as developing a professional and teaching portfolio, computer techniques for promoting one's art, establishing relationships with galleries/museums, and agencies, basic techniques of exhibition design and installation, techniques of critiquing works of art, etc. Pr.: Graduate standing.

ART 826. Graduate Seminar. (2) II. Emphasis upon the exchange of ideas and exploration of critical theory. Direct involvement in critiques, readings, discussions, and field trips. Each semester a different theme will guide a pertinent topic from within the field. May be taken for two semesters.

ART 830. Graduate Sculpture Studies. (Var.) I, II, S. Advanced creative work with emphasis on technical and visual research.

ART 835. Graduate Drawing Studies. (Var.) I, II, S. Advanced creative work with emphasis on technical and visual research.

ART 845. Graduate Painting Studies. (Var.) I, II, S. Advanced creative work with emphasis on technical and visual research.

ART 855. Graduate Printmaking Studies. (Var.) I, II, S. Advanced creative work with emphasis on technical and visual research.

ART 865. Graduate Ceramics Studies. (Var.) I, II, S. Advanced creative work with emphasis on technical and visual research.

ART 875. Graduate Metalsmithing and Jewelry Studies. (Var.) I, II, S. Advanced creative work with emphasis on technical and visual research.

ART 885. Graduate Independent Studies. (1-5) I, II, S. Advanced individual work offered in studio areas of ceramics, graphic design, drawing, painting, printmaking, sculpture, and metalsmithing and jewelry.

ART 887. Contemporary Art Theory and Criticism. (3) I. Discussion of the principal theories influencing production and criticism of contemporary art.

ART 899. Research in Art. (Var.) I, II, S. Research which may form the basis for the master's of fine art thesis or report.

For more information

For additional information and application materials please contact:
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Director of Graduate Studies
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Animal Sciences and Industry

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Daniel Y. C. Fung, Ph.D., Iowa State University.

Kelly Karr Getty, Ph.D., Kansas State University.

Robert D. Goodband, Ph.D., Kansas State University.

David M. Grieger, Ph.D., Washington State University.

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Twig T. Marston, Ph.D., Oklahoma State University.

J. Ernest Minton, Ph.D., Oklahoma State University.

Daniel W. Moser, Ph.D., University of Georgia.

Jim L. Nelssen, Ph.D., University of Nebraska.

Abbey L. Nutsch, Ph.D., Kansas State University.

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Teresa L. Slough, Ph.D., Colorado State University.

J. Scott Smith, Ph.D., Pennsylvania State University.

John F. Smith, Ph.D., University of Missouri-Columbia.

Jeffrey S. Stevenson, Ph.D., North Carolina State University.

Janice C. Swanson, Ph.D., University of Maryland.

Evan C. Titgemeyer, Ph.D., University of Illinois.

Mike D. Tokach, Ph.D., University of Minnesota.

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Program description

The Department of Animal Sciences and Industry is a comprehensive unit supported by about 50 faculty devoted to research, teaching, and extension activities related to domestic farm animals species. Currently, the department has approximately 700 undergraduate students advised in the department and about 75 graduate students pursuing both M.S. and Ph.D. degrees.

For graduate training, the department has animal research and teaching units located conveniently to the main campus. Those units include sheep, poultry, purebred beef, dairy, swine, and horse teaching and research units and the beef, forage, range and cow-calf research units. In addition, laboratories in both Call and Weber Halls contain state-of-the-art equipment that allow the student access to most analytical techniques required for their research.

Graduate training in the Department of Animal Sciences and Industry is organized within six functional discipline groups including animal breeding and genetics, food science, meat science, monogastric nutrition, physiology, and ruminant nutrition.

Animal breeding and genetics

Graduate work leading to M.S. and Ph.D. degrees in animal breeding is administered by participating faculty. Graduate programs are designed specifically for each student to acquire training in genetics, animal breeding, and statistics. Additional courses will be selected from the fields of

biological and physical sciences. A typical program of study will include some of the following graduate level courses: statistical and population genetics; animal breeding; statistics and experimental design; physiology; and anatomy. Research is conducted using field data from cooperating ranches, breed association, and universities. Facilities are available for adequate analysis of most data set, including REML and BLUP procedures.

Food science

The food science program represents a large interdisciplinary degree program and is detailed in a separate area in the catalog.

Meat science

The meat science program is comprehensive and prepares students for fundamental and applied research, product and process development, and technical service in industry, academic, regulatory, and international positions. Faculty conduct research in tissue growth and development; germplasm characterization; ante- and post-mortem factors and processes affecting meat quality and composition; myofibrillar, collagen, and pigment chemistry; packaging; lighting; irradiation; low-fat products; by-product value enhancement; processed meats; quality assurance; and safety of meat and meat products. Facilities include a fully equipped meat laboratory that permits experimental and industry-like fresh and processed meat processing; research laboratories for physical and chemical analyses; and thermal processing, display, and sensory facilities for instrumental and sensory panel evaluation of meat products. Graduate students are actively involved in teaching, research, and extension activities as part of their training.

Monogastric nutrition

The monogastric nutrition team offers comprehensive training that weaves a basic understanding of nutrition into an applied research program. Areas of specialized emphasis include: amino acid nutrition as influenced by age, sex, weight and physiological state of the animal; utilization of alternative feed ingredients; influences of technological advances on nutritional requirements; effects of feed processing technologies on nutrient utilization; and manipulation of the immune response through the diet.

Innovations by the K-State monogastric nutrition team include phase feeding programs for the young pig, high nutrient density starter diets, particle size and extrusion processing to improve nutrient utilization in both swine and poultry diets, and somatotropin influences on nutrient requirements. Additionally, K-State is a national leader in conducting field research in modern commercial swine facilities. This allows graduate students to be exposed to the swine business while conducting timely and industry-leading research.

Graduate students are offered an array of course work to develop areas of expertise. Common areas of training include basic nutrition, biochemistry, statistics, grain science, and immunology. Seminars and discussion groups are an integral part of the graduate program. Prospective graduate students should visit with the faculty and current graduate students about opportunities in the program.

Physiology

Students pursuing M.S. and Ph.D. programs in physiology in the Department of Animal Sciences and Industry will be exposed to a comprehensive, interdisciplinary degree program including course work, seminars and research experiences spanning many departments including biochemistry, statistics, biology, and anatomy and physiology.

Graduate training in physiology prepares students for various careers in research, teaching, technical services, consulting, adult education, and extension in animal reproduction and related fields of animal physiology. Graduate studies will be in reproductive endocrinology, establishment of pregnancy, cell and tissue culture, molecular biology of reproduction, stress-environmental physiology, gamete physiology, and exercise physiology.

Ruminant nutrition

The ruminant nutrition program is characterized by highly productive individual research programs and a concomitant commitment to the pursuit of collaborative research efforts. Scientists within the ruminant nutrition program maintain the dual goals of conducting research which will advance the understanding of fundamental nutritional phenomena but which also provide insight into practical aspects of the nutritional management of ruminant livestock. Students entering the program are provided with a strong foundation in ruminal and post-ruminal digestion, absorption, and metabolism as well as training in the fundamental experimental procedures necessary for conducting ruminant nutrition research.

Supporting course work is frequently pursued in the areas of biochemistry, grain science, microbiology, physiology, and statistics. Areas of research emphasis within the ruminant nutrition group include dairy cattle nutrition, feedlot nutrition, cow-calf and stocker nutrition (special emphasis on grazing livestock), rumen microbiology, and silage research.

Admission

Application for admission to graduate school should begin as early as possible in the semester prior to the proposed admission date (i.e., for fall semester, begin application process early in the preceding spring semester).

All applicants must submit a completed application form, three letters of recommendation, and official transcripts of all previous college work. In addition, the applicant should write a short statement of objectives which should include the discipline area (and animal species if appropriate) in which the student desires to study. The student should mention in the statement of objectives specific faculty with whom they may have had prior

contact, and with whom they desire to work as graduate students. This information is important in placing prospective graduate students with major professors whose area of research coincides with their areas of interest.

In addition to the information noted above, international applicants must submit a TOEFL score of at least 550 (or 213 if computer-based test) or provide evidence of receipt of a degree from a U.S. university. International students must also provide a completed financial form and evidence of financial support for their entire graduate training.

The Graduate Record Examination is not required for admission, but may be helpful in the evaluation process.

Upon receipt of all of the required application documentation, the applicants file will be reviewed by the departmental graduate activities committee which includes graduate faculty members representing each of the six discipline areas. If the student is deemed acceptable for admission, a graduate faculty member willing to serve as major professor must be identified prior to forwarding of the students credentials to the graduate school.

Limited numbers of graduate research assistantships and graduate teaching assistantships are available on a competitive basis. Those students awarded an assistantship have out-of-state fees waived.

Animal science and industry courses

The M.S. or Ph.D. program of study shall include supportive course work from several departments including statistics, biochemistry, anatomy and physiology, biology, grain science and others. Graduate level courses offered in the Department of Animal Sciences and Industry are listed below.

Undergraduate and graduate credit in minor field

ASI 500. Genetics. (3) I, II, S. An introduction to Mendelian, molecular, quantitative, and population genetics. Three hours lec. a week. Pr.: BIOL 198 or 210.

ASI 504. Equine Reproduction Management. (2) II. Theory and practice in reproductive management and breeding techniques of the horse. Includes basic reproductive physiology of the stallion and mare, demonstration and practice in semen collection and processing, teasing systems, natural and artificial breeding techniques, management, and record keeping. Six hours lab a week. Pr.: ASI 400 or equiv. and senior standing.

ASI 505. Food Science: Chemistry and Application. (3) II. Composition, structure and properties of foods. Chemical interactions affecting texture, color, flavor, and stability during processing and storage. Two hours rec. and three hours lab a week. Pr.: CHM 350 and 351; BIOCH 521 and 522.

ASI 510. Animal Breeding Principles. (3) I, II. The genetic principles in evaluation, selection and mating systems used in beef, dairy, sheep, swine, poultry and horse breeding. Intended for ASI majors. Three hours lec. a week. Pr.: ASI 500.

ASI 512. Bovine Reproductive Technologies. (2) I. Reproductive technologies used in management of cattle including the physiology of the estrous cycle, embryo viability, and fetal development. Practical training in reproductive management technique. One hour lec. and five hours lab a week. Pr.: ASI 400, senior standing and consent of instructor.

ASI 515. Beef Science. (3) I, II. A comprehensive course covering all phases of the beef cattle industry. Practical application of nutrition, breeding, physiology of reproduction, merchandising, risk management and related areas. Special emphasis on management systems of raising, growing and finishing beef cattle. Rec. Pr.: Senior standing.

ASI 520. Companion and Laboratory Animal Management. (3) I. General biology and management of pets in zoos, kennels and at home. Working safely with companion animals. Management of animals in kennels, shelters, research facilities and zoos. Regulatory issues of small animals used as companion pets and in laboratory research. Interactive discussion and written skills will be emphasized. Three hours of lec./rec. a week. Pr.: ASI 107 and junior standing.

ASI 521. Horse Science. (3) II. A study of the horse industry in the U.S., breed profiles, anatomy and evaluation, nutrition, reproduction, growth and development, health, excercise physiology, facilities and equipment, business considerations. Three hours lec. a week. Pr.: Junior standing.

ASI 524. Sheep Science. (3) I. Application of scientific management principles to the sheep industry. Breeding, reproduction, nutrition, health, facilities and economic aspects as related to sheep production. Two hours lec. and two hours lab a week. Pr.: Junior standing.

ASI 533. Anatomy and Physiology. (4) II. General anatomy and physiology of the domestic animals. Three hours rec. and three hours lab a week.

ASI 534. Introduction to Pharmacology of Farm Animals. (2) II, in even years. The study of the basic principles of pharmacology as related to the proper and safe use of drugs and chemicals by the livestock industry.

ASI 535. Swine Science. (3) I, II. Application of basic scientific principles to the economical production of pork. Recommendations are made in breeding, reproduction, nutrition, health, housing, marketing, and management of swine production units of varying sizes. Two hours lec. and two hours lab a week. Pr.: Senior standing.

ASI 540. Principles of Animal Disease Control. (3) II. A study of the factors that influence animal health and disease control for students

majoring in agriculture and other fields. Three hours lec. a week. Pr.: ASI 533.

ASI 580. Animal Sciences and Industry Seminar. (I) I. Open only to senior students majoring in animal sciences and industry. One hour rec. a week.

ASI 595. Contemporary Issues in Animal Science and Agriculture. (3) II. The development and management of current issues affecting animal agriculture and science in three primary areas: 1) how do issues develop; 2) the political aspects of issues; and 3) the development of expertise based on objective assessment. Current issues such as animal welfare/rights, environment, genetic engineering, etc., will be used to provide students with practical learning experiences. Rec. Pr.: Junior standing.

ASI 599. Animal Science Internship. (1-6) I, S. Industry work-study experiences in beef cattle, sheep, dairy cattle, swine, horse or poultry production operations or in animal food products plants. Pr.: Permission of supervising faculty member.

Undergraduate and graduate credit

ASI 600. Applied Animal Biotechnology. (2) II. Emphasis will be placed on the current and future of animals in biotechnology related to food production as well as human medicine applications. Rec. Pr.: Senior standing, BIOCH 521 and ASI 500.

ASI 601. Physiology of Lactation. (3) I. Anatomy and embryonic development of the mammary gland, physiology of lactation, milk constituents, and management practices that alter quality and quantity of milk. Contemporary milking practices and mastitis control. Two hours lec. and two hours lab a week. Pr.: ASI 400 and 533.

ASI 608. Dairy Foods Processing & Techonology. (3) II. The fundamental technologies used to process high quality dairy foods using freezing, heat membrane and pressure technologies. Changes in milk chemistry, microbiology and structure will be emphasized during the processing of butter, soft and hard cheeses, concentrated milks, ice cream and yogurt. Two hours of lecture and one three-hour lab a week. Pr.: BIOL 455.

ASI 610. Processed Meat Operations. (2) II. An intensive course in processed meats, relating the science, technology and quality control of curing, smoking and sausage manufacture. One hour rec. and two hours lab a week. Pr.: ASI 350.

ASI 620. Livestock Production and Management. (2) II. Student involvement in laboratory exercises related to practical livestock production and management. One hour rec. and four hours lab a week. Pr.: Appropriate ASI course (515, 521, 524 or 535).

ASI 621. Dairy Cattle Management. (3) II. Integration of biologic and economic aspects of dairy production with dairy farm organization, planning, operation and analysis. Field trips, dairy farm analysis and case studies will be used to supplement lec. material. Two hours rec., two hours lab a week. Rec. Pr.: senior standing.

ASI 640. Poultry Products Technology. (3) II, in even years. Emphasis on the technical problems that exist between production and consumption during the processing and marketing of poultry meat and egg products. A study of the microbiology of shell eggs, meat and manufactured products and the basic principles of quality assurance. Food manufacturing and product development are discussed. Three hours lec. a week. Rec. Pr. ASI 106.

ASI 645. Poultry Management. (3) II, in odd years. A detailed study of the production and management practices involved in commercial poultry and game bird enterprises. Two hours rec. and one three-hour lab a week. Rec. Pr.: ASI 102, 106 and junior standing.

ASI 650. Identification and Data Management of Food Animals. (2) I. Procedures and the conventions required to accomplish individual identification for farm animals. Principles of sound data collection and management. Principles of automatic information and data capture technologies for transforming data into information. Guest lectures from allied industry and livestock producers will illustrate various products, services and applications. Two hours lec. a week. Pr.: Junior standing.

ASI 655. Behavior of Domestic Animals. (3) I. Behavior associated with domestication. Effects of selective breeding, physical and social environments, and developmental stage on social organization, aggressive behavior, sexual behavior, productivity and training of domestic animals. Physiology of behavior and abnormal behavior considered briefly. Two hours lec. and two hours lab a week. Pr.: BIOL 198 and junior standing.

ASI 658. Animal Growth and Development. (3) I. Principles of domestic animal growth and development of muscle, bone, and adipose tissue will be discussed. Three hours of lec. a week. Rec. Pr.: A course in biochemistry.

ASI 661. Animal Sciences and Industry Problems. (Var.) I, II, S. Independent guided studies in any of the many fields associated with animals and animal products. Pr.: Consent of instructor.

ASI 671 Meat Selection and Utilization. (2) I. Emphasis on meat cut identification, muscle and bone anatomy, grades, fabricated meat, institutional cuts, specification writing, processing, meat preparation and shrinkage costs. One hour lec.-rec. and two hours lab a week. Pr.: CHM 110 and 111.

ASI 675. Monogastric Nutrition. (1) I. An overview of the nutritional principles involved with feeding nonruminants. Topics will include digestive anatomy and the metabolism of carbohydrates, lipids, amino acids, vitamins, and minerals. Three hours lec. a week for 5 weeks. pr.: ASI 320.

ASI 676. Avian Nutrition. (1) I, in even years. Nutritional requirements of game birds, caged birds, exotics, and commercial poultry. Interactive

discussion will be emphasized. Three hours lec. a week for 5 weeks. Pr.: ASI 675.

ASI 678. Equine Nutrition. (1) I, in odd years. Equine digestive anatomy and physiology. Nutrient requirements of the equine as they relate to growth, work, reproduction and lactation, as well as the relationship of nutrition to disease and environment. Practical management considerations and current equine nutrition research will be reviewed. Three hours lec. a week for 5 weeks. Pr.: ASI 675.

ASI 679. Swine Nutrition. (1) I. A study of the nutrient requirements of swine for various stages of production. Discussion of the interrelationships among nutrition and other factors (environment, management, and health) that affect performance. Three hours lec., a week for five weeks. Pr.: ASI 675.

ASI 680. Ruminant Nutrition. (1) II. Advanced study of nutritional management of different species of ruminant livestock. Topics covered include ruminal function, post-ruminal digestion and absorption, utilization of key nutrients, and discussion of select metabolic disorders. Three hours lec. a week for five weeks. Pr.: ASI 320.

ASI 681. Dairy Cattle Nutrition. (1) II. Nutritional management of dairy calves, replacement heifers, dry and lactating dairy cows. Diet formulation, feeding systems and current concepts in dairy cattle nutrition. Three hours lec. a week for five weeks. Pr.: ASI 680.

ASI 682. Formulation of Livestock and Poultry Diets. (1) II. Diet formulation for the major species of livestock and poultry. Major topics include hand formulation of diets: ingredient/nutrient cost comparisons; dry matter manipulation; computerized diet formulation; developing specifications for diets, supplements, basemixes and premixes; projecting animal performance; and feed labeling. Three hours lec. per week for five weeks. Rec. Pr.: ASI 675 or ASI 680.

ASI 683. Grazing Livestock Nutrition. (1) II. Nutritional management of grazing beef cattle. Nutrition of beef cows and stocker cattle maintained under grazing conditions. Major topics to be covered include nutrient requirements, forage intake, forage quality, and supplementation. Three hours lec. a week for five weeks. Pr.: ASI 680.

ASI 684. Nutrition of Feedlot Cattle. (1) II. Nutritional management of growing and finishing beef cattle maintained under confined feeding conditions. Utilization of cereal grains and byproducts in the production of beef. Major topics include nutrient requirements, feed processing, growing-finishing systems, feed additives, metabolic disturbances, and nutrient management. Three hours lec. a week for five weeks. Pr.: ASI 680.

ASI 685. Stored Forage Systems for Ruminant Animals. (1) II. A study of nutrient conservation in various stored forage systems including storage facilities and equipment, nutrient loss, aerobic deterioration, chemical and physical analysis. Discussions will also include the impact of stored forage systems on forage quality and the subsequent effects on digestion and utilization in ruminant animals. Three hours lec. a week for five weeks. Pr. ASI 680.

ASI 710. Physiology of Reproduction in Farm Animals. (3) I, in odd years. The physiological aspects of reproduction in farm animals including endocrine inter-relationships controlling reproductive cycles and gamete production. Periodic demonstrations deal with specialized reproductive anatomy of farm animals, experimental techniques used in animal reproduction, and contemporary animal production practices. Three hours lec. a week. Pr.: ASI 400.

ASI 720. Anaerobic Bacteriology. (2) II, in even years. Study of anaerobic bacteria, anaerobiosis, description of anaerobic techniques, and physiology and biochemistry of anaerobes of natural environment including gastrointestinal tract, and of veterinary, medical, and industrial importance. Two hours lec. a week. Same as BIOL 720. Pr.: BIOL 455 and BIOCH 521.

ASI 749. Advanced Animal Breeding. (3) II. Application of genetic principles to livestock improvement, selection methods, mating systems, heritability estimates and methods of analyzing genetic data. Three hours lec. a week. Rec. Pr.: ASI 500 and three hours in statistics.

ASI 776. Meat Industry Technology. (3) I, II, S. Apply concepts and information about meat composition, product safety and spoilage, quality; formulation, processing and evaluation of cured, pre-cooked, and sausage; packaging, troubleshooting, and plant organization. This is a web-based lecture class intended for distance education students. Pr.: ASI 340 or ASI 350.

ASI 777. Meat Technology. (4) II. Meat composition, meat product safety and spoilage, quality assurance, meat processing techniques, sausage and formed products, color, packaging, plant planning and organization, field trip. Three hours lec. and three hours lab a week. Rec. Pr.: ASI 350 and 361; senior or graduate standing.

ASI 799. Graduate Internship in Animal Sciences and Industry. (1-4) I, S. In-depth work-study experiences on beef cattle, sheep, dairy cattle, swine, horse or poultry production operations or in animal food products plants. Pr.: Permission of supervising faculty member.

Graduate credit

ASI 802. Gametes, Embryos, and Stem Cells in Farm Animals. (2) I, in odd years. A study of gametes, embryos, pregnancy, and stem cells in farm species including supporting information from laboratory species and humans. Emphasis will be on the regulation of stem cells, gametes, and embryos and on the conceptus-maternal interactions to establish and maintain pregnancy and program conceptus and postnatal development. Two hours lec. a week. Pr.: BIOCH 521.

ASI 820. Rumen Metabolism. (3) II, in even years. Metabolism, absorption, digestion, and passage of nutrients in the rumen; factors affecting the environment of the rumen; certain aspects of rumen function and dysfunction; techniques used in rumen research. Three one-hour lec. A week. Pr.: ASI 318 and BIOCH 521 or 755.

ASI 825. Stress Physiology of Livestock. (3) I, in even years. Integrative physiology of livestock during environmental, management, and pathological stresses. Three hours lec. a week. Pr.: ASI 533 and BIOCH 521.

ASI 826. Nutritional Physiology. (3) II, in odd years. The course focuses on the structures and function of the gastrointestinal tract, with an emphasis on digestive physiology in the small intestine. Details of gastrointestinal tract secretion, regulation, digestion, and absorption of the major nutrient groups are emphasized with species comparisons. Three hours rec. a week. Pr.: BIOCH 521.

ASI 830. Neuroendocrine Physiology. (1) II, in odd years. Neuroendocrine regulation of reproduction, growth, and metabolism, with an emphasis on neuroendocrinology of domestic livestock. Three hours rec. per week for 5 weeks. Rec. Pr: BIOCH 521 and ASI 710.

ASI 831. Molecular Reproductive Endocrinology. (1) II, in odd years. A study of molecular mechanisms that control gene expression in mammals, with an emphasis on genes and their products that control reproduction. Three hours rec. per week for 5 weeks. Rec. Pr.: BIOCH 521, ASI 710 and ASI 830.

ASI 832. Ovarian Physiology. (1) II, in odd years. Endocrine and physiologic control of ovarian functions in domestic livestock. Three hours rec. a week for 5 weeks. Rec. Pr.: BIOCH 521, ASI 710 and ASI 830.

ASI 840. Techniques in Domestic Animal Behavior. (2) II, in even years. A combined seminar and laboratory type course. Current and classical studies reported and discussed, relationships between behavior and other disciplines explored and methods of data collection examined. Small-scale demonstration experiments planned, executed and reported orally and/or in scientific written style. One hour rec. and two hours lab a week. Pr.: ASI 655 and STAT 320.

ASI 860. Analytical Techniques--Sample Preparation and Beginning Analyses. (1) I. Sample collection, processing and handling methodologies will be addressed as they pertain to research methods in the animal sciences. Basic laboratory techniques, sample collection, and analyses of moisture and nitrogen will be covered. two hours lec., eight hours lab and one hour rec. a week for three weeks. Pr.: CHM 350.

ASI 861. Analytical Techniques--Mineral Analyses. (1) I. This course focuses on the analysis of minerals in common feedstuffs. This course will cover sample preparation and atomic absorption, emission, utraviolet/visible and fluorimetric spectrophotometric methods of analysis of feedstuffs and biological fluids. Two hours lec., eight hours lab and one hour rec. a week for three weeks. Pr.: CHM 350.

ASI 862. Analytical Techniques--Carbohydrate and Lipid Analyses. (1) I. This course covers the analysis of carbohydrate and lipid components of feedstuffs and biological materials using conventional as well as HPLC and gas chromatographic methods. Two hours lec., eight hours lab and one hour rec. a week for three weeks. Pr.: CHM 350.

ASI 863. Analytical Techniques--Radioisotope Use. (1) I, in even years. Study of radioisotope use in physiological applications of research in domestic animals including radioactive decay, detection methodology, and isotope dilution. Two hours lec., eight hours lab and one hour rec. a week for three weeks. Pr.: BIOCH 521.

ASI 864. Analytical Techniques--Immunoassays. (1) I, in even years. Study of measurement of biological substances and hormones utilizing enzyme-linked immunoassays (ELISA) and radioimmunoassays (RIA). Two hours lec., eight hours lab and one hour rec. a week for three weeks. Pr.: BIOCH 521.

ASI 890. Graduate Seminar in Animal Sciences and Industry. (1) I, II. Discussion of research and technical problems in the discipline. Attendance required of all departmental graduate students. Maximum of two hours may be applied toward an advanced degree.

ASI 898. Master's Report. (2) I, II, S. A written report of either research or problem work on a topic in the major field. Pr.: Consult major professor.

ASI 899. Master's Research in Animal Sciences and Industry. (Var.) I, II, S. Research leading to the completion of a master's thesis. Pr.: Consult major professor.

ASI 902. Topics in Animal Science. (Var.) I, II, S. Discussion and lectures on important areas and contributions in the field of animal science not covered in present courses. Pr.: Consent of instructor.

ASI 905. Lipids on Food Systems. (2) II, in alternate years. Physical and chemical characteristics of lipids with emphasis on their behavior and function in food systems. Pr.: ASI 815.

ASI 920. Energy Utilization in Domestic Livestock. (2) I, in odd years. Comprehensive discussion of the development and application of energy systems used to guide livestock feeding, procedures used in energy experimentation, dietary/digestive/environmental factors that influence efficiency of energy utilization, and the efficiencies with which different energy substrates are used to support various maintenance and production functions. Emphasis will be placed upon ruminants. Two hours lec. a week. Pr.: BIOCH 521.

ASI 921. Protein and Amino Acid Utilization in Domestic Livestock. (2) I, in even years. Comprehensive discussion of protein and amino acids and their role in digestion, absorption, metabolism, protein synthesis, and degradation in livestock. Emphasis on techniques and interpretation of results from experiments designed to evaluate protein utilization and factors which influence amino acid metabolism in monogastrics and ruminants. Two hours lec. a week. Pr.: ASI 820 or 826.

ASI 923. Vitamin and Mineral Nutrition of Domestic Livestock. (2) II, in even years. A detailed examination of the vitamin and mineral nutrition of domestic livestock. Emphasis will be placed on current literature on the determination of vitamin and mineral requirements, practical

considerations for vitamin and mineral supplementation in livestock feeding, and the potential for vitamin and mineral deficiency and toxicity in domestic livestock. One hour lec. and two hour lab a week. Pr.: ASI 820 or 826.

ASI 925. Rumen Microbiology. (3) II, in odd years. Three hours lecture a week dealing with the microorganisms of the rumen, their habitat, diversity, structure, interactions, and biochemical activities. Techniques for enumeration, isolation and identification of ruminal microorganisms. Same as DMP 869. Pr.: BIOL 455.

ASI 930. Advanced Meat Science. (3) I. On sufficient demand. Basic biochemical, physiological, and histological properties of muscle and related tissues; muscle contraction, rigor mortis, and muscle hydration; maturation; processing by thermal, dehydration, and cold sterilization techniques; meat flavor chemistry; meat research techniques. Three hours rec. a week. Pr.: ASI 777 or equiv.; and a course in biochemistry.

ASI 961. Graduate Problem in Animal Sciences and Industry. (Var.) I, II, S. In-depth study of a topic supervised by a member of the graduate faculty. Pr.: Permission of supervising faculty member.

ASI 990. Seminar in Animal Sciences Research. (1) I, II. Weekly evaluation of the scientific literature and the reasoning underlying the selection of research problems, the formulation and testing of hypotheses, and the evaluation and presentation of results. Pr.: Approval of major professor.

ASI 999. Doctoral Research in Animal Sciences and Industry. (Var.) I, II, S. Research leading to the completion of a Ph.D. degree. Pr.: Consult major professor.

For more information

For additional information and application materials please contact:
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Chairman, Graduate Activities Committee
Department of Animal Sciences and Industry
Kansas State University
132 Call Hall
Manhattan, KS 66506-0201.

E-mail: etitgeme@ksu.edu
Home Page: http://www.asi.ksu.edu/

Apparel, Textiles, and Interior Design

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Department head:
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Barbara G. Anderson, M.Arch., University of Kansas.

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Janice Huck, Emeritus, Ph.D., Kansas State University.

Migette L. Kaup, M.Arch., Kansas State University.

Joy Kozar, Ph.D., Iowa State University.

Melody L. A. LeHew, Ph.D., University of Tennessee

Elizabeth McCullough, Ph.D., University of Tennessee.

Gita N. Ramaswamy, Ph.D., Mississippi State University.

Muditha Senanayake, Ph.D., North Carolina State University.

Betty Jo White, Emeritus, Ph.D., Virginia Polytechnic University.

Programs

Graduate programs in apparel and textiles focus on the physical, chemical, economic, historic, socio-psychological, cultural, design, and/or comfort aspects of materials and products. Individual programs of study, capitalizing on the interests and disciplinary backgrounds of students and faculty, are developed to build the theoretical and methodological skills necessary to solve human ecological problems involving apparel and textiles. There are three areas of specialization: textile science, apparel design and production, and apparel and textile marketing. However, students may select courses in all of the areas for their program of study.

Objectives

The objective of the graduate programs in apparel and textiles is to prepare students for positions in education, industry, and public service that require expertise in apparel and textiles. Students develop this expertise through course work, research experience, consultation with graduate faculty members, and internships.

Facilities and Equipment

Textile Science Facilities
Kansas State University is fortunate to have some of the finest textile science facilities in the United States. The department is equipped with several wet chemistry laboratories, a large environmentally controlled physical testing facility, precision analytical instrumentation, fiber and film preparation equipment, small scale dyeing and finishing equipment, outdoor exposure facilities, a textile conservation laboratory, and state-of-the-art spectrophotometers and chromatographs. Practically all of the major ASTM and AATCC textile tests can be performed with accuracy and confidence in our facilities.

Other science facilities available on campus include eight climate-controlled chambers and extraordinary thermal measuring devices (e.g., manikins, sweating hot plate) housed in the Institute for Environmental Research, a scanning electron microscope, x-ray photoelectron spectrometers, neutron activation analysis, nuclear magnetic resonance, x-ray florescence and x-ray diffraction equipment.

Apparel Design Studios
The apparel design laboratories house equipment for design development and production, such as dress forms, patternmaking tables, sinks for

dyeing, and industrial and conventional sewing equipment. A compute laboratory with industry software and hardware is available to students. Adobe Illustrator and Adobe Photoshop are utilized for flat drawings and presentations. Lectra software includes Mikalis for specifications, U4ia for print design, and Modaris and Diamino for pattern design and marker making. A digitizer, larger plotter and printers are housed in the lab.

Master's degree in apparel and textiles

The student will select one of the following options when planning his/her program of study for the master's degree in apparel and textiles:

Thesis option: requires a minimum of 30 graduate credits, including 6-8 thesis credits and an oral examination that involves defense of the thesis and the integration of concepts from their work concepts.

Design project report option: requires a minimum of 30 graduate credits, including 2 Design Project Report credits (AT 896) and 4 Design Project Exhibit credits (AT 897). An oral examination that involves the defense of the project and the integration of concepts from coursework is also required.

Course work option: requires a minimum of 33 graduate credits and a written examination over course work.

Professional track: requires a minimum of 33 graduate credits and a written examination over course work; students are also required to enroll in AT 875 Practicum and complete an internship with a company.

Master's degree in apparel and textiles (specialization in Merchandising) via distance (GP IDEA)

For the Master's Degree, students will be required to complete 36 credit hours including all classes as well as practicum and/or thesis as required by each institution.

For more information see Apparel, Textiles & Interior Design or the Great Plains Interactive Distance Education Alliance.

Ph.D. in human ecology: apparel and textiles (specialization in Merchandising) via distance (GP IDEA)

The department also participates in the College of Human Ecology Ph.D. program, offering an emphasis in apparel and textiles. Course requirements for the Ph.D. program specify a minimum of 30 hours of course work (12 hours of core courses, a dissertation proposal seminar and other course work in major area); a minimum of 30 hours of dissertation research; and a minimum of 15-30 hours of supporting courses (a sequence of statistics courses, a research methods course, plus other supporting courses). A program of study will be individually planned to meet the specific needs and career goals of the student. Preliminary written and oral examinations and an oral defense of the dissertation also are required.

See Human Ecology in this catalog for more information on the Ph.D. program.

Admission and application

Application procedures

The following documents are needed for your application to Graduate School. The forms are available at http://www.ksu.edu/humec/atid or http://www.ksu.edu/grad.

- The KSU application form for admission to the Graduate School
- Reference form (you should ask three people to complete the form and send it to us)
- Assistantship application form (optional)
- One official transcript (with institution's seal) sent directly from each university attended
- GRE scores sent directly from testing agency (no minimum scores are required; the GRE requirement is waived for KSU students enrolled in the Apparel and Textiles degree program)
- A one-page statement of objectives where you state your reasons for pursuing a graduate degree, your career goals, and the specific area in which you would like to study
- TOEFL scores sent directly from testing agency (international students only; 600 minimum on the paper form or 250 minimum on the computer form are required)
- $55.00 application fee for international students; $30.00 application fee for domestic students; credit card, money order or cashier's check; personal checks will only be accepted for domestic student application fees; (all checks should be made payable to KSU Graduate School)
- Affidavit of financial support form (international students only)

Where to send applications materials

Gina Jackson, Secretary
Apparel, Textiles, and Interior Design

Kansas State University
225 Justin Hall
Manhattan, KS 66506-1405

Application deadlines

The following deadlines are strictly enforced for international students.

- February 1st for admission the following fall semester
- August 1st for admission the following spring semester
- December 1st for admission the following summer semester

Domestic students may apply at any time; however, to be considered for graduate assistantships and scholarships, the February 1st deadline must be met.

Review by graduate faculty

The graduate faculty in the department review applications as a group and decide to recommend admission. Applications will not be reviewed until they are complete and the application fee has been paid. If admission is recommended, the application, transcripts, and supporting materials are then sent to the Graduate School for final review. In the event that the faculty decide against admission, the applicant is notified by letter.

Assistantships/scholarships

Financial aid is available through teaching and research assistantships. Graduate students receive a monthly stipend and tuition fee reduction or waivers. Assistantship applications are due February 1 with a decision announced by March 15.

Some non-service scholarship funding also is awarded. The university on-line scholarship application, due by February 1, is available by accessing the following website: http://www.ksu.edu/sfa/scholarships/. A paper copy can be obtained by contacting the Office of Student Financial Assistance at (785) 532-6420, or e-mail at ksufa@ksu.edu. This application will allow your name to be considered for any scholarship for which you qualify.

Apparel and textiles courses

Undergraduate and graduate credit in minor field

AT 545. Global Apparel and Textile Production and Distribution. (3) I. Analysis of global fiber, textile, and apparel production and distribution; structure of industry and distribution channels; impact of culture, economics, and government regulations on production and distribution. Pr.: AT 245, ECON 110.

AT 550. Apparel and Textile Internship. (4) S. Pre-planned and supervised off-campus work experience in the apparel industry. Pr.: AT 445; AT 655 or 575; junior standing; and consent of instructor.

AT 575. Principles of Forecasting. (3) I. Introduction of the processes and methods used by the textile and apparel industry to conduct short-term and long-term forecasts. Application of fashion theory and principles, sources of information, knowledge, techniques and skills for planning and implementing fashion projection. Pr.: AT 325, AT 340, and AT 430.

AT 576. Principles of Buying. (3) I, II. Introduction to the processes and methods used by apparel buyers to purchase merchandise assortments. Application of fashion theory and principles, sources of information, knowledge, techniques and skills for assortment planning, buying, vendor negotiations, and profit planning. Emphasis on merchandising mathematics. Pr.: CIS 104, ACCTG 231, AT 325, AT 340, and AT 575.

Undergraduate and graduate credit

AT 610. Computer-Aided Design of Apparel. (3) II. Overview of computer-aided design as it relates to the apparel industry; introduction and application of computer hardware and software to apparel design, including apparel technical drawings, web design, and graphic presentation skills. Six hours lab a week. Pr.: AT 400.

AT 625. Apparel and Textile Store Planning. (3) I. Evaluation of the planning process utilized to develop successful apparel and textile retail organizations; consideration given to the unique challenges encountered by a firm with fashion-related products. Coreq.: AT 576.

AT 645. Private Label Apparel Product Development. (3) I, II. Capstone course using a team approach to synthesize and perform activities used by apparel retailers to create a line of private label merchandise for a targeted consumer market. Pr.: AT 460; AT 576 or AT 610, 655; senior standing.

AT 650. Apparel and Textiles Study Tour. (1-3) I, II, S. Supervised off-campus tour of facilities or equivalent experience where textile

products are designed, manufactured, tested, marketed, exhibited, and/or conserved. Pr.: Instructor's Permission.

AT 655. Apparel Pattern Development I. (3) I. Principles and techniques of flat pattern design; basic pattern drafting; development of knit slopers. Use of flat pattern and drafting to achieve original designs in knit and woven fabrics. Two hours lecture and four hours lab a week. Pr.: AT 400.

AT 670. Apparel Pre-Production Processes. (3) I. Computer application of pattern drafting, pattern grading, and marker layout for apparel pre-production processes. Computer applications for design development. Pr.: AT 655.

AT 695. Apparel Pattern Development II. (3) I. Apparel production development by draping to achieve original designs; pattern grading and marker techniques; line development for a variety of markets; portfolio and resumé evaluation. Two hours lec. and four hours lab a week. Pr.: AT 655.

AT 720. Professional Advancement in Merchandising. (3) I, II, S. Analysis of leadership in a merchandising form and how it affects organizational culture and change. Various leadership styles will be examined and a personal leadership philosophy will be developed.

AT 725. Theory and Practice of Apparel/Textile Marketing and Distribution. (3) I, in odd years. Theoretical and applied analysis of apparel/textile marketing and distribution strategies, with an emphasis on the effectiveness of a market-oriented approach for decision-making; assessment of environmental forces affecting strategic decisions by firms in the apparel/textile distribution channel; synthesis of past and present trends in order to forecast probable future patterns.

AT 735. Promotional Strategies in Merchandising. (3) I, II, S. Examination of promotional strategies and techniques used by merchandising firms, emphasizing cultural and global awareness, social responsibility, and ethical decision making.

Graduate credit

AT 800. Textile Surface Design. (3) I, in odd years. Application and analysis of textile surface design to include color and image addition and removal through wet processes and stitched surface manipulations.

AT 805. Theory and Process in Creative Apparel and Textile Design. (3) I, in even years. An examination of theories and processes in creativity and design, including sustainable design, and their application to the design of creative apparel and textiles. Two hours lec. and four hours lab each week.

AT 810. International Merchandise Management. (3) I, II, S. Comprehensive understanding of theory, practices, and trends in international merchandise management. An analysis of the global merchandising system and the way goods are distributed to consumers in various countries.

AT 815. Financial Merchandising Implications. (3) I, II, S. The advanced study of financial trends in the merchandising industries. Focus will be on the financial implications of recent advances in the field.

AT 830. Fashion Theory. (3) I, in even years. Examination of historical, sociological, psychological, marketing, and economic concepts, theories, and research that contribute to current understanding of the fashion process in the apparel and textile field.

AT 835. Strategic Economic Analysis of Apparel and Textile Industries. (3) II, in even years. Analysis of the current economic situation in the U.S. apparel and textile industries; examination of the internal and external forces affecting global production and distribution of apparel and textile products with emphasis on formulating strategies for industry success. Pr.: AT 545.

AT 840. Apparel and Textile Product Development. (3) II, in odd years. Interdisciplinary teams generate ideas and develop concepts for innovative apparel and textile products or modifications of existing products; evaluate market and manufacturing potential; prepare marketing and technology transfer plan. Pr.: AT 645 or permission of instructor.

AT 845. Consumers in the Apparel and Textile Market. (3) II, in odd years. Analysis of apparel and textile consumers and their decision-making processes; examination of internal and external factors influencing evaluation and purchasing behavior in order to predict future behavior consumption and purchasing patterns. Pr.: AT 645.

AT 850. Research Methods in Apparel and Textiles. (3) II, in even years. Review of current literature with implications for future research; analysis of research methodologies. Pr.: A graduate-level course in statistics and 6 hours in AT.

AT 855. Readings in Apparel and Textiles. (1-2) I, II, S. Directed reading and study of selected topics in apparel and textiles. Pr.: AT 850.

AT 860. Contemporary Topics in Apparel and Textiles. (2-3) I, alternate S. Analysis of social and environmental factors related to apparel and textiles. May be taken more than one semester with consent of student's advisory committee. Pr.: Eight hours of credit basic to field.

AT 870. Problems in Apparel and Textiles. (Var.) I, II, S. Independent study in apparel design, textiles, history of costume, or apparel and textile marketing. Pr.: Six hours credit basic to the field.

AT 875. Practicum in Apparel and Textiles. (Var.) I, II, S. Preplanned and supervised off-campus experience in business, industry,

museums, government agencies, or the cooperative extension service. Pr.: Twelve hours in the field.

AT 880. Physical Analysis of Textiles. (3) II, in even years. Theory, principles, and procedures in evaluating the physical properties of textile fibers, yarns, fabrics, and products for apparel, interior furnishings, and industrial uses. Two hours lec. and three hours lab a week. Pr.: AT 265.

AT 896. Design Project Report. (1-2) I, II, S. Research and written documentation for the M.S. Design Project Report option in Apparel and Textiles. Pr: Consent of major professor.

AT 897. Design Project Exhibit. (1-6) I, II, S. Design development for the M.S. Design Project Report option in Apparel and Textiles resulting in a body of original works to be exhibited on campus during the final semester of the student's program. Pr: Consent of major professor.

AT 899. Master's Thesis Research in Apparel and Textiles. (Var.) I, II, S. Research in apparel or textiles for the master's thesis. Pr.: Consent of major professor.

AT 990. Dissertation Proposal Seminar. (1) I, II. Presentation and discussion of proposals for dissertation research. Pr.: Six hours of statistics, three hours of research design or methods, and consent of major professor.

AT 995. Grantsmanship and Publication. (3) I, even years. Grant writing, identifying external funding, managing grants, preparing manuscripts for peer-reviewed publication, and preparing papers and poster for presentation at professional meetings. Pr.: AT 850.

AT 999. Dissertation Research in Apparel and Textiles. (Var.) I, II, S. Research in apparel or textiles for the doctoral dissertation. Pr.: Consent of major professor.

Interior design and housing courses

The Interior Design graduate program is temporarily suspended. We are not currently offering the following courses. Please e-mail oneal@humec.ksu.edu if you have questions or concerns.

Undergraduate and graduate credit in minor field

ID 500. Intermediate Interior Design Studio. (3) S. Problem-solving in interior design. May substitute for Interior Design studio IDH 445, IDH 545, or IDH 645. Students should plan to substitute this course for the next level studio in sequence. Pr.: IDH 315, IDH 345, IDH 435, and admitted to the Interior Design major.

ID 530. Interior Design Practices and Procedures. (3) II. Ethics, business procedures, and professional development; contract services and administration; and preparation for job market entry as applied to the practice of interior design. Three hours lec. a week. Pr.: ID 425 with a "C" or better and admission to the Interior Design program.

ID 545. Interior Design Studio 7. (4) I. Application of design theory to create solutions for complex, large-scale interior spaces. Projects require implementation of all phases of the design process. Students will gain greater understanding of the interior designer's responsibilities within the context of the design professions. Eight hours studio per week. Pr.: ID 445 and 530 with a C or better.

ID 599. Interior Design Internship. (3-4) I, II, S. Supervised off-campus professional experience in appropriate design-related firms, government agencies, or the housing industry. Pr.: ID 445 and ID 530 with a "C" or better and admission to the Interior Design program and a 2.2 cumulative GPA and 2.5 GPA in professional areas.

Undergraduate and graduate credit

ID 600. Interior Design Study Tour. (1-3) Intersession. A study tour to acquaint the student of the rich artistic and cultural locations in London, and other examples of architecture and town planning such as Georgian Bath. Lectures and tours target important design and furniture collections. England's varied examples of religious buildings compete for attention in this great center of art and architecture. Pr.: HIST 101 or 102, or ART 195 or 196.

ID 630. Topics in Advanced Interior Design Theory. (3) I or II. An examination of contemporary social and cultural influences on design theory and applications within the interior design profession. Pr.: ID 345 with a "C" or better.

ID 645. Interior Design Studio 8. (4) II. Application of design theory to create solutions for complex, large-scale interior spaces. Projects will conform to professional standards regarding design process, protection of health, safety, and welfare, and construction methods. Eight hours studio per week. Pr.: ID 445 and 530 with a C or better.

ID 650. Advanced Design and Behavior in the Interior Environment. (3) I. The design of interior environments explored in an ecological, behavioral, and cultural context. Three hours lec. per week. Pr.: IDH 345 or consent of instructor.

ID 651. Design for Supportive Environments. (3) I. Analysis of the age and ability related needs and challenges faced by children, older adults, and persons with disabilities. Team approaches to providing living and work environments that accommodate both universal and special human needs. Two hours lec. Two hours studio/rec. per week. Pr.: ID 345 with a "C" or better.

ID 660. Advanced Kitchen and Bath Design. (3) II. Functional and research basis for planning and arranging based on activity analysis, equipment, materials, lighting, and ventilation. Two hours lec. and two hours lab per week. Pr.: ID 345 and ID 435 with a "C" or better and admission to the Interior Design Program.

ID 680. Historic Fabric Design. (3) I. Interrelationships of fabric design and social, cultural, political, economic, and geographical environments from prehistoric times to present. Pr.: HIST 101; and AT 260; or AT 265 and AT 266.

ID 710. Housing and Facilities Management Processes/Applications. (3) II. Application of theories, principles, and practices used in managing physical facilities and the residents or workers they house. Issues and problems encountered by professional managers in providing quality living or working environments within cost-effective operations. Three hours lec. per week. Pr.: IDH 410, MANGT 420 or 720, and consent of instructor.

ID 725. Community Housing Assessment. (3) I. Developing local and regional housing needs assessments and strategies to meet the challenges faced by lower-income people and racial and ethnic minorities. Analysis of current housing and community development programs and public-private partnerships for affordable housing. Three hour seminar. Pr.: IDH 410 or instructor consent.

ID 760. Historic Preservation and Restoration of Interiors. (3) I. Principles, guidelines, and qualities of preservation and restoration of interiors. Research and application. Pr.: IDH 320 and 360; or AT 630 and AT 631; or ENVD 250 and 251.

Graduate credit

ID 800. Interior Design Studio VI. (3) I, II, S. Advanced studio experiences in residential interior environments. May be repeated with a maximum of 6 hours applied toward a graduate degree. Pr.: IDH 545 or 645; and IDH 651 or conc. enrollment, or IDH 760 or conc. enrollment.

IDH 820. Readings in Interior Design and Housing. (2) I, II, S. Supervised independent study of current issues in interior design or housing. Pr.: IDH 410 or IDH 445.

ID 825. Social Effects of the Housing Environment. (3) II. A critical analysis of the literature on the social influences on the family and the individual attributable to the nature of the housing and neighborhood environment. Alternative physical determinist and socio-cultural interpretations are developed. Pr.: IDH 410 and STAT 702 or STAT 703.

ID 840. Experimental Methods in Household Equipment. (2) I, in alternate years. Philosophy of household equipment evaluation and experimentation; emphasis upon instrumentation, selection of variables, and data analysis. Pr.: A course in statistics and IDH 740.

ID 870. Problems in Interior Design and Housing. (Var.) I, II, S. Independent study in interior design and housing. Pr.: Six hours of credit basic to field.

ID 875. Practicum in Interior Design and Housing. (Var.) I, II, S. Preplanned and supervised off-campus experience in business, industry, museums, government agencies, or the cooperative extension service. Pr.: Twelve hours in the field.

ID 899. Research in Interior Design and Housing. (Var.) I, II. Research which may form the basis for the master's thesis. Pr.: AT 850; graduate standing.

ID 920. Housing Economics. (3) II. Analysis of economic research related to consumer and government decisions about housing, including financing, regulation, subsidy programs, energy conservation, and choice of characteristics. Pr.: ECON 520, course in statistics, and two courses in housing, urban economics, or planning.

For more information

For additional information and application materials please contact:
Deborah Brosdahl
Apparel, Textiles, and Interior Design
Kansas State University
225 Justin Hall
Manhattan, KS 66506-1405

785-532-6993
Fax: 785-532-3796
E-mail: brosdahl@ksu.edu
Home Page: http://www.ksu.edu/humec/atid/

Agricultural Technology Management

Head:
James K. Koelliker

Graduate Faculty:

Cheng S. Chang, (Adjunct) Ph.D., North Carolina State University.

Do Sup Chung, Ph.D., Kansas State University.

Gary A. Clark, Ph.D., Texas A & M University.

Floyd E. Dowell, (Adjunct) Ph.D., University of Illinois.

Lawrence J. Hagen, (Adjunct) Ph.D., Kansas State University.

Joseph P. Harner III, Ph.D., Virginia Polytechnic Institute and State University.

James K. Koelliker, Ph.D., Iowa State University.

Ronaldo G. Maghirang, Ph.D., Pennsylvania State University.

Kyle R. Mankin, Ph.D., The Ohio State University.

Danny H. Rogers, Ph.D., Oklahoma State University.

Mark D. Schrock, Ph.D., Kansas State University.

John W. Slocombe, Ph.D., Iowa State University.

Charles K. Spillman, Ph.D., Purdue University.

James L. Steele, (Adjunct) Ph.D., Iowa State University.

James M. Steichen, Ph.D., Oklahoma State University.

Randal K. Taylor, Ph.D., University of Nebraska.

Larry E. Wagner, (Adjunct) Ph.D, Kansas State University.

Naiqian Zhang, Ph.D., Virginia Polytechnic Institute and State University.

A graduate degree is not offered in agricultural technology and management. The following courses may be taken for graduate credit in a minor field.

Agricultural technology management courses

Undergraduate and graduate credit in minor field.

ATM 511. Agricultural Building Systems. (3) II. Concepts and fundamentals related to agricultural building systems including structural materials, beam and column strength, environmental control for plants and animals, farmstead layouts, crop storage, and livestock and plant production facilities. Three hours rec. a week. Pr.: ATM 160 or PHYS 113 or 115.

ATM 515. Problems in Agricultural Technology Management. (Var.) I, II, S. Problems in the application of technical principles to agricultural technology management Pr.: Approval of instructor.

ATM 540. Introduction to Food Engineering. (3) I. Material and energy balances with application to food processing. Fluid flow and heat transfer in food processing. Thermodynamic properties and laws. Conc. enrollment in ATM 541 is urged. Three hours rec. a week. Pr.: PHYS 113 or 115, BIOCH 120 or CHM 190, MATH 210 or 205.

ATM 541. Introduction to Food Engineering Laboratory Exercises. (1) I. Laboratory experiments supplementing ATM 540. Three hours lab a week. Pr. or conc.: ATM 540.

ATM 545. Processing and Storage of Grains. (3) II. Principles of grain and forage conditioning and storage. Structures and equipment for quality preservation. Three hours rec. a week. Pr.: ATM 160 or PHYS 113 or 115 and senior standing.

ATM 550. Precision Agriculture Technologies. (3) I. Application of precision technologies for gathering information to assist decision making for prodction systems. Topics will include global positioning systems, vehicle guidance systems, crop yield monitors, variable rate control systems

for applicators, and the communication among these devices. Two hours rec. and two hours lab a week. Pr.: MATH 150 or equivalent, PHYS 113 or PHYS 115, and STAT 320 or 340 or 350.

ATM 558. Soil Erosion and Sediment Pollution Control. (3) II. Planning and analysis of production systems with respect to regulatory, environmental, and resource management. Water and wind erosion; estimating soil loss; estimating runoff rate and volume; laying out and checking terraces, waterways and farm ponds; agricultural surveying; and conservation planning. Two hours rec. and three hours lab a week. Pr.: AGRON 305.

ATM 653. Water Management and Irrigation Systems. (2) II. Management of water in crop production systems, crop water use, and irrigation scheduling. Fundamentals of water flow in pipe networks, pumping plants, and irrigation systems. Two hours rec. Pr.: ATM 160 or PHYS 113, CIS 102 and CIS 104 or AGRON 305, and junior standing or higher.

ATM 654. Water Management and Irrigation Systems Lab. (1) II. Laboratory and hands-on activities on soil water balance characteristics, crop water use, water flow in pipe networks, pump hydraulics, sprinkler nozzles, drip irrigation systems, water filtration systems, and chemigation systems. Three hour lab each week. Pr. Must be taken concurrently with ATM 653, and junior standing or higher.

ATM 661. Water and Waste in the Environment. (3). I. Principles and practices surrounding: water sources and quality; wastewater microbiology; animal, food processing plant, and domestic waste handling, treatment, and utilization; surface and groundwater contamination, protection, and treatment. Three hours rec. a week. Pr.: CHM 110 or 210 and BIOL 198.

Department of Biological and Agricultural Engineering Home Page: http://www.bae.ksu.edu/

Auxilary Services and Facilities

Affirmative Action Office
Alumni Association
Child Care
Computing and Network Services (CNS)
Family Center
Foundation
Information Systems
Institutional Advancement
Police Department
Postal Service
Speech and Hearing Center
Student Publications
Telecommunications Services
University Relations

Affirmative Action Office

Clyde Howard, Director
Affirmative Action Office
214 Anderson Hall
785-532-6220
Fax: 785-532-4374
E-mail: affact@ksu.edu
Home Page: http://www.ksu.edu/affact

The Affirmative Action Office is available to students on matters of equal opportunity in admissions, access to programs and activities, and employment. The university is committed to equal educational opportunity regardless of race, sex, national origin, disability, religion, age, or sexual orientation. Any barriers that students encounter for these reasons should be discussed with this office.

Alumni Association

Amy Button Renz, President
K-State Alumni Association
2323 Anderson, Suite 400
Phone: 785-532-6260
or
1-800-600-ALUM (2586)
FAX: 785-532-5068
E-mail: alumni@k-state.com
Home Page: http://www.k-state.com/

The Kansas State University Alumni Association is a 35,000-member organization whose mission is to enhance Kansas State University through life-long involvement. The Association ranks #1 in the Big 12 Conference in ratio of members to graduates.

The nonprofit organization supports the university by maintaining a database of more than 192,000 records of alumni, friends, corporations and businesses as well as assisting with student recruitment and scholarship efforts. The Association creates value for its members through programs that build and maintain relationships that provide two-way communication and interaction for K-Staters and the University.

Child Care

KSU Child Development Center
Angela Allison, Director
1948 Jardine Dr, L-9
785-539-1806

The KSU Child Development Center is a nonprofit corporation serving the child care needs of K-State students, faculty, and staff. It is fully licensed by Kansas and is professionally staffed. Its facilities are in building "L" of Jardine Terrace. The environment is designed to foster children's social, emotional, cognitive, language, and physical development.

The center offers full-day programs for toddlers (ages 12 months and walking through 2½), preschoolers (ages 2½ through 5), and school-age children (ages 5-12). Limited part-time program spaces are offered to families of toddler and preschool children who need regular flexible care.

Transportation provided to/from Manhattan public elementary schools.

Early Childhood Laboratory and Hoeflin Stone House Child Care Center

Mary DeLuccie, Director
Justin Hall
785-532-1475

The Early Childhood Laboratory hosts an interagency program with USD 383. The facility integrates children who have disabilities or developmental delays with children who are developing typically. The program accommodates 44 children with an age range from 3 to 5 years in a part-day program, with both morning and afternoon sessions. Both facilities are licensed by the Kansas State Department of Health and Environment and accredited by the National Academy of Early Childhood Programs.

The Hoeflin Stone House Child Care Center is on the northeast edge of campus. The center provides full day care for 30 children ranging in age from 18 months to 5 years. Priority is given to children of working parents. The program focuses on the children's developmental needs and interests.

The activities and environment at both facilities are designed to foster children's cognitive, language, social, emotional, and physical growth and development.

Computing and Network Services

Harvard Townsend, Director
2323 Anderson Avenue, Suite 146
Manhattan, KS 66502-2912
Phone: 785-532-6311
Fax: 785-532-5914
Home Page: http://www.ksu.edu/cns
E-mail: cns@ksu.edu

Computing and Network Services (CNS) provides the computer and data networking infrastructure upon which users of K-State information technology resources depend. A Gigabit Ethernet campus network ensures high-performance connectivity to a variety of enterprise servers on campus, to the Internet, and to other faculty and information resources at research institutions and national laboratories over Internet2. As a charter member of Internet2, K-State is committed to supporting the research and education efforts of its faculty and graduate students through high-performance networks for collaboration and communication. As a member of the Great Plains Network consortium, K-State researchers enjoy high-speed network connections to universities in six Midwest states and the U.S. Geological Survey's Earth Resources Observation Systems (EROS) Data Center.

Enterprise servers managed by CNS provide a wide variety of services and applications for graduate research and education: World Wide Web, e-mail, office suites, Oracle database, GIS, CAD, programming languages, mathematical and statistical programs, a dedicated high-end computing facility, printing, file storage, and tape archiving.

Help is available at the InfoTech Help Desk located in Hale Library and managed by the Information Technology Assistance Center. On-campus access to these resources is available through numerous departmental networks and in University Computing Labs with Microsoft NT PCs and Sun workstations running Solaris Unix. All residence halls and married-student housing units are connected to the campus network. Off-campus access is provided through the Internet, Internet2, and through a dial-up service available from K-State Telecommunications.

Family Center

Stephan R. Bollman, Director
Nancy T.O'Conner, Clinical Director
Campus Creek Road
785-532-6984

The Family Center provides applied educational experiences to students while offering family-related educational outreach, counseling, and consultation services to the Manhattan community and the state. The Family Center provides an interdisciplinary focus with faculty participation from departments within the college.

Students, under faculty supervision, offer services involving marriage and family therapy and family life education. Special workshops address particular family topics, including solo parenting, parent education, premarital groups, and family life. The annual National Rural Families Conference features the Ruth Hoeflin Forum on Family Issues.

Services are available to students and the general public. A fee is assessed based on a sliding scale.

Foundation

Gary A. Hellebust, Pres/CEO
KSU Foundation Center
2323 Anderson, Suite 500
785-532-6266, 532-7505
E-mail: KSUFDN@found.ksu.edu
Home Page: http://www.found.ksu.edu/

The Kansas State University Foundation, the official fund-raising arm of the university, is a nonprofit organization certified under Section 501 (C) (3) of the IRS Code of 1954. The Foundation acts as the custodian for gifts to the university and is encouraged to receive and hold in trust any real and personal property given for the use of Kansas State University, and to administer and control all the gifts to provide services that are not or cannot be provided through appropriated funds.

Although the Foundation is not a bank it offers many of the same services and is responsible for the administration of more than 2,000 scholarships and the processing of 65,000 gifts annually, while administering total assets of $220 million. Policy is formulated by a 175-member board of trustees and an executive committee of 15 members to which the staff, directed by the Pres/CEO, is responsible.

Information Systems

John W. Streeter, Director
Information Systems
2323 Anderson Avenue, Suite 215
Manhattan, KS 66502-2912
Office: 785-532-6281
FAX: 785-532-6284
E-Mail: ISO@ksu.edu
Help Desk: 785-532-6282
Help Desk E-Mail: HELPDESK@ksu.edu
Home Page: http://www2.iso.ksu.edu/

Centrally operated computing application and data base servers supporting the teaching, research, and public service missions of the University are administered by the Office of Information Systems. Services consist of data management, database administration, applications software development and implementation, systems project management, systems analysis, applications programming, operational support, and a user help desk hotline service. Major applications systems include admissions, financial assistance, registration and fees, billing and receivables, student records, human resources, budgeting, financial accounting, fixed asset inventory, and facilities management.

The Office of Information Systems deploys and supports a variety of modern hardware, systems, database and applications software in a networked computing environment. It employs approximately 50 technical staff including some 10-15 undergraduate and graduate students in technically challenging part-time positions.

Institutional Advancement

Robert S. Krause, Vice President
122 Anderson Hall
785-532-5942

The vice president for institutional advancement is responsible for the external relations of the university and is the chief student affairs officer. Additionally, the vice president coordinates ongoing activities with the KSU Foundation, KSU Alumni Association, and Department of Intercollegiate Athletics, and external relations with governmental agencies, the Board of Regents, and other university constituents. The vice president for institutional advancement reports directly to the president and serves as chief spokesperson for the university.

Police Department

108 Edwards Hall
West side
785-532-6412 business
911 emergency
E-mail: police@ksu.edu
Home Page: http://www.ksu.edu/police

The University Police Department is responsible for the protection of all properties owned and operated by the state educational institution or its affiliates. This authority is granted under state law. While service to the K-State community is of great concern to the department, the prevention of crime and investigation of all reported crimes is also of prime importance.

The department assists with parking control and regulates traffic control. Traffic and parking regulations are established by a student/faculty/staff Traffic and Parking Council, by authority of K.S.A.-74:3211.

The department is responsible for providing physical security on campus property. This includes opening and closing buildings, monitoring security cameras, and maintaining 23 emergency telephones strategically located throughout the university.

The University Police Department is open 24 hours a day. It provides a contact for emergency repairs and acts as the university operator outside normal business hours. The department has sworn police officers on duty 24 hours a day.

Postal Service

113 Dykstra Hall
785-532-7751
E-mail: centralmailservices@ksu.edu
Home Page: http://www.ksu.edu/facilities/admin/mailop.htm

All mail for students must be addressed to their Manhattan residences, not the university.

Manhattan Post Office personnel deliver U.S. mail directly to university buildings and residence halls and picks up outgoing U.S. mail from various locations on the campus. The proper address format is as follows:

Attn line or name
Kansas State University
Room # Building name or name of Residence Hall
Manhattan, Kansas 66506 and the proper + four code

Contract Post Office

785-532-7751

The contract post office sells stamps, money orders, and other postal supplies; weighs, insures, and registers mail; and receives out-going U.S. mail. A self-service postal unit is in the K-State Student Union. The hours of the contract post office are 9 a.m.-11:30 a.m. and 12:30 p.m.-3:30 p.m., Monday through Friday. It is located at the west end of Dykstra Hall. Come to this office for any personal shipping by the United States Postal Service.

For our customers' convenience, call the above number for information on the contract post office. Our clerk is on duty to provide fast up-to-date postal services for the campus community as a whole. This entails a great deal of walk-in business each day. Central Mail Services provides the support for the Contract post office and can provide you with the same up-to-date answers to your postal questions quickly. We have the capability of transferring your call to the clerk in the Contract post office if we need to.

Central Mail Services

Central Mail Services is located north of Dykstra Hall in the dry storage building. Hours of operation are 8:00 a.m.-12: p.m. and 1:00 p.m.-5:00 p.m., Monday through Friday. Central Mail Services provides a variety of services which are charged back to the department by means of a meter account number. Carriers include: United States Postal Service, United Parcel Service, and Federal Express. Come to this office for charging postage on mail or packages back to a campus department

Speech and Hearing Center

107 Leasure Hall
785-532-6879, 532-6873

The Speech and Hearing Center provides evaluation, management, and consultation services to university students with articulation, fluency, voice, language, or hearing impairments. These clinical services are also available to children and adults from the surrounding communities. The center provides educational and clinical experiences for students preparing for careers in speech-language pathology and audiology.

Student Publications

Ron Johnson, Director
103 Kedzie Hall
785-532-6555

Student Publications Inc. is a nonprofit student publishing corporation that publishes the daily student newspaper, the *Kansas State Collegian*; the student yearbook, the *Royal Purple*; and the *K-State Phone Book*. Student Publications is governed by the Board of Student Publications, composed of eight students elected by the student body annually; three students appointed by the Kansas State Collegian news staff, ad staff and Royal Purple staff; and three faculty members appointed by the university president.

The Board of Student Publications names an editor in chief and advertising manager of the *Collegian* three times each year. The *Royal Purple* editor is chosen in the spring for the following year. The editors and advertising managers hire students for staff positions.

The *Collegian* and *Royal Purple* each have faculty advisers, but their content is determined and controlled solely by the editors and student staffs.

Telecommunications Services

Fred Damkroger, Director
109 East Stadium
785-532-7001

Telecommunications provides the voice, data and video transmission capabilities for the university. Copper and fiber optic cable connect all buildings on the main campus and on the Salina campus. Buried fiber cable connects the KSU Foundation Center and other units off the main campus. Direct lines provide data and voice communication between the main campus and the Salina campus.

The department currently maintains two AVAYA Definity PBX switches. These are on the main campus and on the Salina campus. The voice network is constantly being upgraded to provide the best service possible. Voice mail along with other advanced features is available to all locations on the network.

Dial in modem access to the campus network systems is also available throught the Telecommunications Department. Several plans are available including an 800-number into the modem pool. Telecommunications is a registered internet service provider with the KCC.

Telecommunications routes service for administrative departments over the state's KANS-A-N network. We provide service for personal use, it is not allowed on the KANS-A-N network, via the department's Conversant interactive voice response system. Calls may be routed over other facilities provided by a variety of vendors, including Southwestern Bell, AT&T, and Qwest.

The department also provides service for the residence halls. Each student has an opportunity to obtain an authorization code for long distance access.

Campus Cable TV

Telecommunications provides cable television with up to 70 channels to the residence halls as well as providing academic and other video programming services. The system features seven channels of K-State programming including class reviews, special interest programming, Landon Lecture broadcasts and a campus bulletin board channel.

Video Conferencing

Video conferencing is another service that is provided to faculty, staff and students. From small classes to multi-point meetings, video conferencing is on its way to becoming an important part of transporting communications between multiple parties. Video conferencing is an effective solution to face-to-face conversation without the difficulties of time or travel. A number of facilities on campus are equipped for video conferences, with the capacity for various numbers of participants.

University Relations

John Fairman, Assistant Vice President for University Relations
122 Anderson Hall
785-532-6269

University Relations is responsible for licensing activities related to the institution's name and logos and coordinates public information for K-State activities and events through University Relations and its four units: Media Relations and Marketing, Photographic Services, Printing Services, and University Publications.

Media Relations and Marketing is the official outlet for print and broadcast news materials relating to K-State policies and administration. The operation also publishes *In-View*, the official faculty-staff newsletter.

Photographic Services offers photoprocessing, location and studio photography, and slide reproduction.

Printing Services prints books, brochures, business cards, envelopes, letterheads, posters, and other printed matter. Second- and third-class mailing services are available to all departments and affiliated organizations.

University Publications provides editing, design, and production coordination of enrollment management, recruitment, and informational publications.

Business Administration (MBA)

Mission statement | Principles | Programs | Graduate certificate | Accreditation
Areas of concentration | Application requirements | Assistantships
General business courses | More information

Graduate faculty:

David M. Andrus, Ph.D., University of Iowa.

James Bloodgood, Ph.D., University of South Carolina.

Bongsug Chae, Ph.D., Texas A&M University.

Michael Chilton, Ph.D., University of Arkansas.

Dan Deines, Ph.D., University of Nebraska.

Anand Desai, Head, Department of Finance, Ph.D., University of Michigan.

Yar M. Ebadi, Dean, DBA, Indiana University.

Ike Ehie, Associate Dean, Ph.D., University of Missouri at Rolla.

Dann Fisher, Ph.D., University of Missouri.

John Graham, Ph.D., University of Arkansas.

Kevin P. Gwinner, Head, Department of Marketing, Ph.D., Arizona State University.

Eric Higgins, Ph.D., Florida State University.

Swinder Janda, Ph.D., University of Arkansas.

Jeffrey Katz, Ph.D., Assistant Dean, University of Florida.

Stacy Kovar, Ph.D., Oklahoma State University.

Kyoungmi Lee, Ph.D., University of Illinois at Urbana-Champaign.

Mark Linville, Ph.D., University of Washington.

Dawne Martin, Ph.D., University of Colorado.

Richard G. McFarland, Ph.D., Georgia Institute of Technology.

Roger McHaney, Ph.D., University of Arkansas.

Peter Mudrack, Ph.D., University of Toronto.

Brian P. Niehoff, Head, Department of Management, Ph.D., Indiana University.

Richard L. Ott, Head, Department of Accounting, Ph.D., Texas Technical University.

Steve Peters, Ph.D., Indiana University.

J. Bruce Prince, Ph.D., University of Southern California.

Chwen Sheu, Ph.D., The Ohio State University.

Jaebeom Suh, Ph.D., University of Alabama.

Diane Swanson, Ph.D., University of Pittsburgh.

Amir Tavakkol, Ph.D., Kansas State University.

Lynn Thomas, Ph.D., University of Kansas.

William Turnley, Ph.D., University of South Carolina.

David R. Vruwink, Ph.D., University of Arkansas.

Yun-Oh Whang, Ph.D., University of Southern California.

Mission statement

The mission of the College of Business Administration at Kansas State University is excellence in the advancement and dissemination of knowledge consistent with the needs of students, business, faculty and society.

Principles

To accomplish our mission, we strive for quality in our intellectual contributions, teaching and service activities.

1. Intellectual contributions include basic and applied scholarship and instructional development. These activities support and foster continuous improvement in teaching and hence are inseparable from it. The College, therefore, places major and approximately equal emphasis on intellectual contributions and teaching, while providing sufficient flexibility to accommodate the unique objectives of individual departments. Service receives relatively minor emphasis.
2. Within the area of intellectual contributions, we seek a balance between basis scholarship, applied scholarship and instructional development, while again providing sufficient flexibility to accommodate the unique objectives of each department. These contributions address both domestic and global market environments and are disseminated in the classroom, scholarly and applied journals, professional conferences, books and continuing education courses.
3. Quality teaching goes beyond merely emphasizing a body of knowledge. We help students develop a sense of values; an appreciation of the diversity of their world; an ability to work with others and to communicate effectively; the skill to solve complex and ambiguous problems and a belief in lifelong learning.
4. To maintain the high quality of our degree programs, we continuously review and improve them in accordance with the principles above.

Programs

The master of business administration (MBA) program is designed to provide professional business education to individuals who wish to pursue a variety of administrative careers in both the private and public sectors. The theme of the curriculum is intrapreneurship which can be defined as an "entrepreneurial attitude and approach to management and problem-solving within any organization, large or small." Throughout the program, the focus is "what one needs to know to run a business" while developing the ability to analyze all types of business situations and propose appropriate, creative and financially sound solutions. The curriculum combines conceptual, analytical and experiential approaches to learning both in and out of the classroom. Once the foundation of basic problem solving tools and knowledge in each functional area is established, the program deepens the interdisciplinary understanding of problem-solving approaches and their functional, ethical, environmental and international ramifications. The program then culminates with a required capstone practicum. This practicum makes the K-State MBA unique in the area, by providing an interdisciplinary, team-based consulting-type of experience for all students in their last semester of study.

The MBA curriculum is a 52 credit hour program designed to be completed in two years of full-time study or four years of part-time, typically evening, study. Four components comprise the curriculum:

- Business core (24 credit hours)
- Advanced core (9 credit hours)
- Integration Core (7 credit hours)
- Set of Electives (12 credit hours)

The student may choose to pursue a prespecified, focused Concentration in lieu of the Set of Electives. Students pursuing a masters degree in another field may choose to use 9 credit hours from their other Masters as the Set of Electives in the MBA. Thus, a dual Masters/MBA can be obtained with an additional 43 credit hours. The Integrated Core will be composed of a three credit hour theory component with a four credit hour practicum component. The full time program of study can be completed in 22 months.

Before beginning the MBA coursework, students must acquire basic competency in mathematical analysis, personal computing and economic theory and analysis. These competencies may be acquired through specific undergraduate course work with the number of courses required depending on the applicant's prior academic work. This basic competency coursework may be taken after admission to the MBA program during the student's first semester.

Once admitted, MBA students are responsible for making themselves aware of Graduate School policies and deadlines.

Curriculum Prerequisite Courses:

MATH 205 - General Calculus and Linear Algebra
Six hours of economics

Curriculum Components:
(for course descriptions, please see the respective departmental listings)
Accounting, Finance, Management, Marketing

Business Core
24 credit hours; may waive 6-12 credit hours if "B" or better is achieved in the listed undergraduate courses (or equivalent courses from AACSB accredited institutions); learning activities are structured using the Knowledge, Comprehension, Application and Analysis levels of Bloom's Taxonomy.

ACCTG 810	Accounting Concepts and Analysis (3) Fall; (waived if credit in ACCTG 231 and ACCTG 241)
ECON 815	Economic Analysis for Business (3) Spring
FINAN 815	Managerial Finance I (3) Spring; prerequisite: ACCTG 810; (waived if credit in FINAN 450 and FINAN 551)
MANGT 820	Behavioral Management Theory (3) Fall; (waived if credit in MANGT 520 and MANGT 531)
MANGT 810	Operations Management and Analysis (3) Spring; prerequisite: STAT 702; (waived if credit in MANGT 421 and MANGT 521)
MANGT 830	Applied Managerial Computing (3) Fall
MKTG 810	Marketing Concepts and Research (3) Spring; (waived if credit in MKTG 400 and MKTG 642)
STAT 702	Statistical Methods for Social Scientists (3) Fall and Spring; (waived if credit in STAT 350 and STAT 351)

Advanced core
9 credit hours; the prerequisite for each of these courses is the successful completion of all of the curriculum prerequisites and the Business Core courses; learning activities are structured using the Application, Analysis and Synthesis levels of Bloom's Taxonomy.

ACCTG 860	Management Accounting and Business Problem Solving(3) Fall
FINAN 860	Managerial Finance II(3) Fall
MANGT 860	Management of Legal, Ethical, and Public Policy Issues(3) Spring

Integrated core
7 credit hours; the prerequisite for each of these courses is successful completion of **all** the Advanced Core courses; GENBA 890 will be team planned and taught with graduate faculty from each of the four departmental/functional areas; learning activities are structured using the Analysis, Synthesis and Evaluation levels of Bloom's Taxonomy.

GENBA 880	Business Strategy(3) Fall
GENBA 890	Business Practicum(3) Spring

Electives/Concentration
12 credit hours; with at least two 800-level courses, with the remainder to be composed of 600-level (and above) courses from any college, with the approval from the student's advisory committee. A limited number of business concentrations will be available.

Total Credit Hours: 52

Typical course of study

Fall semester I	12
ACCTG 810	
MANGT 820	
MANGT 830	
STAT 702	
Spring semester I	12
ECON 815	
FINAN 815	
MANGT 810	
MKTG 810	
Summer semester I	3
Optional elective internship or study abroad	

Fall semester II	12
ACCTG 860	
FINAN 860	
GENBA 880	
International elective	
Spring semester II	10-13
MANGT 860	
GENBA 890	
2 to 3 electives	

Graduate certificate

Business administration
The graduate certificate in business administration is designed for non-business graduate students who want to gain basic business knowledge in five different functional areas of business. Students in the certificate program are expected to complete 15 credit hours in accounting, finance, marketing, operations management and behavior management. The primary goal of the business certificate program is to prepare any graduate student so that he or she is better able to both "speak" and understand the language of business and interact successfully with anyone in the business world.

Accreditation

Kansas State University's College of Business Administration is accredited by the International Association of Management Education (AACSB) at both the undergraduate and graduate levels.

The International Association of Management Education is an international organization that requires that its members maintain high educational standards. The AACSB is recognized as the sole accrediting agency for baccalaureate and master's degree programs in business administration by the U.S. Office of Education and the Council on Post-Secondary Accreditation. Members of the organization have established high standards for the professional achievement of the faculty, their teaching effectiveness and research productivity, proper balance in the curriculum, and effective student job placement. AACSB-accredited programs meet the rigorous standards of quality set by the organization. Only 25 percent of the approximately 1,300 Colleges of Business Administration in the United States are accredited by the AACSB. The Department of Accounting became the first in Kansas to receive accreditation by the AACSB for both undergraduate and graduate programs. Approximately 50 graduate accounting programs are accredited in the United States, which places the master of accountancy program among the top in the nation.

Areas of concentration

K-State's MBA offers its students the opportunity to gain general business knowledge as well as develop a focus in a particular area of interest. Concentration areas are available in enterprise information systems, finance, management, and technology entrepreneurship. Specific courses have been carefully developed to complement one another and best meet the needs of our students. Students wishing to complete specific concentrations will be restricted to designated course work. MBA students may not take a concentration in accounting. Students interested in accounting should enroll in the Master of Accountancy (MAcc) program.

Enterprise information systems
This area of concentration is to teach students how enterprise-wide information systems and key information technologies, such as the Internet, help organizations reinvent their business processes and gather information in support of related key strategic business initiative. Students will get an in-depth look at an enterprise-wide information system while focusing on systems design, evaluation and control.

Finance
The finance concentration will allow students to combine the broad MBA education with specific skills necessary to be a successful financial analyst or manager. Students will specialize in controlling the resource investments required to support an enterprise's operating activities, planning and negotiating appropriate financing arrangements to support these investment requirements, and managing the risks inherent in an enterprise's investment and financing activities.

Management
A concentration in management will allow a student to develop their knowledge in human resource management and/or operations management. Courses are offered in a variety of areas of management such as leadership, entrepreneurship, supply chain management, personnel law, etc.

Technology entrepreneurship
The technology entrepreneurship concentration allows graduate students to gain valuable exposure to the innovation and technology commercialization process at Kansas State University through in-class teaching and on-the-job training programs. Students in the concentration focus on the creation and management of innovation in organizations with a particular emphasis on the commercialization of intellectual property. Students with undergraduate degrees in the sciences and engineering are especially encouraged to consider this concentration as part of their programs.

Application requirements

A complete application file must be received in the College of Business Administration Graduate Studies Office before the deadlines indicated below in order to be considered for admission. Requests for financial aid applications (assistantships, scholarships, and/or fellowships) should be communicated directly to the Director of Graduate Studies using the above address and telephone number or the email address below. The following items constitute a complete application:

- completed Application for Admission to Graduate School (Online application is preferred.)
- non-refundable application fee of $50.00 for domestic students and $60.00 for international students (Online fee payment is preferred.)
- official record of your GMAT score sent directly from Educational Testing Service (ETS)
- two official copies of your transcript(s) from all universities attended
- three letters of recommendation from former professors or employers (Reference Form for Graduate Study preferred)
- one page Statement of Objectives in pursuing the program
- official record of your TOEFL score sent directly from ETS (for applicants whose native language is not English)
- completed Affidavit of Financial Support [PDF] dated **within nine months of desired entry date** (for international applicants only) Note: Substitute documentation other than the Affidavit cannot be accepted

Deadlines
Students are admitted to the MBA program only at the start of the Fall semester. The completed application deadline is March 1.

Assistantships

Many graduate teaching and research assistantships are available each year. Assistantships vary between two-tenths and four-tenths time (40-hour per week basis) for the nine-month academic year. The amount of such stipends is reviewed annually. Some assistantships also carry a partial tuition waiver. A student on a four-tenths time appointment may not carry more than 12 credit hours per semester.

In recent years, graduate assistants have performed research with professors, advised undergraduate students, proctored exams, and assisted in the college's computer laboratory. An applicant interested in obtaining an assistantship should request an application form from the Director of Graduate Studies. When possible, all assistantship positions will be granted immediately following the application deadlines.

For specific information about graduate assistantships, fellowships, or College of Business Administration scholarships, contact the Director of Graduate Studies.

General business courses

GENBA 675. International Business Experience. (0) I, II, S. An international business experience that requires travel to a foreign country. The length of the tour varies from one week to 16 weeks. This course enables students to complete an international experience that would include study, research or work in a foreign country. The course provides enriched experience in the financial and business practices in a foreign country and enhances students' global and cultural awareness.

GENBA 880. Business Strategy. (3) I. Through case analysis, a study of the functions, responsibilities, and point of view of general management and the problems which affect the total organization's characters and success. The formulation and application of corporate and business strategies, specifically, analysis of interrelationships between the external and internal environments, choice of purpose, molding of organizational character, definition of what needs to be done, and motivation of resources for goal attainment. Pr.: ACCTG 810, FINAN 815, MKTG 810, MANGT 810, MANGT 820, MANGT 830, ECON 815, and STAT 702.

GENBA 890. Business Practicum. (4) II. The analysis of business problems, using knowledge and tools from previous courses. Students, under the supervision of a team of faculty, will analyze actual business case problems. Pr.: ACCTG 860, FINAN 860, MANGT 860 and MKTG 860.

GENBA 898. Topics in Business. (1-3) I, II, S. Discussion and analysis of current issues in business such as accounting, management, finance, marketing, etc.

For more information

For additional information and application materials please contact:
Jeff Katz, Assistant Dean
Director of Graduate Studies
College of Business Administration
Student Services
107 Calvin Hall
Manhattan, KS 66506-0501

Phone: 785-532-7451
Fax: 785-532-7809
E-mail: gradbusiness@ksu.edu
Home Page: http://www.cba.ksu.edu/cba/

Biological and Agricultural Engineering

Program description | Program requirements | Research facilities | Financial support |
Biological and agricultural engineering courses | More information

Head:
Gary Clark

Director of graduate studies:
Naiqian Zhang

Graduate faculty:

Mahbub Alam, Ph.D., Colorado State University.

Paul R. Armstrong, (Adjunct) Ph.D., Michigan State University.

Philip L. Barnes, Ph.D., Kansas State University.

Mark E. Casada, Ph.D., North Carolina State University.

Gary A. Clark, Ph.D., Texas A & M University.

Lawrence J. Hagen, (Adjunct) Ph.D., Kansas State University.

Joseph P. Harner III, Ph.D., Virginia Polytechnic Institute and State University.

Stacy Lewis Hutchinson, Ph.D., Kansas State University.

James K. Koelliker, Ph.D., Iowa State University.

Freddie R. Lamm, Ph.D., Kansas State University.

Ronaldo G. Maghirang, Ph.D., Pennsylvania State University.

Kyle R. Mankin, Ph.D., The Ohio State University.

James P. Murphy, M.S., Kansas State University

Thomas C. Pearson, (Adjunct) Ph.D., University of California at Davis.

Randy R. Price, Ph.D., University of Illinois.

Danny H. Rogers, Ph.D., Oklahoma State University.

John W. Slocombe, Ph.D., Iowa State University.

James M. Steichen, Ph.D., Oklahoma State University.

Larry E. Wagner, (Adjunct) Ph.D, Kansas State University.

Donghai Wang, Ph.D., Texas A & M University.

Robert E. Wolf, Ph.D., University of Illinois.

Wenqiao Yuan, Ph.D., University of Illinois.

Naiqian Zhang, Ph.D., Virginia Polytechnic Institute and State University.

Program description

The Department of Biological and Agricultural Engineering offers courses of study leading to the Master of Science in biological and agricultural engineering, and the Doctor of Philosophy in engineering.

The department consists of 13 graduate faculty members, about 25 graduate students, and five adjunct graduate faculty members. Master of Science students may specialize in (1) environmental engineering, (2) food and feed process engineering, (3) information and electrical technology, (4) machinery systems, (5) natural resource engineering, and (6) structure and environment. Minimum degree requirements are 30 semester hours of graduate credit, including a Master's thesis of 6 semester hours based upon original research or a master's report of 2 semester hours of research or problem work. A generalized Doctoral program is offered by the College of Engineering through each department. The traditional

areas of specialization are integrated into the following five interdisciplinary areas: (1) energy utilization, (2) informational systems, (3) materials engineering, (4) systems engineering, and (5) bio-environmental engineering. Award of a doctorate requires successful completion of the equivalent of at least three full years of full-time study beyond the baccalaureate as well as completion of a major research study reported in a doctoral dissertation.

For information about the Ph.D. program, refer to the Engineering section of this catalog.

Program requirements

Admission to a Master of Science program requires a degree of Bachelor of Science in agricultural engineering or its equivalent and meeting all requirements for admission to the Graduate School. Graduates from other engineering curricula or a strong physical/biological science curriculum may be admitted provisionally with undergraduate deficiencies specified.

An application for admission to a graduate program in Biological and Agricultural Engineering should be made six months prior to the start of the term in which enrollment is desired. Additional information on graduate programs and on application for admission to the Graduate School of Kansas State University may be obtained by writing the department.

A TOEFL score of 550 or higher is required of those students whose native language is not English. The TOEFL score must reflect results of a TOEFL test that was taken within two years prior to the application. Students meeting all requirements for admission except for the TOEFL score may be admitted to the Graduate School on a provisional status. They may enroll upon scoring 550 or higher on a subsequent TOEFL or after successfully completing the English Language Program at Kansas State University.

Research facilities

The department is located in Seaton Hall. The department possesses 15 well-equipped instructional and research laboratories, including the computer laboratory, and laboratories for instrument and control, physical properties, image processing, thermal food processing, grain wet processing, air quality and control, water quality and control, hydrology, engine testing, machinery systems, and biomass energy systems. Field studies may be carried out at experiment fields near Topeka and St. John and at Research Extension Centers near Garden City and Colby. Opportunities also exist for research in the U.S. Grain Marketing and Production Research Center and the Wind Erosion Research Unit, USDA-ARS, both located in Manhattan.

Financial support

Students are admitted into the Biological and Agricultural Engineering graduate program either with an assistantship that pays a stipend from University funds or with their own source of financial support. A limited number of assistantships providing teaching and research experiences are available. Graduate assistant appointments are usually at four-tenths time. Fees are assessed at the same rate as university employees for graduate teaching assistants and graduate research assistants.

Biological and agricultural engineering courses

Undergraduate and graduate credit in minor field

BAE 500. Properties of Biological Materials. (2) II. Characterization of biological material properties that affect the design and analysis of material handling equipment and processes. Physical, electrical, thermal, mechanical, aerodynamic, hygroscopic, and rheological properties of grain and other agricultural products will be examined. One hour rec. and three hours lab a week. Pr.: PHYS 213.

BAE 510. Environmental Design of Agricultural Buildings. (3) I. Theory and application of psychrometrics, air dilution, and heat and mass transfer; study of animal's interaction with its environment; computer-aided design and analysis of environmental control systems for plants and animals. Two hours rec. and three hours lab a week. Pr.: BAE 200. Pr. or conc.: ME 513.

BAE 530. Natural Resource Engineering. (3) II. Principles and measures for controlling storm water runoff and soil erosion including hydrology and sruface water flow; design of water handling structures for land drainage, flood protection, and irrigation; pipeline flow and pump selection. Two hours rec. and three hours lab a week. Pr.: STAT 490; Pr. or conc.: ME 571. Not available for students with credit for CE 550.

BAE 531. Natural Resource Engineering Field Laboratory. (1) II. In depth, field applications of Natural Resource Engineering analysis and design for controlling storm water runoff and soil erosion; design of water handling structures for land drainage, flood protection, and irrigation; economic analysis of design options. Three hours lab a week. Pr.: AGRON 305 or CE 522; Pr. or conc.: ME 571; Conc. BAE 530.

BAE 533. Applied Hydrology. (3) II. Study of water sources and movement above, on, and beneath the earth's surface. Topics include water law relating to water quality and water supply. Three hours rec. Pr.: ATM 160 or PHYS 113 or PHYS 115.

BAE 535. Fundamentals of Structures and Environment Engineering. (3) I. Principles of environmental control for agricultural buildings and structures; analysis and design of structural systems and members for agricultural structures. Two hours rec and three hours lab a week. Pr.: ME 513 and CE 333.

BAE 536. Agricultural Engineering Design I. (2) I. Team-oriented design laboratory, with projects selected to address design of equipment or

systems to produce or process food, fiber, and energy, or to preserve environmental quality, remediate damage, and conserve natural resources. Two 3-hour labs a week. Pr.: ME 533 or BAE 530 or BAE 575.

BAE 575. Fundamentals of Agricultural Process Engineering. (3) I. Application of basic science and engineering fundamentals for the analysis and design of agricultural processes. Two hours rec. and three hours lab a week. Pr. or conc.: CHE 320 or ME 571.

Undergraduate and graduate credit

BAE 620. Problems in Agricultural Engineering. (Var.) I, II, S. Problems in the design, construction, or application of machinery or power in agriculture, structures, modern conveniences, and rural electrification. Pr.: Approval of instructor.

BAE 630. Food Process Engineering Laboratory. (1) II, in odd years. Laboratory studies of food processing unit operations and applicatons with emphasis on heat and mass transfer operatiosn. Three hours lab a week. Pr.: BAE 575 or CHE 531. Pr. or conc.: BAE 625.

BAE 636. Agricultural Engineering Design II. (2) II. A continuation of BAE 536. Completion of a team-oriented design project, with emphasis on construction, evaluation, documentation, and presentation of the design. Two 3-hour labs a week. Pr.: BAE 536.

BAE 640. Instrumentation and Control for Biological Systems. (3) II. Fundamentals of instrumentation and control engineering applied in biological and agricultural systems and processes. Time-domain analysis and frequency response methods. Sensors and actuators in feedback control systems. Control system design. Case studies. Two hours rec. and three hours lab a week. Pr.: EECE 510 or EECE 519, and MATH 240.

BAE 650. Energy and Biofuel Engineering. (3) II. Energy use and production in agriculture and related industries. Energetics of primary production, including crop energy conversion. Energy and material balances of biomass energy production and processing systems, including energy embodied in fertilizers and pesticides. Review of the role of fossil fuels in agricultural and forestry operations, including opportunities for energy conservation. Impact of alternative fuels on internal combustion engine emissions. Three hours lecture a week. Pr. or conc.: ME 513.

BAE 651. Air Pollution Engineering. (3) II. Air pollution legislation, standards, measurement, and terminology. Design and economics of particulate pollution control systems including cyclones, fabric filters, wet scrubbers, and electrostatic precipitators. Abatement of gas and vapor pollution using VOC incineration, gas adsorption and gas absorption. Meteorology and atmospheric dispersion modeling. Three hours rec. Pr.: ME 513, 571.

BAE 690. Non-Point Pollution Engineering. (3) I. Management of diffuse sources of pollution generally resulting from storm water and runoff. Use of models and Geographic Information Systems (GIS) to evaluate the extent and magnitude of non-point pollution, legislation and programs affecting non-point pollution, and design of treatment and management systems. Non-point pollutants addressed include: nutrients, pesticides, sediment, and hazardous wastes. Three hours lec. a week. Pr.: BAE 551 or CE 551.

Graduate credit

BAE 705. Irrigation Engineering. (3) II, on sufficient demand. Design and operative problems on the fundamentals of irrigation system design and management. Soil, plant, and water relationships; pipeline and system hydraulic design; design of irrigation systems; filtration systems and chemigation; sources of water and water quality. Two hours rec. and three hours lab a week. Pr.: BAE 530 and AGRON 305 or CE 522. Pr. or conc.: ME 571.

BAE 740. Biomaterials Processing. (3) I, in even years. Technologies of bio-based material processing including starch extraction (wet milling), plant oil extraction and refining, plant protein extraction and processing, cellulose processing, biofuel production, chemicals bioconversion, and drying technologies or biomaterials. Course is cross-listed with GRSC 740. Three hours rec. a week. Pr.: BAE 500 or BAE 575 or GRSC 602.

BAE 750. Analysis and Design of Off-Highway Vehicles. (3) II, on sufficient demand. Analytical study of design, testing, construction, and operating characteristics of off-highway vehicles and machinery. Includes human factors, mobility, and precision agriculture. Two hours rec. and three hours lab a week. Pr.: BAE 536 or ME 574.

BAE 760. Environmental Engineering Seminar. (0) I, II. Discussion of current advances in research and practice of environmental engineering. One hour seminar biweekly. Pr.: None. Cross-listed with CE 760.

BAE 761. Natural Treatment Systems. (3) I, even years. Engineering analysis, modeling, and design of natural systems for treating liquid and solid wastes. l Applications of plant and microbial systems. Three hours rec. a week. Pr.: MATH 221, and one of the following courses: BAE 530, CE 563, BIOL 529 or 612, ATM 661.

BAE 768. Geoenvironmental Engineering Design. (3) II. A capstone design project in geoenvironmental engineering focused on resolving issues related to containment of pollutants and remediation of soil and groundwater. Pr. one of the following: AGRON 605, AGRON 746, BAE 690, CE 625, CE 654, CHE 531, or GEOL 611. Cross-listed with CE 768 and CHE 768.

BAE 810. Research in Agricultural Engineering. (Var.) I, II, S. The laboratories of the University are available for research in all areas of agricultural engineering. The results of such investigation may be incorporated in bulletins of the Agricultural Experiment Station. Pr.: Approval of department head.

BAE 811. Particle Technology. (3) I. Science and behavior of airborne particles or aerosols. Technology and methods for measuring,

controlling, and utilizing aerosols in the agricultural and food industries. Specific topics include basic particle mechanics; principles of particle measurement; particle statistics; electrostatic precipitation; condensation; evaporation; dust generation; and filtration. Two hours rec. and three hours lab a week. Pr.: STAT 703 and PHYS 113 or 213.

BAE 815. Graduate Seminar in Agricultural Engineering. (1) I, II. Presentation and discussion of research philosophies, procedures, and results. One hour rec. a week. Required of all graduate students in agricultural engineering. Pr.: Graduate standing.

BAE 820. Topics in Agricultural Engineering. (Var.) On sufficient demand. A course reserved for study of current topics in agricultural engineering. Topics announced when offered. May be repeated up to a maximum of 9 credit hours. Pr.: 9 credit hours of graduate courses.

BAE 840. Measurement Systems. (3) I. Theory and application of measurement systems for biological and agricultural systems with emphasis on sensors and data-acquisition systems for measurement of variables related to soils, plants, animals, machines, and processes. Two hours rec. and three hours lab a week. Pr.: BAE 640.

BAE 898. Master's Report. (Var.) I, II, S. Topics selected with approval of major professor and department head.

BAE 899. Master's Thesis. (Var.) I, II, S. Topics selected with approval of major professor and department head.

BAE 999. Dissertation Research. (Var.) I, II, S. Topics selected with approval of major professor and department head.

For more information

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Biochemistry

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Biochemistry is an interdepartmental graduate program with faculty participants from many academic departments of the University.

Director of graduate studies:
Lawrence C. Davis

Graduate faculty:

Katsura Asano, (Biology), Ph.D., University of Tokyo.

Richard Baybutt, (Human Nutrition), Ph.D., Penn State University.

Jianhan Chen, Ph.D., University of California at Irvine.

Lawrence C. Davis, Ph.D., Albert Einstein College of Medicine.

Lisa Freeman, (Anatomy and Physiology), Ph.D., Ohio State University.

Roman Reddy Ganta, (Diagnostic Medicine/Pathobiology), Ph.D., All India Institute of Medical Science.

Michael R. Kanost, Ph.D., Purdue University.

Sanjay Kapil, (Diagnostic Medicine/Pathobiology), Ph.D., Purdue University.

Karl J. Kramer, Ph.D., University of Arizona.

Ramaswamy Krishnamoorthi, Ph.D., University of California, Davis.

George Marchin, (Biology), Ph.D., University of Kansas Medical Center.

Silvia Mora, (Biology), Ph.D., University of Barcelona, Spain.

S. Muthukrishnan, Ph.D., Indian Institute of Science, Bangalore, India.

Om Prakash, Ph.D., Central Drug Research Institute, India.

Gerald R. Reeck, Ph.D., University of Washington.

Thomas E. Roche, Ph.D., Washington State University.

Paul A. Seib, (Grain Science), Ph.D., Purdue University.

Paul E. Smith, (Chemistry), Ph.D., University of Liverpool, England.

Dolores J. Takemoto, Ph.D., University of Southern California.

John M. Tomich, Ph.D., Guelph-Waterloo University, Canada.

Philine Wangemann, (Anatomy and Physiology), Ph.D., Freiburg, Germany.

Qize Wei, Ph.D., Peking Union Medical College, Beijing, P.R. China.

Ruth Welti, (Biology), Ph.D., Washington University, St. Louis.

Anna Zolkiewska, Ph.D., Nencki Institute of Exp. Biology, Poland.

Michal Zolkiewski, Ph.D., Institute of Physical Chemistry, Warsaw, Poland.

Rachel Zufferey, Ph.D., Swiss Federal Institute of Technology.

Overview

Biochemistry explores the molecular basis of life processes. It examines structure, function, assembly, and dynamic changes of macromolecules and the chemistry and dynamics of small molecules. Through use of recombinant DNA technology and new instrumentation, a revolution is underway in our understanding of the ways that plants and animals regulate metabolic processes and express genetic information. Researchers at

Kansas State University are in the forefront of that revolution. The study of biochemistry at Kansas State University is conducted under a versatile arrangement through which faculty of the Department of Biochemistry and faculty in other departments cooperate in a graduate biochemistry program. Both fundamental questions about living processes and applications to living systems are supported in this interdisciplinary program.

Degree programs

The biochemistry program seeks excellence in teaching and research through a program tailored to the development of the individual student. The core curriculum is broad and students are expected to specialize through appropriate choice of advanced courses from the many offerings taught by faculty in their areas of research expertise. A strong seminar program involves presentations by eminent visiting scholars from around the world and by the faculty of many departments on campus. A graduate student seminar program provides further opportunity for acquiring insights into new developments in the field.

The Graduate Biochemistry Group administers granting of M.S. and Ph.D. degrees in biochemistry whether the research is conducted within the Department of Biochemistry or in other cooperating departments. The program of study is flexible, accommodating students with a wide range of backgrounds, including genetics, microbiology, physics, and medicine as well as the traditional chemistry, biochemistry, and biology degrees. Students are admitted to either the M.S. or the Ph.D. program based on qualifications, which include undergraduate and graduate performance, letters of recommendation, and program of study deficiencies.

Students in either the M.S. or Ph.D. degree program take the two-semester, comprehensive, core biochemistry courses Biochemistry I and II and the associated laboratories, plus a one semester course in physical biochemistry. All students are expected to attend the weekly graduate student seminar and individual research group meetings. For the M.S. degree, students must complete 22 to 24 hours of course work and do research leading to a satisfactory thesis. For the Ph.D., 10 hours of biology courses are required, and advanced chemistry courses are encouraged.

Admission to candidacy for the Ph.D. requires satisfactory performance in the two core biochemistry courses, and, early in the second year, preparation and defense of a research proposal on a topic selected by the student in consultation with their supervisory committee. This defense serves as the preliminary examination for admission to candidacy for the Ph.D. Approximately 30 to 40 hours of course work are required for the Ph.D. in addition to research for a satisfactory dissertation.

Bachelor of science plus master of science

A combined B.S./M.S. program provides exceptional undergraduates an opportunity to obtain both a Bachelor of Science and a Master of Science in Biochemistry in 5 years. Admission and retention in the program requires a 3.0 GPA. Students may apply after they have accumulated 45-90 hours towards the B.S. degree. Degree requirements for the M.S. are as described above, with the exception that up to 9 hours of credits obtained for the B.S. (Biochemistry I and II and associated laboratories) may be counted toward the M.S. program.

Entrance requirements

Applicants must have a bachelor's degree from an accredited institution, appropriate and adequate course work, and an average of B or better in the junior and senior years or an excellent postgraduate record at another institution. Provisional admission may occur when there are limited deficiencies in undergraduate course work that can be removed by course work taken at Kansas State University or when there is uncertainty in evaluation of transcripts, as may occur in the case of international students. In the latter case, removal of the provisional status occurs upon the accumulation of 9 hours of course work with a B or better average.

Undergraduate and postgraduate credits should include analytical, organic, and physical chemistry, calculus, physics, and a semester of biology including a laboratory. Physical chemistry may be completed as part of an M.S. or Ph.D. program, but all other deficiencies must be completed without graduate credit. No foreign language is required.

All applicants are required to take the Graduate Record Exam.

Students may apply for the concurrent B.S./M.S. program from the second semester of the sophomore year through the second semester of the junior year, when they have accumulated 45-90 credit hours toward the B.S. degree and have completed at least one semester of organic chemistry. Students may apply during the senior year with special permission from the chair of the Graduate Biochemistry Group.

The application process will be the same as for the traditional M.S. degree except that completion of the B.S. degree is not required prior to enrollment for the M.S., and the application must include a recommendation from the student's undergraduate advisor. Minimum standards for regular admission and for retention in the program require a cumulative GPA of 3.0 and a GPA of 3.0 in requireed math and science courses. The requirement for the Graduate Record Exam will be waived.

International students

A minimal score of 550 on the Test of English as a Foreign Language (TOEFL) is required for admission to the Graduate School for any student whose national language is not English. Because beginning graduate students in biochemistry are appointed as combined teaching/research assistants, a Test of Spoken English (TSE) score of 50 of 60 is required by the Board of Regents. The test may be taken here or abroad. Students accepted into the biochemistry program usually have a TOEFL score of >620, or submit a TSE score of 50 of 60 or better with the application.

Financial support of graduate students

Within the Department of Biochemistry, support for graduate teaching assistants is through the College of Arts and Sciences. Graduate research assistants are supported through the Agricultural Experiment Station and by research grants. Usually a student is admitted to the graduate program in biochemistry only if university funds are available for salary support or if the student has another source of support such as a government (U.S. or other) fellowship. U.S. citizens with a strong undergraduate record can apply for NSF predoctoral fellowships. Some supplements to teaching and research support are available on a competitive basis from the Graduate School for outstanding U.S. students.

Incoming students receive half of their support in the form of teaching assistantships (requiring six contact hours per week) and half in the form of a research assistantship. After the first year, the teaching assistantship may be replaced by extramural support. This is expected for Ph.D. candidates beyond their third year of study.

Graduate students in the B.S./M.S. dual degree program will not be expected to teach and will not be supported by departmental teaching or research assistantships. They are eligible for support as research assistants in laboratoies of individual faculty members.

Student fees

For graduate teaching assistants and graduate research assistants, student fees are assessed at the in-state level. Students receiving such support are required to enroll in 10 credit hours each semester. A waiver of half the tuition costs is provided to those supported as combined graduate teaching/research assistants.

Research environment and facilities

More than two dozen faculty members are formally associated with the Graduate Biochemistry Group. Many others with interests in biochemistry and molecular biology are collaborative investigators and participants on graduate student supervisory committees. The research environment in biochemistry is exciting and vigorous because of these diverse but interacting programs. Our graduates compete favorably with those from the world's best programs because they are well trained in biochemical literature and research techniques. Members of the group currently receive more than $3 million per year in outside research funds. These funds support technicians, postdoctoral fellows, and some graduate research assistants at later stages of their career. They also allow purchase of up-to-date research equipment and supplies.

The Department of Biochemistry has 14 large research suites. Seven are located in the Chemistry-Biochemistry Building. That building also houses the department's teaching laboratories. The other research suites are located in Burt and Willard Halls. The department is well equipped for advanced research in a wide range of areas. NMR studies are conducted within the NMR Facility using Varian 500 MHz Unity Plus NMR with triple channel detection, pulsefield gradient, and high stability temperature control and waveform generation. Data collection and processing are done with Silicon Graphics Indigo work stations. Other biophysical studies are conducted with conventional and magnetic circular dichroism, fluorescence spectroscopy with fluorescence polarization capability and UV-Visible differential scanning spectroscopy. A new analytical ultracentrifuge (Beckman XL-I), micro calorimeters (MicroCal VP-DSC and isothermal titration calorimeter), and a surface plasmon resonance instrument (Biacore 3000) enhance studies of macromolecule interactions and folding properties.

The department has equipment and technical capability for gene cloning (supported by polymerase-chain reaction capabilities) and all varieties of electrophoresis experiments. For preparative procedures the department has multiple ultracentrifuges, high pressure liquid chromatographs, and facilities for both anaerobic enzyme preparations and large scale preparations of subcellular organelles. The department has several cold rooms, animal cell culture facilities, instrument rooms, and dark rooms. Facilities are available for housing animals and growing plants year-round. Analytical instruments include scintillation counters, gamma counters, scanning spectrophotometers, and absorbance, fluorescence, and electrochemical detection for analysis of samples separated by HPLC.

The university Biotechnology Core Facility is housed within the Department of Biochemistry and provides both instruments and expertise for mass spectometry of biopolymers, oligonucleotide synthesis, peptide synthesis and gas-phase peptide sequencing. High resolution purification of peptides and synthesis of peptides containing non-natural amino acids are areas of special interest.

A plant transformation center, centrally supported and housed in Throckmorton Plant Sciences Complex, is regularly used by graduate group members. Greenhouse space there is used to grow transformed crop plants.

Additional facilities are also available on campus: DNA sequencing, fluorescence-activated cell sorting, electron microscopy (transmission and scanning), quasi-elastic light scattering, GLC-mass spectrometry, emission spectrometry, Fourier-transform infrared spectrometry, atomic absorption and stopped flow kinetics. Parallel computing, mini super-computers, and ethernet and internet networks are available throughout the campus. There are 5 DEC alpha 600 MHz workstations in the department.

Job opportunities

Biochemistry and molecular biology are growth areas in the economy of the next century. Graduate training in biochemistry provides a strong base for varied academic and technological careers. Our Ph.D. and postdoctoral graduates find positions not only in departments of biochemistry, biophysics, and molecular biology, but also in biology, chemistry, pharmacology, nutrition and medicine. Doctoral graduates find positions requiring independent work in a wide range of industries including biotechnology, chemistry, pharmacology, medicine, and food technology. M.S. graduates occupy skilled technical positions in industry, government and academic research laboratories. Many also continue for the Ph.D. at this or other institutions.

Biochemistry courses

Undergraduate and graduate credit in minor field

BIOCH 521. General Biochemistry. (3) I, II, S. A basic study of the chemistry and metabolism of carbohydrates, lipids, proteins, and nucleic acids. Pr.: CHM 350.

BIOCH 522. General Biochemistry Laboratory. (2) I, II, S. A one-semester laboratory course with experiments relating to carbohydrates, lipids, proteins, nucleic acids, and enzymes. Six hours lab a week. Pr.: CHM 351 and BIOCH 521 or conc. enrollment, or BIOCH 765 or conc. enrollment.

BIOCH 590. Physical Studies of Biomacromolecules. (3) II. An overview of concepts and techniques of physical science used in studying the structure and function of biomacromolecules such as proteins and DNA. Applications include classical equilibrium thermodynamics and spectroscopic methods including mass spectrometry, circular dichroism (CD), and nuclear magnetic resonance (NMR). Pr.: CHM 500, MATH 221, and PHYS 114.

BIOCH 599. Research Training in Biochemistry. (1-3) I, II, S. Provides laboratory experience for majors and nonmajors in research techniques contributing to ongoing biochemical research. May be repeated up to 8 hours. Pr.: Background adequate for relevant techniques

Undergraduate and graduate credit

BIOCH 755. Biochemistry I. (3) I. An introduction to physical methods, kinetics, and thermodynamics of biochemical reactions and bioenergetics, chemistry of proteins and amino acids, carbohydrate chemistry, and metabolism. BIOCH 755 and 765 are for students interested in a two-semester comprehensive coverage of biochemistry. For a one-semester course, enroll in BIOCH 521. Pr.: *Chemical analysis, one year of organic chemistry, differential and integral calculus.

BIOCH 756. Biochemistry I Laboratory. (2) I. An intensive laboratory course to accompany BIOCH 755. BIOCH 756 and 766 are sequential courses for students interested in a two-semester comprehensive coverage of experiments in biochemistry. For a one-semester laboratory course, enroll in BIOCH 522. Six hours lab a week. Pr.: *BIOCH 755 or conc. enrollment.

BIOCH 757. NMR Laboratory. (1) II. Basic methods and strategies of nuclear magnetic resonance used in the study of biological molecules. Principles and applications of simple one-dimensional and two-dimensional NMR experiments. Two three-hour laboratories per week. Meets second half of semester. Pr.: BIOCH 755.

BIOCH 758. Protein Structure Laboratory. (1) II. Princples and uses of computational and experimental approaches for studying peptide and protein structure and dynamics: computer modeling and simulation techniques, fluorescence and circular dichroism spectroscopies, microcalorimetry, and analytical ultracentrifugation. Two three-hour laboratories per week. Meets first half of semester. Pr.: BIOCH 755.

BIOCH 765. Biochemistry II. (3) II. Continuation of BIOCH 755; lipid chemistry and metabolism, amino acid metabolism, nutrition, nucleic acid chemistry and metabolism, integration of biochemical pathways and metabolic control mechanisms. Pr.: *BIOCH 755.

BIOCH 766. Recombinant DNA Laboratory I. (1) II. Biochemical manipulation of nucleic acids. Isolation and restriction enzyme characterization of plasmid DNA, ligation of DNA fragments to vector DNA, polymerase chain reaction, Southern blot analysis, DNA sequencing and analysis. Two three-hour labs per week. Meets first half of semester. Pr.: BIOCH 522.

BIOCH 767. Recombinant DNA Laboratory II. (1) II. Approaches to study RNA and proteins using recombinant DNA techniques. RNA extration and affinity isolation of mRNA, Northern blot analysis, cDNA library construction and screening, bacterial or eukaryotic expression systems, purification and characterization of recombinant proteins, site-directed mutagenesis. Two three-hour labs per week. Meets second half of semester. Pr.: BIOCH 522.

BIOCH 790. Physical Biochemistry. (3) I. A survey of biophysical methods most frequently encountered in biochemistry and related disciplines. Emphasizes principles underlying methods used in determining the molecular weight and shape of biopolymers and techniques used in detecting conformational changes in nucleic acids, proteins, and polysaccharides. Pr.: MATH 221, CHM 500 and BIOCH 765.

BIOCH 799. Problems in Biochemistry. (Var.) I, II, S. Problem may include laboratory and/or library work in various phases of biochemistry, agricultural chemistry, or nutrition. Pr.: *Background adequate for problem undertaken.

Graduate credit

BIOCH 806. Biochemistry Seminar. (0-1) I, II. Seminar for graduate students in biochemistry.

BIOCH 815. Nuclear Magnetic Resonance (NMR) Spectroscopy of Macromolecules. (2) Intersession only. A lecture and laboratory course on 'state-of-the-art' multi-dimensional nuclear magnetic resonance methods and strategies in solving three dimensional structure of peptides, proteins, nucleic acids and other macromolecules. Pr.: Consent of instructor.

BIOCH 840. Intermediary Metabolism. (3) On sufficient demand. Metabolic role of carbohydrates, lipids, proteins and amino acids, purines, pyrimidines, vitamins, and hormones; biological oxidations: mechanisms of energy production and utilization. Pr.: *BIOCH 755 and 765.

BIOCH 890. Advanced Topics in Biochemistry. (1-3) I, II, S. Course to present timely topics in Biochemistry. Pr.: Consent of instructor.

BIOCH 899. Research in Biochemistry I. (Var.) I, II, S. Research in biochemistry which may be used for preparation of the M.S. thesis. Pr.: Sufficient training for research undertaken.

BIOCH 905. Advanced Topics in Plant Biochemistry. (3) I, in even years. An advanced treatment of topics of current interest in plant biochemistry, including photosynthesis and carbon metabolism, nitrogen fixation and nitrogen metabolism, structure and function of the higher plant genome, and production of material of economic interest. Pr.: BIOCH 765

BIOCH 907. Advanced Topics in Insect Biochemistry. (3) II, in even years. Lectures, readings, and discussion of topics of current interest in insect biochemitry. Topics will include biochemical molecules and processes specific to insects, such as biochemistry of the exoskelton and regulation of metamorphosis, as well as comparison of insect and mammalian biochemistry. Pr.: BIOCH 521.

BIOCH 910. Lipids. (2) I, in odd years. Chemistry of plant and animal lipids, their occurrence, metabolism, and industrial uses. Pr.: *BIOCH 765.

BIOCH 911. Molecular Signal Transduction. (3) I, in even years. The molecular structure, biochemical role, and interrelationships of signaling molecules such as receptors, G proteins, channels, and adaptor proteins in signal transduction pathways. Pr.: BIOCH 765.

BIOCH 920. Nucleic Acids. (2) II, in even years. Structure and function of nucleic acids: structures and properties of DNA, RNA, and chromatin; recombinant DNA techniques; mutagenesis and carcinogenesis; protein-nucleic acid interactions; structural influences on replication, transcription, translation, and regulation. Pr.: BIOCH 765.

BIOCH 930. Proteins. (2) I, in odd years. Lectures and readings on the chemical nature of proteins; fractionation; purification, structure, chemical and physical properties of proteins and amino acids. Pr.: *BIOCH 755 and 765.

BIOCH 935. Biochemistry of Cell Regulation. (3) II, in odd years. Integration of biochemical pathways and molecular mechanisms regulating cell growth, movement, differentiation, and death. Emphasis on molecular interactions and signaling cascades controlling gene expression, protein synthesis and folding, proteolysis, cytoskeleton, cell cycle, cell survival, and apoptosis. Pr.: BIOCH 765.

BIOCH 940. Chemistry of Carbohydrates. (2) I. On sufficient demand. Lectures and readings on structural chemistry of carbohydrates, their general properties, biological and chemical reactions, and the methods of characterization. Pr.: *BIOCH 755 and 765.

BIOCH 950. Enzyme Chemistry. (3) II, in odd years. The following properties of enzymes are considered: structure, specificity, catalytic power, mechanism of action, multienzyme complexes, kinetics, regulation, and pacemaker properties in multienzyme systems. Pr.: *BIOCH 765.

BIOCH 997. Postdoctoral Research in Biochemistry. (1-12) I, II, S. Advanced level research in collaboration with a faculty member, involving projects in any area of biochemistry. Post-graduate training in first three years beyond doctorate. Pr.: Ph.D. or equivalent.

BIOCH 999. Research in Biochemistry II. (Var.) I, II, S. Research in biochemistry which may be used for preparation of the Ph.D. thesis. Pr.: Sufficient training for research undertaken.

*Nonmajors lacking these prerequisites should obtain consent of instructor before enrollment.

For more information

For additional information and application materials please contact:
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Biology

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Microbiology Ph.D. Program | Admission | Biology courses | More information

Director:
Brian S. Spooner

Graduate Affairs chair:
S. Keith Chapes

Graduate faculty:

Katsura Asano, Ph.D., University of Tokyo, Japan.

Warren B. Ballard, Ph.D., (Adjunct) University of Arizona.

John M. Blair, Ph.D., University of Georgia.

Alexander E. Beeser, Ph.D., University of Tennessee.

Daniel L. Boyle, Ph.D., University of Louisville.

Susan A. Brown, Ph.D., University of Missouri.

Stephen Keith Chapes, Ph.D., University of Illinois.

Rollie J. Clem, Ph.D., University of Georgia.

Abigail H. Conrad, Ph.D., Yale University.

Gary W. Conrad, Ph.D., Yale University.

Jack F. Cully, Jr., Ph.D., University of New Mexico.

Robin E. Denell, Ph.D., University of Texas, Austin.

Walter K. Dodds, Ph.D., University of Oregon.

Phil A. Fay, (Adjunct) Ph.D., Kansas State University.

Carolyn Ferguson, Ph.D., University of Texas, Austin.

Sherry D. Fleming, Ph.D., University of Colorado.

Keith B. Gido, Ph.D., University of Oklahoma

Philip S. Gipson, Ph.D., University of Arkansas.

James A. Guikema, Ph.D., University of Michigan.

Lynn E. Hancock, Ph.D., University of Oklahoma.

David C. Hartnett, Ph.D., University of Illinois.

Michael A. Herman, Ph.D., Massachusetts Institute of Technology.

Helmut Hirt, Ph.D., Ludwig Maximilian Universitat.

Eva A. Horne, Ph.D., Kansas State University.

Anthony Joern, Ph.D., University of Texas at Austin.

Loretta C. Johnson, Ph.D., University of Connecticut.

Ari Jumpponen, Ph.D., Oregon State University.

Dawn M. Kaufman, Ph.D., University of New Mexico.

Donald W. Kaufman, Ph.D., University of Georgia.

Glennis A. Kaufman, Ph.D., Kansas State University.

George L. Marchin, Ph.D., University of Kansas Medical School.

Mark H. Mayfield, (Research) Ph.D., University of Texas.

Beth A. Montelone, Ph.D., University of Rochester.

Silvia Mora, Ph.D., University of Barcelona, Spain.

Theodore J. Morgan, Ph.D., Washington State University.

A. Lorena Passarelli, Ph.D., University of Georgia.

Craig Paukert, Ph.D., South Dakota State University.

Jean-Pierre Perchellet, Ph.D., University of Paris VI.

David A. Rintoul, Ph.D., Stanford University.

Robert J. Robel, (Emeritus) Ph.D., Utah State University.

Brett K. Sandercock, Ph.D., Queen's University and Simon Fraser University.

Jyoti Shah, Ph.D., University of Notre Dame.

Brian S. Spooner, Ph.D., Temple University.

Larry J. Takemoto, Ph.D., Colorado State University.

A. Spencer Tomb, Ph.D., University of Texas-Austin.

Chris J. Thorpe, Ph.D., University of Oregon.

Ronald W. Trewyn, Ph.D., Oregon State University.

Mark Ungerer, Ph.D., Indiana University.

Steve J. Upton, Ph.D., Auburn University.

Tonia Von Ohlen, Ph.D., University of Colorado Health Sciences Center.

Timothy H. Parker, Ph.D., University of New Mexico.

Ruth Welti, Ph.D., Washington University in St. Louis.

Larry G. Williams, Ph.D., California Institute of Technology.

Gail T. Wilson, Ph.D., Kansas State University.

Samantha Wisely, Ph.D., University of Wyoming.

Kimberly A. With, Ph.D., Colorado State University.

Peter P. Wong, Ph.D., Oregon State University.

Valerie F. Wright, Ph.D., University of Minnesota

Ting Xie, Ph.D., (Adjunct) Rutgers University and the University of Medicine and Dentistry of New Jersey.

Program overview

The Division of Biology offers a master of science degree in biology, and doctor of philosophy degrees in biology and microbiology. To support this effort, the graduate faculty is committed to a vigorous research and instructional program.

Since biology and microbiology are very broad disciplines, and to provide a structural profile of our faculty research interests, we have formed the following areas of interest:

Genetic, cell, and developmental biology
Asano, Boyle, Brown, Clem, A. Conrad, G. Conrad, Denell, Herman, Mora, Passarelli, Perchellet, Rintoul, Roe, Shah, Spooner, Takemoto, Ungerer, Von Ohlen, Welti, Williams

Microbiology, virology and immunology
Chapes, Clem, Dodds, Hirt, Jumpponen, Marchin, Passarelli, Upton, Wong

Ecology and evolutionary biology
Blair, Cully, Dodds, Ferguson, Gido, Gipson, Hartnett, Horne, Joern, Johnson, Jumpponen, D. Kaufman, G. Kaufman, Mayfield, Paukert, Sandercock, Tomb, Ungerer, Wilson, Wisely, With

For more detailed information on faculty research interests, see www.ksu.edu/biology/bio/faculty_scientists.html

Programs

Biology and microbiology are exceedingly broad disciplines, and the graduate program exploits this exciting diversity. The graduate faculty members of the Division of Biology strongly believes that research is the preeminent feature of our training responsibilities. Our faculty is a coalition of scientists who focus a wide diversity of experimental expertise on graduate education--ranging from the study of virus assembly and the biology of a cancer cell, to the interaction of grazing bison with plant growth on our expansive tall grass prairie. Graduate opportunities are available, in all areas of biology, including developmental biology, ecology, wildlife biology, cancer biology, virology, physiology, immunology, parasitology, and molecular genetics.

In partnership with a major advisor and a supervisory committee, each graduate student formulates a mixture of course work and research to comprise an individualized program of study. This partnership tailors the program to the needs of each student, and selects from a set of available courses those which present recent and exciting developments in the student's area of interest. A minimum of 30 hours past the bachelor's degree is required for a master of science; a minimum of 90 hours for a doctor of philosophy. We require that each student write a thesis or dissertation based on original research, of sufficient quality and importance to merit publication in a refereed journal.

Biology M.S. Program

The M.S. program in biology requires 30 hours past the bachelor's degree. 22 hours of classes must be taken; at least 18 hours should be at the 700 level and above, including the thesis research credit. Courses at the 600-level may be included. All students are required to take 3 hrs BIOL 862 Professional Skills in Biology.

The combined B.S./M.S. program in biology provides exceptional undergraduates with the opportunity to obtain both a bachelor of science and a master of science in 5 years, a shorter time than typically required to earn a B.S. plus M.S. if these degrees are pursued separately. The curriculum includes both course work and research experience. Degree requirements for the M.S. are similar to those for the more typical M.S. degree described above, with the exception that up to 9 credit hours can be used toward both the B.S. and the M.S. degrees. Admission requirements do not include submission of a score for the GRE, but do require that the applicant has substantial undergraduate research experience and support from a faculty member in the Division of Biology. Completion of the program will provide students with an advantage both in pursuing work in the private sector and in pursuing a further advanced degree.

Biology Ph.D. Program

The Biology Ph.D. degree requires a minimum of 24-30 hrs course work including 15 hours of courses at the 800 level, depending on the student's background. Students may chose from all graduate courses, including all Division of Biology Graduate Courses listed in the Graduate catalog. Course selection is done in consultation and approval of the student's supervisory committee. All students are required to take 3 hrs BIOL 862 Professional Skills in Biology.

Microbiology Ph.D. Program

The Microbiology Ph.D. degree requires a minimum of 24-30 hrs course work, including 15 hours of courses at the 800 level. Course selection is done in consultation and approval of the student's supervisory committee and should include the following.

I. Required core courses:

3 hrs BIOCH 755 Biochemistry I
3 hrs BIOCH 765 Biochemistry II
3 hrs BIOL 862 Professional Skills in Biology

II. Suggested courses for the specialization in Ecological Microbiology:

BIOL 604 Biology of fungi
BIOL 632 Ecology Lab BIOL 687 Microbial Ecology
BIOL 690 Microbial physiology and metabolism
AGRON 645 Soil microbiology
BIOCH 766 DNA manipulation
BIOCH 767 RNA manipulation
STAT 703 Statistical methods for natural scientists
STAT 704 Analysis of Variance

STAT 705 Regression and correlation analysis
BIOL 805 Advanced mycology
BIOL 818 Advanced aquatic ecology
BIOL 823 Demographic methods
BIOL 826 Nutrient dynamics
BIOL 860 Modern molecular approaches
BIOL 865 Advanced plant ecology
BIOL 870 Advanced plant systematics
BIOL 886 Confocal fluorescence and light microscopy
BIOL 888 Electron microscopy techniques
PLPTH 835 Plant virology
PLPTH 840 Plant pathogenic bacteria
PLPTH 845 Plant pathogenic fungi

III Suggested courses for the specialization in Molecular Microbiology

BIOL 625 Animal Parasitology
BIOL 670 Immunology
BIOL 671 Immunology lab
BIOL 676 Genetics of microorganisms
BIOL 690 Microbial physiology and metabolism
BIOL 705 Eukaryotic genetics
BIOL 707 Advanced cell biology
BIOL 730 General virology
BIOL 731 Virology Lab
BIOCH 766 DNA manipulation
BIOCH 767 RNA manipulation
BIOL 830 Advanced virology
BIOL 835 Cellular and molecular parasitology
BIOL 840 Molecular and cellular immunology
BIOL 850 Advanced topics in immunology
BIOL 860 Modern molecular approaches
BIOL 886 Confocal fluorescence and light microscopy
BIOL 888 Electron microscopy techniques
BIOCH 911 Molecular signal transduction
BIOCH 920 Nucleic acids
BIOCH 930 Proteins
BIOCH 950 Enzyme chemistry
DMP 860 Pathogenic mechanisms
DMP 871 Molecular diagnostics of infectious diseases
DMP 878 Applications of flow cytometry

Facilities

The research-oriented graduate training activities of the biology graduate faculty are performed in four on-campus sites--Ackert Hall, Bushnell Hall, Chalmers Hall, and Leasure Hall--as well as at the off-campus site of the Konza Prairie Biological Station.

Ackert Hall
With some 130,000 square feet, Ackert Hall is the main biology facility. Ackert Hall provides modern well-equipped laboratories for teaching and research, and, in addition, contains the division offices, a three-section rooftop greenhouse, an electronics shop, a research supply storeroom, and small animal rooms. Equipment available for research includes ultracentrifuges, beta and gamma counting systems, high performance liquid chromatography systems, growth chambers, a research microscope facility (with confocal and transmission electron microscope plus image processing capabilities), mass spectroscopy, and glassware cleaning and sterilizing facilities.

Bushnell Hall
Graduate faculty members with an interest in environmentally oriented studies have offices and laboratory space in Bushnell Hall. Included in this building are the herbarium, three environmental chambers, dark rooms, and tanks for fish culture ranging from 100- to 2,000-liter capacity. Extensive computing and imaging facilities support the climatology and remote sensing activities.

Chalmers Hall
Chalmers Hall was completed in November 2002 and is attached to Ackert Hall. This modern facility houses ten Division of Biology faculty and research programs in 12,300 square feet on the second floor of the building. Some of the research areas include: Bioinformatics, Ecological Genomics, and Kansas Biomedical Research Infrastructure Development (K-BRIN).

Leasure Hall
Leasure Hall is used to house the Kansas Cooperative Fish and Wildlife Research Unit. This unit is a partnership of the U.S. Department of the

Interior, Kansas State University, the Kansas Department of Wildlife and Parks, and the Wildlife Management Institute. Three U.S. Department of the Interior employees, as Division of Biology adjunct graduate faculty members, coordinate fisheries and wildlife research programs with state and university participation.

Konza Prairie Biological Station
Approximately 8,616 acres of native tall grass prairie has been set aside as a unique outdoor laboratory for long-term research. This land was purchased by the Nature Conservancy with funds provided by Katharine Ordway. Land management is designed to provide experimental manipulations, in order to understand patterns and processes in maintaining the prairie ecology.

Research strengths

The biology graduate faculty has a proven track record in scientific achievement, and continues to excel in competition for extramural research funding. Our programs are funded by the state, through the Kansas Agricultural Experiment Station, and by direct grants to our faculty members from the National Science Foundation, National Institutes of Health, National Aeronautics and Space Administration, American Heart Association, and the American Cancer Society. Areas of strength, which provide research opportunities for our graduate students, can be illustrated by collaborative research funding in such areas as:

Long-Term Ecological Research
The National Science Foundation has continued to support research on the Konza Prairie since 1980. The study is designed to investigate gradual and subtle changes that influence plant and animal populations on the tall grass prairie, the impact of human activities on ecosystem productivity, and variations in ecological processes caused by burning and grazing.

BioServe Space Technologies
In cooperation with Aerospace Engineering Sciences at the University of Colorado, the Division of Biology leads this NASA Research Partnership Center. Projects are focused on applications of the space environment in areas of significant impact, including biotechnology, pharmaceuticals, and agrigenetic materials.

Kansas Biomedical Research Infrastructure Development Program (K-BRIN)
This NIH-funded program's goal is to involve undergraduate in research. The program funds undergraduate training at 9 colleges and universities in the State of Kansas to encourage their participation and possible career choice of biomedical research. At Kansas State University, undergraudate students participate by performing cutting-edge level research with faculty in their research labs. They receive a scholarship to commit 450 hrs. each year toward research. This hands-on opportunity provides a significant edge to students interested in pursuing Ph.D. degrees in biomedical fields.

Kansas Lipidomics Research Center
The National Science Foundation EPSCoR is funding the Kansas Lipidomics Research Center which is a collaborative venture of scientists in the Division of Biology, in the Department of Biochemistry, and at the University of Kansas. The Center performs comprehensive, quantitative profiling of lipid molecular species with high sample throughput, using mass spectrometic technologies. The levels of lipid metabolites in genomically altered and physiologically manipulated organisms are investigated to identify the functions of genes that encode proteins involved in lipid metabolism. The Center is also dedicated to improving lipid analytical technologies, to promoting collaborative research among lipid scientists, and to providing training opportunites for post doctoral, graduate, and undergraduate students. More information is available at http://www.k-state.edu/lipid/lipidomics.

Ecological Genomics
This program is funded by the Naitonal Science Foundation EPSCoR and is an interdisciplinary research intiative aimed at exploring the genetic basis for organismal responses to the environment. Students involved in the program will engage in an interdisciplinary program of study and work with faculty in ecology and molecular biology/genetics to employ functional genomic techniques to probe the interface between ecology and genetics. More information about the Kansas Ecological Genomics collaborative research groups can be found at http://www.ksu.edu/ecogen.

Admission

Incoming students generally have degrees in biology, biochemistry, wildlife biology, or a comparable field. However, the overwhelming considerations are an intensive interest in biology or microbiology, and minimum prerequisites for admission into our programs. Application procedures require:

1. A completed application form

2. A statement of professional goals and objectives

3. Transcripts from all colleges and universities attended

4. Three letters of recommendation

5. GRE scores (General GRE only; specific subject tests are *NOT* required)

Additional Graduate School regulations apply to applicants from outside of the United States.

Financial support

Because of the strength of our faculty efforts in obtaining research funding, we normally provide 12-month financial assistance to the graduate students we accept into our program. This level of assistance is competitive with that offered by other midwestern universities. Students receiving support are eligible for in-state tuition and fees.

Biology courses

Undergraduate and graduate credit in minor field

BIOL 500. Plant Physiology. (4) I. Detailed consideration of physiological processes of higher plants. Three hours lec. and three hours lab a week. Pr.: BIOL 201 or BIOL 210; and a course in organic chemistry.

BIOL 510. Developmental Biology. (3) II. Introduction to the stages and mechanisms of embryonic animal development. Integrated approach that includes classic experimental embryology and the genetic and molecular regulation of invertebrate and vertebrate animal development. Three hours lec. per week. Pr.: BIOL 450.

BIOL 511. Embryology Laboratory. (1) II. One three-hour lab a week. Pr.: BIOL 510 or conc. enrollment.

BIOL 513. Physiological Adaptations of Animals. (3) I. Integration of physiological mechanisms as the basis for adaptive responses of animals to different environments. Pr.: BIOL 201; and a course in organic chemistry or biochemistry.

BIOL 514. Physiological Adaptations of Animals Laboratory. (1) I. One three-hour lab a week. Pr.: Conc. enrollment in BIOL 513.

BIOL 515. Behavioral Ecology. (3) I. Study of the social, environmental, genetic, and evolutionary processes that affect animal behavior. Topics include: evolution of social organization, spacing and group behavior, mating systems and parental care, sexual selection, communication, aggression, habitat selection, and foraging. Research project required. Pr.: BIOL 201.

BIOL 529. Fundamentals of Ecology. (3) I. Interdisciplinary examination of organisms and the physical environment, ecosystem structure and function, population ecology and demography, community structure and dynamics, and basic ecological principles and their relevance to contemporary environmental issues. Three hours lec. per week. Pr.: BIOL 198 and BIOL 210.

BIOL 530. Pathogenic Microbiology. (3) I. Etiology and descriptions of major infectious diseases of humans within the perspective of host defenses. Two hours lecture and one hour laboratory-demonstration a week. Pr.: BIOL 455.

BIOL 541. Cell Biology. (3) II. Structure and function of cells and subcellular components. A molecular understanding of membranes and cellular physiology will be emphasized. Three hours lec. Pr.: BIOL 450 and CHM 350.

BIOL 542. Ichthyology. (3) II, in even years. Systematics, morphology, physiology, distribution, and natural history of fishes. Two hours lecture and three hours lab a week. Pr.: BIOL 201.

BIOL 543. Ornithology. (3) II. Classification, morphology, physiology, distribution, and natural history of birds. Two hours lec. and three hours lab a week. Pr.: BIOL 201.

BIOL 544. Mammalogy. (3) I. Characteristics, evolution, life histories, and ecology of mammals, especially North American game species. Two hours lec. and three hours lab a week. Pr.: BIOL 201.

BIOL 545. Human Parasitology. (3) II. Protozoan and helminth parasites of human with lesser emphasis on ectoparasitic arthropods. Emphasis on life cycles, control, and laboratory diagnosis. Three hours lec. a week. Pr.: BIOL 198.

BIOL 546. Human Parasitology Laboratory. (1) II. Examination of prepared materials and identification of internal parasites of man. Two hours lab a week. Pr.: Conc. enrollment in BIOL 545.

BIOL 550. Lower Plants. (3) II, in odd years. Morphology, adaptive mechanisms, and evolutionary relationships of the cellular and vascular cryptograms. Two hours lec. and one three-hour lab a week. Pr.: BIOL 201 or 210.

BIOL 551. Taxonomy of Flowering Plants. (4) I. Morphology, taxonomy, and biogeography of the vascular plants. Two hours lec. and two three-hour labs a week. Pr.: BIOL 201 or 210.

BIOL 560. Human Oncology. (3) II, in even years. Etiology and pathogenesis of human cancer with emphasis on the biological, biochemical, and molecular mechanisms involved in the multistage process of tumorigenesis and the role of biological, chemical, and physical carcinogens in neoplasia. Three hours lecture per week. Pr.: Two courses in biology and a course in organic chemistry.

BIOL 585. Principles of Conservation Biology. (3) II. Biological diversity and the factors contributing to loss of biodiversity. Scientific principles of biological conservation emphasizing the application of ecological theory and population genetics to the conservation of threatened populations, species and ecosystems. Three hours lec. per week. Pr.: BIOL 450 and 529.

Undergraduate and graduate credit

BIOL 604. Biology of the Fungi. (3) I. An introduction to fungal structure, function, physiology, ecology, and genetics. Importance of fungi as disease organisms, as saprotrophs, and in industry. Techniques of isolation, cultivation, and as experimental organisms. Two hours lec. and two hours lab a week. Pr.: BIOL 198 or 210.

BIOL 609. Cellular and Molecular Biology of Human Diseases. (3) II, in odd years. Fundamental basis of the major common non-infectious diseases and disorders affecting our society, with emphasis on the biochemical and molecular biological mechanisms by which the structures and functions of specific human tissues, organs and systems are altered. Three hours lec. per week. Pr.: BIOL 450 and BIOCH 521.

BIOL 612. Freshwater Ecology. (4) I, in even years. Basic ecological principles of aquatic environments and environmental applications. Plants and animals of local streams, rivers, ponds, and reservoirs are used to demonstrate the interaction of biological processes with the chemical and physical features of natural aquatic environments. Three hours lec., three hours lab a week; two optional weekend field trips. Pr.: BIOL 201 and CHM 110 or 210.

BIOL 620. Evolution. (3) II. A study of the theory of evolution including its historical and social implications. Three hours lec. a week. Pr.: BIOL 450 or a course in genetics.

BIOL 622. Cellular and Developmental Biology of the Nervous System. (3) I, in even years. An introduction to the cellular and molecular biology and embryology of developing brains and nervous systems of vertebrates and some model invertebrates. Pr.: 2 courses in Biology.

BIOL 625. Animal Parasitology. (4) I, in odd years. Biology and pathology of the principal protozoan, helminth, and arthropod parasites of domestic animals and wildlife. Three hours lec. and two hours lab a week. Pr.: BIOL 198 and junior standing.

BIOL 632. Ecology Laboratory. (1) II. Laboratory and field experiences with ecological problems. Pr.: STAT 340 or equiv.

BIOL 640. Population Biology. (3) I. An introduction to the theories of quantitative population biology including dynamics, demography and genetics. Emphasis on spatio-temporal variation within and among populations and species. Three hours lec. a week. Pr.: BIOL 450 and 529 and STAT 340.

BIOL 642. Principles of Conservation Biology. (3) II. Biological diversity and the factors contributing to loss of biodiversity. Scientific principles of biological conservation emphasizing the application of ecological theory and population genetics to the conservation of threatened populations, species, and ecosystems. Three hours lec. per week. Pr.: BIOL 450 and 529.

BIOL 670. Immunology. (4) II. Chemical, genetic, and biological properties of the immune response, acquired immunity, and antibody production. Pr.: Two courses in biology; and a course in biochemistry or equiv.

BIOL 671. Immunology Lab. (2) II. Laboratory exercises in immunology. Pr.: BIOL 670 or conc. enrollment. Three-hour lab a week plus one hour rec.

BIOL 675. Genetics of Microorganisms. (3) I. The genetics of bacteria, viruses, and other microorganisms. Both the use of genetics in microbiological studies and the use of microbial systems to investigate basic genetic problems will be covered. Pr.: BIOL 450 and 455.

BIOL 676. Molecular Genetics Laboratory. (3) I. An advanced course in the techniques of molecular genetics and recombinant DNA technology, including molecular cloning, library screening, polymerase chain reaction, and RFLP and DNA sequence analysis. A number of projects will be compelted during the semester. One-hour lecture and two three-hour labs. Pr.: BIOL 675 or concurrent enrollment.

BIOL 682. Fish Ecology. (3) I, in odd years. The interaction between fish and their environment. Exploring fundamental ecological processes in aquatic systems at individual, population, community and ecosystem scales. Two hours lecture and three hours lab per week. Pr.: BIOL 529.

BIOL 684. BIOL 684. Wildlife Management and Techniques. (4) II. Concepts and techniques of wildlife ecology and management with emphasis on North American game species. Applied population dynamics as they relate to historical and recent developments in wildlife management, habitat improvement, and related material. Three hours lec., one hour rec., and three hours lab a week. Pr.: BIOL 433.

BIOL 687. Microbial Ecology. (3) II, in odd years. The ecology of aquatic and terrestrial microorganisms in their natural environment. Pr.: BIOL 455.

BIOL 690. Microbial Physiology and Metabolism. (2) II. The study of structure, function, regulation, and intermediary metabolism of bacteria. Pr.: BIOL 455; and BIOCH 521 or 765.

BIOL 696. Fisheries Management and Techniques. (4) I, in even years. Historical and contemporary issues in the management and conservation of exploited fishes. Methods for managing fisheries resources in streams, lakes, and ponds including estimating abundances, quantifying age and growth, manipulating populations, modeling population dynamics, culturing fishes, and improving aquatic habitat. Three hours lec. and three hours lab per week. Pr.: BIOL 201.

BIOL 697. Topics in Biology. (1-6) I, II, S. Pr.: Consent of instructor.

BIOL 698. Problems in Biology. (1-8) I, II, S. Pr.: Consent of instructor.

BIOL 699. Undergraduate Seminar in Biology. (1) I, II. Pr.: Consent of instructor.

BIOL 702. Radiation Safety in the Research Laboratory. (1) I. Principles of radioactive safety and isotope handling, licensing procedures, and laboratory techniques. Pr.: BIOL 198 or 455; and CHM 210 or PHYS 113.

BIOL 705. Eukaryotic Genetics. (3) I. An integrated exploration of transmission genetics and molecular genetics of eukaryotic organisms. The focus will be on genetic model organisms and their contributions to our understanding of mechanisms of genetic transmission and exchange, mutagenesis, gene expression, and regulation of cell division and development. Modern approaches to genomic analysis will be discussed. Pr.: BIOL 450 and BIOCH 521.

BIOL 707. Advanced Cell Biology. (3) I. Selected current topics in cell biology which reflect recent advances in the field. Major topics include membranes and transport, protein sorting, signal transduction, cell adhesion and motility, cell cycle, apoptosis, and specialized cell functions. Pr.: BIOL 541.

BIOL 710. Endocrinology. (3) II, in even years. A survey of the glands of internal secretion in vertebrates with emphasis on mechanisms of control of hormone secretion and mechanisms of hormone action. Pr.: BIOL 198; and a course in organic chemistry or biochemistry.

BIOL 730. General Virology. (3) II. Theoretical and experimental basis of virology, with emphasis on how viruses manipulate cells to insure their own survival, mechanisms of virus replication, principles of virus host interactions including how viruses cause disease, and selected medically relevant viruses. Pr.: Twelve hours of biological sciences, including BIOL 450 and 455; and BIOCH 521 or equiv.; consent of instructor.

BIOL 731. Virology Laboratory. (2) II. An introduction to the techniques used in virus propagation, detection, and quantification. Emphasis will be placed on the methodology used to study virus replication and virus-host cell interactions. One-hour lec. and three-hour lab. Pr.: BIOL 730 or concurrent enrollment.

BIOL 736. Cancer Therapy. (3) II, in even years. Current methods of cancer management with emphasis on the kinetic principles of chemotherapy and radiation therapy; diagnosis; surgical oncology; oncologic emergencies; adverse effects of cancer therapy; and the new therapies. Pr.: BIOL 540 and BIOCH 521.

Graduate credit

BIOL 800. Advanced Plant Physiology I. (3) II, in even years. Modern concepts and research in plant physiology. Respiration, photosynthesis, and water relations of plants. Pr.: An introductory plant physiology course or general biochemistry.

BIOL 801. Advanced Plant Physiology II. (3) II, in odd years. Modern concepts and research in plant physiology. Mineral nutrition, translocation, growth, and development of plants. Pr.: An introductory plant physiology course or general biochemistry. Previous enrollment in BIOL 800 is not required.

BIOL 802. Advances in Plant Stress Signaling. (3) II, in even years. Modern concepts and research in plant response to biotic and abiotic stress. Hormones in plant stress response; signal transduction in plant stress response. Same as PLPTH 800. Pr.: BIOL 500.

BIOL 805. Advanced Mycology. (3) II, in odd years. Study of fungi, with emphasis on structure, identification, classification, phylogeny, and economic importance. One hour lec. and six hours lab a week. Pr.: BIOL 604.

BIOL 815 Advanced Fisheries Management. (3) II, in odd years. Advanced study of theory and techniques related to managing freshwater fisheries. Emphasis will be placed on current research needed to support management practices such as sampling, indices, harvest regulations, predator-prey interactions, community structure, ecosystem management. Pr.: BIOL 542 and BIOL 696.

BIOL 818. Advanced Aquatic Ecology. (3) I, in odd years. A study of advanced issues adn methodology in limnological sciences, including a workship on algal taxonomy, and an applied group project. Two lecture hours, two laboratory hourse per week.

BIOL 822. Landscape Ecology. (4) I, in odd years. Effect of spatial pattern on ecological processes. Course will emphasize how spatial complexity emerges and is maintained in ecological systems, the analysis of spatial pattern, scaling issues, the ecological consequences of spatial pattern and applications for conservation and ecosystem management in both aquatic and terrestrial systems. Two lecture hours, one discussion hour and three laboratory hours per week. Pr.: BIOL 529.

BIOL 823. Demographic Methods. (3) I, in even years. Theory and methods of quantitative approaches for the study of population dynamics. Advances in matrix methods and mark-recapture statistics will be emphasized. Two hours lec. and one hour studio per week. Pr.: BIOL 684 or BIOL 696.

BIOL 825. Evolution of Animal Behavior. (4) II, in even years. The study of mechanisms, ontogeny, and evolution of behavior stressing the adaptive nature of behavior. Two hours lec., one hour of discussion on assigned readings, and two to three hours lab a week. Lab format will be individual research projects requiring independent research skills. Pr.: BIOL 450 or equiv.

BIOL 826. Nutrient Dynamics. (3) II, in odd years. The cycling of elements in ecosystems with emphasis on macronutrients such as nitrogen, phosphorous, and major cations, and the influence of variables such as acid rain on nutrient dynamics. Two hours lec. and two hours lab a week. Pr.: BIOL 529 and CHM 210.

BIOL 828. Advanced Topics in Conservation Biology. (2) II, in even years. Considers in depth one or two topics important to conservation biology. Topics vary. Potential topics are: community based ecosystem management and policy implementation, habitat loss and fragmentation,

demographics of small populations and population viability models, conservation genetics.

BIOL 830. Advanced Virology. (3) I, in odd years. In-depth readings and discussions of current topics in virology and the impact of viruses in today's society with emphasis on recent research literature. May be repeated with the consent of the intstructor. Pr.: BIOL 730 and consent of instructor.

BIOL 835. Cellular and Molecular Parasitology. (3) I, in even years. Biochemistry, immunology, and molecular biology of medically important eukaryotic parasites. Three hours lec. Pr.: BIOCH 521 or equivalent.

BIOL 840. Molecular and Cellular Immunology. (3) I, in even years. Discussions and readings covering the molecular and cellular interactions during various phases of the immune response. Pr.: BIOL 670.

BIOL 850. Advanced Topics in Immunology. (1-2) I, II. Current research in immunology. Pr.: BIOL 670 and consent of instructor.

BIOL 855. Molecular Biology of Cellular Membranes. (3) I. A general coverage of membranes with respect to theories of structure, chemical and physical methods of study, methods of isolation, transport mechanisms, assembly and function of components, and receptors. Some specific membrane systems will be covered in detail including a review of recent references. Pr.: BIOL 541 and BIOCH 521.

BIOL 860. Modern Molecular Approaches. (3) II. An introduction to approaches and techniques used in the molecular analysis of biological systems, with a focus on modern molecular and cellular biological approaches. Format is primarily group discussion of primary literature, with the goal of instilling the ability to think critically and evaluate published studies. Pr.: BIOL 705 and BIOL 707.

BIOL 863. Professional Skills in Biology. (3) II. An introduction for new graduate students in the mechanics of becoming a scientist and professional biologist. The course includes presentation of professional seminars, grant proposal writing and reviewing, manuscript preparation and submission, interviewing for jobs, teaching skills, effective communication of scientific data in graphs and tables, and other topics.

BIOL 864. Plant Responses to the Environment. (3) I, in odd years. Modern concepts and techniques for measuring the environment and plant ecophysiological responses. Instrument/sensor theory and operation, leaf energy balance, measurement and interpretation of plant carbon and water relations in the field. Pr.: a course in ecology, a course in plant physiology.

BIOL 865. Advanced Plant Ecology. (4) I, in even years. Advanced study of theory in population and community ecology as applied to higher plants. Emphasis on current research in plant population ecology, species interactions, community structure, and four hours lecture/rec. per week. Pr.: BIOL 529 or a plant ecology course.

BIOL 868. Advanced Cellular and Developmental Biology. (3) I, in odd years. Chemistry, structure, and function of cellular systems in growth, development, and reproduction. Pr.: BIOCH 755 or equiv.

BIOL 870. Advanced Plant Systematics. (4) II, in even years. Taxonomy, phylogenetic inference and major themes in the evolution of vascular plants. Two hours lec., one hour discussion, and three hours lab per week. Lab format will include individual or small group research projects. Pr.: BIOL 551 and consent of instructor.

BIOL 875. Evolutionary Ecology. (3) I, in even years. A study of the evolution of population, community, and ecosystem structure. Two hours lec. and one hour rec. a week. Pr.: BIOL 529.

BIOL 886. Confocal, Fluorescence and Light Microscopy. (3) I, in odd years. An introduction to theories, functions and applications of confocal, fluorescence and light microscopy, and fluorescent molecules. Lab emphasis on students working on independent research projects requiring microscopy. Two hours of lecture and three hours of lab per week.

BIOL 888. Electron Microscopy Techniques. (3) I, in even years. Theory and techniques involved in using the transmission electron microscope for the study of biological materials. Includes individualized instruction on the operation of the Philips 201 electron microscope and techniques for processing biological samples. Pr.: Current participation in research requiring electron microscope.

BIOL 890. Advanced Topics in Biology. (1-6) I, II, S. Pr.: Consent of instructor.

BIOL 891. Advanced Problems in Biology. (1-8) I, II, S. Pr.: Consent of instructor.

BIOL 895. Graduate Seminar in Biology. (1) I, II. Pr.: Consent of instructor.

BIOL 898. Master's Research in Biology. (1-9) I, II, S.

BIOL 899. Master's Research in Microbiology. (1-9) I, II, S.

BIOL 997. Postdoctoral Research in Biology. (1-12) I, II, S. Advanced-level research in collaboration with a faculty member, involving projects in any area of biology. Pr.: Ph.D. degree or equivalent.

BIOL 998. PhD Research in Biology. (Var.) I, II, S.

BIOL 999. PhD Research in Microbiology. (Var.) I, II, S.

For more information

For additional information and application materials please contact:
Graduate Selection Committee
Kansas State University
Division of Biology
232 Ackert Hall
Manhattan, KS 66506-4901

785-532-6615
Fax: 785-532-6653
Home Page: http://www.ksu.edu/biology/

Curriculum and Instruction

Admission requirements | Program description
Classroom technology graduate certificate
Master of science in curriculum and instruction
Ph.D. and Ed.D. in curriculum and instruction | Curriculum and instruction courses Elementary education courses | Secondary education courses |
More information

Chair:
Marjorie Hancock

Director of graduate studies:
Marjorie Hancock

Graduate faculty:

David Allen, Ed.D., Texas Tech University.

Andrew G. Bennett, Ph.D., Priceton University.

Paul R. Burden, Ph.D., Ohio State University.

Bradley Burenheide, Ph.D., Kansas State University.

Frederick Burrack, Ph.D., University of Illinois.

Jana R. Fallin, Ph.D., University of Texas.

F. Todd Goodson, Ph.D., University of Kansas.

David Griffin, Ed.D., Kansas State University.

Mary Evan Griffith, (Emeritus) Ph.D., Ohio State University.

Marjorie Hancock, Ed.D., Northern Illinois University.

Steven R. Harbstreit, Ph.D., University of Missouri.

Clark R. Harris, Ph.D., University of Missouri-Columbia.

Charles Heerman, Ed.D., Oklahoma State University.

Socorro Herrera, Ph.D., Texas Tech University.

John Hortin, Ed.D., Northern Illinois University.

Jeong-Hee Kim, Ph.D., Arizona State University.

Catherine Maderazo, Ph.D., Arizona State University.

Diane McGrath, Ph.D., University of Illinois.

Kevin Murry, Ph.D., Texas Tech University.

Michael F. Perl, Ph.D., University of South Carolina.

N. Sanjay Rebello, Ph.D., Brown University.

Lawrence Scharmann, Ph.D., Indiana University.

Margaret Gail Shroyer, Ph.D., Kansas State University.

Jacqueline Spears, Ph.D., Kansas State University.

Kimberly Staples, Ph.D., University of Alabama.

BeEtta Stoney, Ph.D., University of Texas at Austin.

Rosemary Talab, Ph.D., University of Southern California.

Kay Ann Taylor, Ph.D., Iowa State University.

Iris Totten, Ph.D., University of New Orleans.

Thomas Vontz, Ph.D., Indiana University-Bloomgton.

Janice R. Wissman, Ed.D., University of Kansas.

Emmett L. Wright, Ph.D., Pennsylvania State University.

Sally Yahnke, Ph.D., Colorado State University

Dean Zollman, Ph.D., University of Maryland.

Admission

For admission requirements, please see the Education catalog page.

Program description

The curriculum and instruction graduate program offers a variety of graduate-level courses in all curricular areas with specific emphasis upon trends and recent developments in practice, theory, and research. These courses are offered on-campus, at selected off-campus sites, and via distance learning.

This program supports the following degrees: the master of science in curriculum and instruction, the doctor of education in curriculum and instruction, and the doctor of philosophy in curriculum and instruction. In all of these programs, breadth of study is stressed with students taking courses in other programs in the College of Education and the university.

The program offers numerous short courses, workshops, and seminars in addition to courses in the catalog. These can be applied to degree programs or taken for personal or professional development unrelated to a degree program.

Classroom technology graduate certificate

The curriculum and instruction graduate program offers a 15-hour graduate certificate in classroom technology. The 5 required courses are consonant with International Society for Technology in Education, state and national content standards, and National Board of Professional Teacher Standards Licensure goals. All courses in the graduate certificate are offered on weekends or summers in short formats or by video, web, or other distance education formats. A statewide advisory group, which includes graduates, provides guidance to this graduate certificate program. (See the *Graduate School Catalog* for more information about graduate certificates.)

To be accepted into the classroom technology graduate certificate program, candidates must be apply for admission and be accepted to the graduate program in curriculum and instruction. They must also be accepted in the classroom technology area of specialization. To enter the classroom technology specialty an educator must have a current teaching certificate/license, classroom teaching experience or the equivalent, regular access to a computer, word processing application experience appropriate to grade level, access to the internet, and e-mail. Participants must have a commitment to integrating curriculum and technology to enhance student learning. Note that this certificate does not lead to an endorsement as a computer studies teacher.

Master of science in curriculum and instruction

Program requirements

The M.S. in curriculum and instruction requires a minimum of 31 hours of graduate credits. Three hours in each of these core areas is required: curriculum, teaching and learning, diversity, educational technology, and research and scholarship. In addition, at least 15 hours in an area of specialization are required. All students take the Master's Project (1 hr.), while others also take the Master's Report (2 hours) or the Master's Thesis (6 hours). The requirements for each core area and for each of these specializations are described below.

A. Curriculum (3 hours)
This category addresses all aspects of K-12 curriculum. It is intended that one course in curriculum would address the broad range of these issues.

- The foundations of curriculum (philosophical, historical, psychological, and social foundations; curriculum theory)
- The principles of curriculum (aims, goals, objectives; curriculum design, development, implementation, and evaluation)
- Issues of curriculum (trends and issues; future directions; national standards)

Recommended courses for this core category

EDCI 803 Curriculum Development
EDADL 855 Administrative Leadership in Curriculum
Or a curriculum course approved by the student's advisor and committee.

B. Teaching and learning
This category deals with theoretical, practical, and research-based issues associated with the creation of an environment for effective teaching and learning. The following topics are representative of the issues that might affect the creation of the learning environment:

- Teaching strategies (e.g., direct instruction, cooperative learning)
- Learning theory (e.g., sociocultural theory, schema theory)
- Theory and research into practice
- Instructional planning and design
- Assessment
- Learning environments (organization, management, discipline)
- Standards and practices

One course in teaching and learning may address only one of these issues; one course is not intended to provide a survey of all possible issues that affect the creation of a learning environment.

Recommended courses for this category:
EDCI 831 Contemporary Issues in Teaching and Learning
EDCI 882 Teaching and Learning Models
EDCEP 715 Principles of Assessment
EDCI 763 Instructional Design
EDCI 720 ESL/Dual Language Methods
Or a teaching and learning course approved by the student's advisor and committee.

C. Diversity (3 hours)
This category addresses the nature of learner differences and the instructional implications of these differences. Teaching students in a pluralistic society entails knowledge of many possible factors that may affect student performance, behavior, and instruction.

Student differences may be due to factors such as: Nationality, race, language, ethnic group, social and economic class, abilities and disabilities, geographic region, gender, learning style, psychological and emotional conditions, and/or culture.

One course in diversity may address only one of these issues; one course is not intended to provide a survey of all possible issues that address the nature of learner differences, the instructional implications of these differences, and the nature of the institution of schooling and biases that may exist.

Recommended courses for this core category:
EDCI 730 Education of the Disadvantaged
EDCI 733 Curriculum Materials for Ethnic Diversity
EDCI 735 Curriculum Materials for Nonsexist Teaching
EDCI 740 Curriculum Materials for Dual Language Learners
EDCI 755 Multicultural Issues in Teaching
EDSP 710 Education of Exceptional Individuals
Or a diversity course approved by the student's advisor and committee.

D. Educational technology (3 hours)
This category examines two or more of the following, with a focus on K-12 and lifelong learning:

- Issues in technology (social, equity, ethics, legal, progessional development, planning)
- Skills and understanding of use of technologies (e.g., authoring; design; programming; use of different kinds of productivity or information management software; software for instruction, learning, and communication)
- Learning theory and technology (e.g., understand and apply contemporary learning to, for example, help build a community of learners, or a constructivist environment)
- School restructuring and the role of technology
- Research on effectiveness of learning with technology
- Familiarity with a broad range of educational software, modes of use, resources, and major curriculum projects

Recommended courses for this category:
EDCI 718 Learning Technologies
EDCI 750 Contemporary Issues in Instructional Technology
EDCI 768 Enhancing Instruction Through Technology
Or an educational technology course approved by the student's advisor and committee.

E. Research and scholarship (3 hours)
This category deals with interpreting, using, and conducting research and scholarly activities. Scholarship might include analysis, position papers, essays, research into practice, and other creative endeavors. Scholarship is broader and more inclusive than research. Research is a form of scholarship.

This category addresses:

- The many forms of scholarship
- Scientific and naturalistic research
- Analysis, interpretation, and application of research and scholarship to improve teaching and learning
- Designing and conducting research and scholarship
- How research relates to practice

It is intended that one course in research and scholarship would address the broad range of these items.

Students must complete the research course before starting the master's degree project, report, or thesis (see category F).

Recommended courses for this category:
EDCEP 816 Research Methods
EDCI 760 Teachers as Researchers
Or a research and scholarship course approved by the student's advisor and committee.

F. Project, Report, or Thesis (1-6 hours)
Students must complete a research course in Category E before starting this project, report, or thesis. The results of the research project, report, or thesis are to be reported to the student's supervisory committee in the oral exam in the last semester of the degree program.

Project (1 hour)
The master's project is conducted under EDCI 890 Master's Project. The objective of the project is to improve the student's own practice. Students select a topic pertinent to their own practice. This project includes the construction of a professional portfolio to represent the student's learning throughout the master's degree program.

Report (2 hours)
The master's report is conducted under EDCI 898 Master's Report. A master's report is generally shorter than a thesis, and it may present the results of a more limited investigation. Alternatively, it may review the state of a particular scholarly or scientific problem, or - especially in the case of professional programs or applied disciplines - it may describe a project appropriate to the disciplines.

Thesis (6 hours)
The master's thesis is conducted under EDCI 899 Master's Thesis. The master's thesis presents the results of an original investigation of a problem or topic approved by the candidate's supervisory committee. Its purpose is to demonstrate the candidate's ability to conduct original research, and to present the results in a form acceptable to the supervisory committee.

G. Area of Specialization (15 hours) Students must select one of the following areas of specialization (details for each are on the following pages):

- G1. Elementary/Middle-Level Curriculum and Instruction
- G2. Reading/Language Arts
- G3. The Reading Endorsement
- G4. Middle Level/Secondary Curriculum and Instruction
- G5. Educational Computing, Design, and Distance Education
- G6. Classroom Technology
- G7. English as a Second Language
- G8. Learning Skills/School Improvement
- G9. Community/Junior College

G1. Elementary/Middle Level Curriculum and Instruction (15 hours)
This specialization is intended for elementary teachers who teach a variety of subjects and middle-level teachers who teach in more than one subject field. Core and elective courses for this specialization are intended to focus on curricular issues of the subjects that elementary/middle level teachers teach (e.g., math, science, social studies, science, language arts, reading).

Recommended courses:
EDCI 816 Approaches to Reading Instruction
EDCI 820 Contemporary Issues in Language Arts
EDCI 821 Advanced Methods in the Teaching of K-12 Mathematics
EDCI 822 Contemporary Issues in Social Studies
EDCI 834 Improving Science Teaching
EDCI 776 Teaching in Middle Schools

Or other courses approved by the advisor.

G2. Reading/Language Arts (15 hours)
Master's degree candidates may specialize in reading/language arts course without taking the particular courses for the reading endorsement (that endorsement can be obtained with specialization G3). Students may choose any 15 hours of approved elementary/middle level and/or secondary courses that emphasize reading and the language arts. Some of the courses may have prerequisites; see the catalog for that information.

Recommended courses:
EDCI 756 Tradebooks across the Curriculum
EDCI 758 Reading/Writing Connections
EDCI 816 Approaches to Reading Instruction
EDCI 820 Contemporary Issues in Language Arts
EDCI 840 Literacy Assessment
EDCI 841 Supporting Struggling Readers
EDCI 715 Reading in the Content Areas
EDCI 878 The Language Arts Curriculum
Or other courses approved by the advisor.

G3. Reading Specialist Endorsement (15 hours)
Special licensure requirements exist for K-12 school teachers of special reading classes in Kansas. In addition to degree certification and teaching experience, a planned sequence of graduate reading courses are required for licensure endorsement. Students seeking this endorsement must hold a valid Kansas Professional teaching license.

Required courses (15 hours):
EDCI 816 Approaches to Reading Instruction
EDCI 818 Theoretical Models of Reading
EDCI 840 Literacy Assessment
EDCI 841 Supporting Struggling Readers
EDCI 930 Leadership in Literacy

Required Practicum (3 hours):
EDCI 945 Clinical Practicum in Reading

Additional Requirements:
After completing the required courses and practicum, the applicant must fulfill these additional requirements to obtain a conditional reading specialist license:
1. Hold a valid professional teaching license.
2. Present a score of 560 or above on the Praxis II exam for the Reading Specialist (test number 0300).
3. Hold a masters degree. (It is permitted but not necessary to include the required courses as part of the masters degree.)

Required Internship (4 hours)
To be eligible to take the internship, the applicant must first complete the required courses and practicum and complete the additional requirements to obtain a conditional reading specialist license. Once the conditional reading specialist license is obtained, the applicant must enroll in 2 hours of internship per semester for one year as a full-time employee.
EDCI 975 Internship in Reading

G4. Middle Level/Secondary Curriculum and Instruction (15 hours)
This specialization is intended for middle-level and secondary teachers who teach in one subject field. This specialization is intended to enhance one's knowledge and skills about their teaching field (e.g., education in math, science, social studies, language arts, family and consumer sciences, agriculture, vocational fields).

A curriculum course in the teaching field (3 hours)
Electives (12 hours)
These courses may relate to the content being taught, the curricular program, or instructional aspects of the teaching field.

G5. Educational Computing, Design, and Online Learning (15 hours)
This area of concentration is for educators from all walks of life who want to learn about how and why to best use technologies for learning. In this program area, you will study the research and theories behind technology choices, learn new skills, and become involved in projects with such themes as constructivist learning environments, distance learning and teaching methods, problem- and

project-based learning, integrated curriculum and cross-curricular projects, technology's role in school reform, telementoring and telecollaboration, ethical and social issues in technology, and informal and intentional learning projects (e.g. on the Web or in a museum or park). Graduates of this program area have become technology coordinators in schools or technology leaders in other educational settings; have opened up new job possibilities (such as multimedia support staff); and have continued with doctoral study in this area.

Students who choose this specialization should also take EDCI 718 Learning Technologies as their educational technology core (D) course.

Required (6 hours)

EDCI 887	Proseminar I: Educational Computing, Design, and Distance Education
EDCI 888	Proseminar II: Technology Change, Research, and Theory

Electives (select at least 9 hours from the following)

EDCI 723	Computer Applications in the subject areas: Cognition & Technology (may be repeated in another subject area)
EDCI 763	Instructional Design
EDCI 764	Foundations of Distance Education
EDCI 786	Topics (Recent topics include: Design of Web-based Courses, Web Curriculum Projects, Multimedia Projects, Project-based Learning with Technology)
EDCI 863	Interactive Systems Design
EDCI 865	Hypermedia for Educators
EDCI 886	Seminar (recent seminar topics include: Research Issues in Educational Technology, Ethical Issues in Technology)
EDCI 889	Cognitive Issues in Educational Computing

G6. Classroom Technology (15 hours)
Courses in this specialization will be offered in the Manhattan area on weekends, in short formats in the summer, or by distance education. To enter the Classroom Technology specialty, an educator must have: a current teaching certificate and classroom teaching experience or equivalent; experience in using a contemporary desktop or personal computer; word processing applications appropriate to grade level being taught; regular access to a computer; access to the internet; and have a commitment toward developing strategies to enhance curriculum and resulting student learning experiences through various uses of information technologies.

Required (at least 8 hours)

EDADL 770	Educational Change and Technology (2 hrs.)
EDCI 750	Contemporary Issues in Instructional Technology (3 hrs.)
EDCI 851	Research and Practice in Classroom Technology (2 hrs.)
EDCI 858	Classroom Technology Project/Portfolio (2 hrs.)

Electives
A variety of 786 topics courses or 886 seminar courses are regularly planned to address classroom applications of emerging technologies such as IBM-compatible or Macintosh multimedia, electronic research, desktop publishing, integrated technology curriculum, web technologies for the classroom, and electronic portfolios.

Additional note:
In addition to the courses listed for this specialization, students should choose the following course from Category D of the degree program:
EDCI 768 Enhancing Instruction Through Technology
Or another course approved by the advisor.

G7. English as a Second Language (ESL endorsement) (15 hours)

EDCI 720	ESL/Dual Language Methods
EDCI 731	ESL/Dual Language Linguistics
EDCI 740	Curriculum Materials for Dual Language Learners
EDCI 742	ESL/Dual Language Assessment
EDCI 745	ESL/Dual Language Elementary Practicum
EDCI 746	ESL/Dual Language Secondary Practicum

(For students seeking the ESL endorsement, any substituted course must closely address the content of the course it is replacing.)

G8. Learning Skills/School Improvement (15 hours)
This area is appropriate for subject matter teachers who teach reading, study skills, or writing skills as a part of the accreditation and school improvement process.

EDCI 715 Reading in the Content Areas
EDCI 721 Study Skills Instructions
EDCI 730 Education of the Disadvantaged
EDADL 865 Administrative Leadership in Staff Development
EDCI 991 Internship in Curriculum & Instruction: Learning Skills
Or other courses approved by the advisor.

G9. Community/Junior College (15 hours)

Recommended courses:
EDCI 832 The Role, Organization, and Function of Community Colleges
EDCI 879 The Community College Curriculum and Instructional Services
EDCI 943 Principles of College Teaching
Or other courses approved by the advisor.

Ph.D. and Ed.D. in curriculum and instruction

Program description

The Ph.D. in curriculum and instruction is designed for the advanced student who desires to acquire the ability to contribute to the knowledge base of teaching, education, and leadership through a thorough grounding in the conduct of research. The Ph.D. has traditionally been seen as an academic degree because it places emphasis on the usefulness of theory, understanding educational research, and the production of research.

The Ed.D. in curriculum and instruction is designed for the advanced student who wishes to achieve a superior level of competency in his or her professional field with emphasis on practice and leadership. The program provides an understanding of the historical, philosophical, and societal bases of educational practice and the application of research to practice. Traditionally, the Ed.D. has been thought of as a practitioner's degree, appropriate for educators desiring a superior level of competency in the profession.

For each degree, there are several areas of emphases: (a) career and technical education (agriculture, business, family and consumer sciences); (b) curriculum studies; (c) educational technology; (d) language/diversity education; (e) literacy education (reading/language arts); (f) mathematics education; (g) science/environmental education; (h) social science education; (i) teacher education (general).

Ph.D. in curriculum and instruction program requirements

The student's Ph.D. program is directed by a minimum of five members of the university graduate faculty, including a major professor with substantial expertise in the area of emphasis, two other faculty members with strengths in the area of emphasis, one faculty member outside the student's specialization, and one faculty member appointed by the dean of the Graduate School who serves as the chair of the examination committee for the oral defense of the dissertation.

Each student's program of study is individualized with the approval of the major professor and the supervisory committee to optimize the student's interests, expertise, and professional goals.

Information on the Ph.D. programs may be obtained from the College of Education Office of Graduate Studies in Bluemont Hall or from the relevant department chair.

Credit hour requirements
A minimum of 90 semester hours beyond the baccalaureate degree is required, including approved transfer credit. Up to 30 hours of coursework may be accepted from a master's degree and applied to the PhD program with the approval of the supervisory committee. The nature of the courses and the length of time since master's degree completion will be considered in accepting coursework within the guidelines of the Graduate School.

Areas of emphasis (45 hours)
Includes courses in the student's area of specialty and any minor or elective area.

Foundations of Education (3 hours)
EDCI 886 Seminar: History/Philosophy of Education

Or a foundations course approved by the supervisory committee.

Research courses (12 hours)
EDCEP 816 Research Methods or its equivalent is considered a *prerequisite* for the 12 hours of research courses in the PhD program.

Required Research Courses (9 hours)
EDCEP 817 Statistical Methods in Education
EDCEP 917 Experimental Design in Educational Research
EDADL 838 Qualitative Research in Education

Elective Research Course (3 hours)
EDCEP 819 Survey Research
EDADL 986 Seminar/Advanced Qualitative Methods
Or any other research course taken from other disciplines at KSU and approved by the supervisory committee.

Preliminary examination
Satisfactory completion of all segments of a monitored, written examination of at least 12 hours over all areas of the program of study.

Dissertation research (30 hours)
EDCI 999 Doctoral Research
Completion of a dissertation which examines a topic congruent with the program of study using a systematic methodology consistent with accepted research paradigms; the dissertation must be successfully defended in a public, oral defense.

Ed.D. in curriculum and instruction program requirements

The student's Ed.D. program is directed by a minimum of five members of the university graduate faculty, including a major professor with substantial expertise in the area of emphasis, two other faculty members with strengths in the area of emphasis, one faculty member outside the student's specialization, and one faculty member, appointed by the dean of the Graduate School, from another department within the College of Education who serves as the chair of the examination committee for the oral defense of the dissertation.

Each student's program of study is individualized with the approval of the major professor and the supervisory committee to optimize the student's interests, expertise, and professional goals.

Information on the Ed.D. programs may be obtained from the College of Education Office of Graduate Studies in Bluemont Hall or from the relevant department chair.

Credit hour requirements
A minimum of 94 semester hours beyond the baccalaureate degree, including the following:

Foundations (12 hours)
For each foundations category, take the course listed or its equivalent:

A. Historical and philosophical analysis of educational ideas and practice
EDADL 886 Seminar: Historical and Philosophical Analysis of Education

B. Techniques and interpretation of educational research
EDCEP 816 Research Methods

C. Social science explanations of educating a diverse society
EDCI 910 Multicultural Curriculum Programming

D. Psychological bases of educational thought and practice
EDCEP 912 Psychological Bases of Educational Thought and Practice

Research courses (6 hours)
Research courses concerning methodology consistent with that required for the dissertation.

Clinical experience (12 hours)

Area of emphasis (48 hours)

Preliminary examination
Satisfactory completion of all segments of a monitored, written examination of at least 12 hours over all areas of the program of study, 3 of which must be over the foundation courses.

Dissertation research (16 hours)
Completion of a dissertation which treats an important topic of professional education practice using a systematic methodology consistent with accepted research paradigms; the dissertation must be successfully defended in a public, oral defense.

Curriculum and instruction courses (EDCI)

Undergraduate and graduate credit

EDCI 700. Introduction to Bilingual/ESL Education. (3) I, S. This course focuses on the history and foundations of bilingual education, as well as an in-depth examination of contemporary programming models and trends in bilingual education. The dynamics of bilingualism at the individual, system, and societal levels will also be an emphasis of study. Pr.: Junior standing.

EDCI 701. Administration and Supervision of Vocational Education. (2-3) II, S. On sufficient demand. Emphasis on the duties and responsibilities of administrative and supervisory personnel responsible for the promotion, development, and coordination of comprehensive vocational-technical education programs at the local level. Pr.: Teaching experience.

EDCI 704. Extension Organization and Programs. (3) I, S. Development and objectives of Cooperative Extension and other university adult education programs; with emphasis on programs and procedures. Pr.: Senior standing.

EDCI 705. Organization Problems in Teaching Agricultural Mechanics. (Var.) On sufficient demand. Analysis of the agricultural mechanics course of study; needs and interests of students; learning difficulties; skills and technical knowledge required; correlation with agriculture; application of laws of learning to the teaching process; determination of objectives. Pr.: EDCI 586.

EDCI 706. Principles of Teaching Adults in Extension. (3) II, S. Methods and principles of adult teaching with emphasis on Cooperative Extension Service; application to various adult education programs. Pr.: Senior standing.

EDCI 713. Occupational Analysis. (2-3.) I, II, S. An introduction to various techniques used in analyzing occupations and jobs. Emphasis on developing and organizing related instructional materials and content. Pr.: Prior or concurrent enrollment in EDSEC 620.

EDCI 714. Reading and the Bilingual Child. (3) II, S. The course will focus on appropriate instructional literacy and reading skill development among second language learners. A particular emphasis will be the development of literacy skills among students whose dominant language is other than English. Pr.: Junior standing/Target Language Proficiency.

EDCI 715. Reading in the Content Areas. (3) On sufficient demand. Information concerning the reading process and techniques for helping students develop reading and study skills needed in the content areas. Course is designed for classroom middle level and secondary teachers. Pr.: Senior standing.

EDCI 718. Learning Technologies. (3) I, II, S. An examination of the roles that computers, teachers, and learners may take in any learning setting: ways of integrating technology into a curriculum; and issues involved in using technology in K-12 settings. Course is offered on the Web. Pr.: Junior standing.

EDCI 720. ESL/Dual Language Methods. (3) I, S. An exploration of contemporary approaches, methods, and strategies for the appropriate instruction of second language learners. Also provided is a foundational perspective on ESL/Dual Language approaches, including the communicative, cognitive, and grammatical. Pr.: Junior standing.

EDCI 721. Study Skills Instruction. (3) On sufficient demand. Approaches and methods are presented for teaching study skills in academic and workplace settings. Approaches include personal, contextual, organizational and performance study skills. Includes study skills information for parent education and school improvement planning. Pr.: Teaching experience.

EDCI 723. Computer Applications in Subject Areas. (1-3) On sufficient demand. Theory and practice of using computer software to enhance teaching and learning in specific subject areas. Subjects covered will vary. May be repeated for credit in different subject areas. Pr.: Junior standing.

EDCI 730. Education of the Disadvantaged. (3) On sufficient demand. Consideration of the life-space of the disadvantaged learner and its relationship to curriculum, organization, and interpersonal relationships in schools. The development of realistic, relevant goals for the teacher of the disadvantaged. Pr.: Junior standing.

EDCI 731. ESL/Dual Language Linguistics. (3) I, S. Explores the theoretical underpinnings of language acquisition and linguistics that educators need to understand, in order to better plan appropriately adapted curriculum and instruction for second language learners. The course encompasses problematic aspects of English language learning, the ways in which languages may differ, and certain universal aspects of languages. Pr.: Junior standing.

EDCI 732-737. Practica in Education. (1-6) On sufficient demand. Related occupational or professional experiences in approved industry, school, Cooperative Extension Service, or similar agency setting under faculty supervision. Pr.: Consent of instructor.

EDCI 732. Practicum in Career Education. (1-6) On sufficient demand. Related occupational or professional experiences in approved industry, school, Cooperative Extension Service, or similar agency setting under faculty supervision.

EDCI 733. Curriculum Materials for Ethnic Diversity. (3) On sufficient demand. An examination and analysis of recent materials and practices of schools serving multiethnic student bodies, particularly minorities from disadvantaged backgrounds. Materials include any items used by the school in implementing the curriculum. Pr.: Junior standing.

EDCI 734. Practicum in Agriculture-Related Occupations. (1-6) On sufficient demand. Related occupational or professional experiences in approved industry, school, Cooperative Extension Service, or similar agency setting under faculty supervision. Pr.; Consent of instructor.

EDCI 735. Curriculum Materials for Nonsexist Teaching. (3) II, S. Analysis of recent materials from perspective of concern with their potential for sex-role stereotyping. Examination of teaching resource materials for curriculum intended to facilitate nonsexist teaching. Pr.: Senior standing.

EDCI 736. Practicum in Extension Education. (1-6) On sufficient demand. Related occupational or professional experiences in approved industry, school, Cooperative Extension Service, or similar agency setting under faculty supervision. Pr.; Consent of instructor.

EDCI 739. Coordination of Cooperative Vocational Education. (2-3) I, II, S. Emphasis on legal aspects and other minimum requirements essential to conducting cooperative vocational education programs at the secondary and postsecondary levels.

EDCI 740. Curriculum Materials for Dual Language Learners. (3) II. An examination analysis of materials and practices of schools serving dual language learners. Materials include any items used by the school to implement the curriculum. Pr.: Junior standing.

EDCI 742. ESL/Dual Language Assessment. (3) II, S. An in-depth examination of key issues/challenges in the appropriate language assessment of culturally and linguistically diverse students. Among focal topics in theory, research and practice discussed will be: pre- and post-instructional assessment, authentic and alternative assessment, language testing and placement for programming in ESL/Dual language classrooms. Pr.: Junior standing.

EDCI 745. ESL/Dual Language Elementary Practicum. (3) I, II. The practicum is a portfolio-based experience providing the student with application experiences in ESL/Dual Language methods, assessment, and multicultural competence as well as the opportunity to demonstrate understanding of second language acquisition. Students will be required to spend 60 hours in a school setting where they can practice and implement ESL/BE lessons/methodology. Pr.: EDCI 720, 731, 742, and 733 or 740.

EDCI 746. ESL/Dual Language Secondary Practicum. (3) I, II. The practicum is a portfolio-based experience providing the student with application experiences in ESL/Dual Language methods, assessment, and multicultural competence as well as the opportunity to demonstrate understanding of second language acquisition. Students will be required to spend 60 hours in a school setting where they can practice and implement ESL/BE lessons/methodology. Pr.: EDCI 720, 731, 742, and 733 or 740.

EDCI 749. Environmental Education. (1-3) On sufficient demand. The selection, adaptation, and development of environmental education K-12 curriculum materials: procedures for an integrated curricular implementation; the selection of appropriate instructional strategies. Background in environmental studies recommended.

EDCI 750. Contemporary Issues in Instructional Technology. (3) S. Contemporary curriculum and educational technology theories, methods, and models are examined and connections are developed for instruction and professional development. Specific methodological and technological skills are combined and applied to enhance student learning. Internet access and e-mail are required.

EDCI 755. Multicultural Issues in Teaching. (3) I. Examines the socio-cultural forces that influence the American educational system. Considers curriculum and instruction implications of human differences, and analyzes ways to promote equitable, quality education. Pr.: Senior standing.

EDCI 756. Tradebooks across the Curriculum. (3) II, S. This course examines the use of children's literature in the K-8 literacy classroom. It focuses on recently published books in several literary genres across curricular areas. Pr.: EDEL 585, EDSEC 586, or EDSEC 582.

EDCI 758. Reading/Writing Connections. (3) S. This course examines teaching language arts in an integrated manner, exploring the relationships between reading and writing from a developmental perspective. Teaching methods for a holistic environment are

highlighted. Pr.: EDEL 585, EDSEC 586, or EDSEC 582.

EDCI 760. Teachers as Researchers. (3) I. This course introduces the theoretical and practical dimensions of classroom-based action research about curriculum and instruction topics, and students conduct an action research project. Classroom access required.

EDCI 763. Instructional Design. (3) I, alternate S. Implications of the major theories and models of instructional design to the development of instructional programs. Pr.: Junior standing.

EDCI 764. Foundations of Distance Education. (3) On sufficient demand. Examination of current issues, theories, research, and methods for designing and teaching online courses. Pr.: EDCI 718 or permission of instructor.

EDCI 768. Enhancing Instruction Through Technology. (3) I, S. Ways to use technology in instruction are examined as a means to enhance teacher presentations and student interpretations, teacher and student access to information, and professional communication. Pr.: EDEL 585, EDSEC 586, or EDSEC 582.

EDCI 770. Methods for Second Language Acquisition/Learning. (3) On sufficient demand. Study of the development of second language instruction, both historical and current. Syntax, morphology, discourse analysis, and global proficiency evaluation are foci for analysis of methods and for the development of a personal method of teaching. Twenty-four (24) credits in one second language at 200 level and above or equivalent is recommended. Pr.: EDSEC 500 and 520.

EDCI 775. Readings in Curriculum and Instruction. (1-3) I, II, S. Readings in research and application in specialized areas in education. May be taken more than once. Pr.: Junior standing.

EDCI 776. Teaching in Middle Schools. (3) On sufficient demand. Several instructional approaches consistent with the characteristics of the emerging adolescent student (grades 5-9) will be examined in relation to current research. Direct development of alternative curricular programs. Appropriate use of interdisciplinary activities and nontraditional materials will be emphasized. Pr.: EDCEP 315.

EDCI 779. Primary School Education. (3) On sufficient demand. A course for those interested in the kindergarten and primary school child. Emphasis will be placed on curriculum development, pertinent research, and innovative practices in early education. Pr.: Senior standing.

EDCI 780. Kindergarten Education. (3) On sufficient demand. A specialized study of the kindergarten in the American school: methods and materials for working with the kindergarten child, including communication and explanation skills and readiness for reading. Pr.: Senior standing.

EDCI 786. Topics in Curriculum and Instruction. (1-3) I, II, S. Examination of current topic in area of specialization of faculty. Varied topics offered each semester so course may be repeated. Pr.: Junior standing.

EDCI 795. Problems in Curriculum and Instruction. (Var.) I, II, S. Independent study of a specific problem in curriculum or instruction. Pr.: Junior standing.

Graduate credit

EDCI 803. Curriculum Development. (3) I, II, S. An overall view of the entire school curriculum, patterns of organization, outlining of instructional fields, and specific helps in curriculum development for administrators and classroom teachers.

EDCI 810. In-Service Education for Beginning Family and Consumer Sciences Teachers. (2-3) I, II, S. For beginning teachers who desire assistance with career and technical program management, instructional planning and delivery, professional role development, and the organization of information related to career and technical family and consumer sciences teaching. Pr.: EDSEC 500.

EDCI 814. Understanding and Teaching Reading. (3) On sufficient demand. Foundational issues in K-12 reading instruction. Focus on the reading process, the nature of the learner, the text, and the instructional setting. Pr.: Teaching experience.

EDCI 816. Approaches to Reading Instruction. (3) I. A foundational study of research-based approaches, materials, and methods for effective K-12 reading instruction. Pr.: Teaching experience.

EDCI 817. Reading Comprehension. (3) On sufficient demand. Reviews comprehension theory and research; explores strategies for developing reading comprehension in readers. K-12; examines evaluative devices for assessing comprehension abilities. Pr.: Teaching experience.

EDCI 818. Theoretical Models of Reading. (3). II, in odd years. Advanced study of reading with an emphasis on foundational theories and seminal research studies reflecting the complexity of the reading process. Pr.: Teaching experience.

EDCI 820. Contemporary Issues in Language Arts. (3) On sufficient demand. An analysis of current methods, issues, and trends in teaching, speaking, listening, and writing through the study of significant literature and research findings. Pr.: Teaching experience.

EDCI 821. Advanced Methods in the Teaching of K-12 Mathematics. (3) On sufficient demand. Advanced study of selected topics in K-12 mathematics emphasizing new programs, trends, controversial topics, and new recommendations for persistent problems; findings of recent research stressed. Pr.: Teaching experience.

EDCI 822. Contemporary Issues in Social Studies. (3) On sufficient demand. Current methods, materials, issues, and trends in developing social consciousness among K-12 students. Social science strategies usable by students. Pr.: Teaching experience.

EDCI 823. Agricultural Education for Beginning Teachers. (1-3) I, II. Securing and organizing information and planning teaching activities which will help the beginning vocational agriculture teacher. Pr.: Graduation from the curriculum in agricultural education.

EDCI 824. Young Farmer and Adult Farmer Education in Agriculture. (2-3) I, II, S. Organization, objectives, and procedures of conducting young farmer and adult farmer classes. Designed for teachers in service. Pr.: Experience in teaching vocational agriculture.

EDCI 830. Contemporary Issues in Family and Consumer Sciences Education. (Var.) I, II, S. Advanced study of evolving trends and materials for Family and Consumer Sciences programs; application to teaching and curriculum. Pr.: EDSEC 621 and teaching experience.

EDCI 831. Contemporary Issues in Teaching and Learning. (3) II, S. Advanced study of selected topics and contemporary issues in curriculum and instruction emphasizing new programs, trends, instructional strategies, and curricular issues. Findings of recent research are stressed. Pr.: Teaching experience.

EDCI 832. The Role, Organization, and Function of Community Colleges. (3) I. This course is designed to give the student an overview of community colleges. Emphasis on philosophy, purposes, curriculum, organization, professional staff, student-personnel programs, and the role for the comprehensive community college in higher education.

EDCI 834. Improving Science Teaching. (3) On sufficient demand. Evaluation and implementation of psychological and philosophical foundations will be stressed in improving K-12 science teaching. Pr.: Teaching experience.

EDCI 835. Supervision of Student Teaching. (3) II. Organization and functions of student teaching programs; orienting, supervising, and evaluating student teachers in elementary and secondary schools. Pr.: Teaching experience.

EDCI 840. Literacy Assessment. (3) I, in odd years. An overview of the collection, analysis, and interpretation of data from formal and informal assessment methods and instruments to enhance literacy instruction by documenting growth and literacy development. Pr.: EDCI 816.

EDCI 841. Supporting Struggling Readers. (3) II, in even years. Explores the identities of "struggling readers" across grade levels to address the importance of interest, motivation, gender, culture, and language on learning to read with an emphasis on differentiated instruction to support literacy development and lifelong reading. Pr.: Teaching experience..

EDCI 844. Curriculum Development in Family and Consumer Sciences. (3) I, S. The course focuses on current trends in career and technical family and consumer sciences curricula. Designed to assist family and consumer sciences teachers and supervisors in the articulation of secondary programs, analysis, and development of curriculum models for specific school situations. Pr.: EDSEC 620.

EDCI 849. Directed Professional Development/Secondary. (5) On sufficient demand. Research and teaching under supervision in the secondary school. Open only to outstanding liberal arts graduates enrolled in the special program for the professional preparation of such graduates for teaching in critical areas in secondary schools.

EDCI 850. Curriculum Development in Agriculture I. (2-3) S. Curriculum problems; planning local programs in agriculture; developing facilities and plans for meeting current and advanced problems in the teaching of agriculture. Pr.: One year of teaching in agriculture.

EDCI 851. Research and Practice in Classroom Technology. (2) 1. Curriculum, educational technology, and assessment research and theory and examined and aligned with national models and standards for the integration of technology into instruction to support teacher effectiveness and student achievement. Internet access and e-mail are required. Familiarity with a web page construction kit is recommended. Pr.: Introductory educational technology course or equivalent.

EDCI 858. Classroom Technology Project/Portfolio. (2) I. The portfolio as a professional development tool is evaluated according to the National Board of Professional Teaching Standards model and International Society for Technology in Education standards. A technology project with assessment is developed along with other components, and placed in a professional portfolio. Internet access and e-mail are required. Pr.: Admission to classroom technology specialty or instructor permission.

EDCI 852. Curriculum Development in Agriculture II. (2-3) S. Continuation of EDCI 850. Pr.: EDCI 850.

EDCI 855. Field Studies in Agricultural Education. (2-3) On sufficient demand. Planning, organizing, and coordinating the various phases of the local program of vocational education in agriculture. Pr.: Experience in teaching agriculture.

EDCI 863. Interactive System Design. (3) II, alternate S. Examination of the use of cognitive science as a theoretical base for the design of interactive learning systems. Emphasis on human factors, interactivity, and systems theories. Pr.: EDCI 763.

EDCI 865. Hypermedia for Educators. (3) On sufficient demand. Examines hypermedia as teaching and learning tools; also explores issues, research, and theory about learning from nonlinear media. Advanced techniques for designing hypermedia on the Web. Pr.: EDCI 718.

EDCI 873. The Science Curriculum. (3) On sufficient demand. National curriculum programs and projects at both elementary and secondary levels. Evaluation of appropriateness of content as it relates to a philosophy of science education. Modes for investigating scientific phenomena and their subsequent use in teaching the processes of the scientists. Pr.: EDCI 803.

EDCI 874. The Mathematics Curriculum. (3) On sufficient demand. Historical and current trends and influences in mathematics curriculum. Analysis of research on teaching, learning, and assessment in mathematics education. Pr.: Teaching experience.

EDCI 876. The Social Studies Curriculum in the Secondary School. (3) On sufficient demand. New trends, materials, and ideas in teaching K-12 social sciences, based on recent research and experimental programs. Pr.: EDCI 803.

EDCI 877. The Foreign Language Curriculum. (3) On sufficient demand. New trends and materials in teaching the foreign languages, based on recent research and experimental programs. Pr.: EDCI 803.

EDCI 878. The Language Arts Curriculum. (3) On sufficient demand. The changing scene in the teaching of English: trends, materials, and ideas in literature, composition, and grammar that have emerged from recent research and discovery. Pr.: EDCI 803.

EDCI 879. The Community College Curriculum and Instructional Services. (3). On sufficient demand. Evaluation of community college curricula; reasons for revision, aims and objectives. Designed to familiarize student with the entire curricular offerings of the comprehensive community college.

EDCI 882. Teaching and Learning Models. (3) I. Advanced study of ways to organize the curriculum, instructional strategies, and the teaching environment to promote learning. Various models of teaching are analyzed and critiqued. Pr.: Teaching experience.

EDCI 886. Seminar in Curriculum and Instruction. (Var.) On sufficient demand. Intensive discussion of research or problems of current professional interest based on study of pertinent original literature. Pr.: Teaching experience.

EDCI 887. Proseminar I: Educational Computing, Design, and Distance Education. (3) I. Considers teaching and learning implications of computers in classrooms; design of learning environments; and aspects of distance education. Pr.: EDCI 718.

EDCI 888. Proseminar II: Technology Change, Research, and Theory. (3) II. Considers how learning technologies influence and support changes in the classroom and schools; research on learning with technology tools; and some of the theoretical underpinnings of the field. Pr.: EDCI 718.

EDCI 889. Cognitive Issues in Educational Computing. (3). On sufficient demand. Advanced study of cognitive issues, theories, and implications for the design of learning environments in which technology plays a key role. Pr.: EDCEP 829 or EDCEP 912.

EDCI 890. Master's Project. (1-6) I, II, S. Students select and prepare a project designed to improve their professional practice. It may be the construction of a professional portfolio or project to represent the student's learning throughout the master's degree program. Pr.: Teaching experience.

EDCI 898. Master's Report. (Var.) I, II, S. A master's report is generally shorter than a thesis and presents the results of a more limited original investigation or a problem or topic within the student's classroom or educational field approved by the candidate's supervisory committee. Pr.: Permission by department head.

EDCI 899. Master's Thesis. (Var.) I, II, S. A master's thesis presents the results of an original investigation or a problem or topic within the student's classroom or educational field approved by the candidate's supervisory committee. Pr.: Permission by department head.

EDCI 907. Curriculum Theory. (3) I. Theoretical concepts underlying significant curriculum developments. A systematic critique of current curricular theory. Consideration of model generation. Pr.: EDCI 803.

EDCI 910. Multicultural Curriculum Programming. (3) I, S. Application of multicultural curriculum principles to total school programming with particular emphasis on the cultural pluralism phenomenon. Includes analytic review of instruments on multicultural/multiracial curriculum evaluation as well as planning skills for equitable thrusts. Primarily involves elementary and secondary focus with some attention to postsecondary programming. Pr.: EDCI 803.

EDCI 929. Supervision in Career and Technical Education. (2-3) I, S. Philosophy and principles of effective supervision related to occupational education programs; application of principles to problems met by student teacher supervisors. Pr.: Teaching experience.

EDCI 930. Leadership in Literacy. (3) S, in even years. A seminar to prepare reading professionals to work as literacy leaders, advocates, and coaches to support district and school literacy professional development. Pr.: Teaching experience.

EDCI 940. Organization and Administration of Career and Technical Education. (3) I, S. An overview of the organization of occupational education programs in agriculture, business, distributive education, health, family and consumer science, trade and industry, technical, and related fields and their administration. Emphasis on federal-state-local relationships. Pr.: EDSEC 701.

EDCI 943. Principles of College Teaching. (3) I, II. Principles of learning, learning theory, educational objectives, methods and techniques, college students, and evaluation in the classroom. Emphasis upon preservice and in-service help in improving instruction at the college level.

EDCI 945. Clinical Practicum in Reading. (3) S. Supervised K-12 practicum with candidates working with individuals and small groups of readers using a wide range of evidence-based instructional practices, approaches, and curricular materials. Pr.: EDCI 816, 818, 840, and 841. Prior or concurrent enrollment in EDCI 930

EDCI 972. Advanced Study of the Reading Process. (3) On sufficient demand. Survey of selected theories of the reading process. Investigation of the interrelationships of the reading act: cognitive processes; language; social-emotional factors; and experience. Emphasis upon recent developments in the field. Pr.: EDCI 816.

EDCI 975. Internship in Reading. (Var. 1-4) I, II. Professional field experience for candidates to demonstrate expertise by supporting reading development, analyzing building and district needs, developing action plans, and conducting related professional development. Pr.: EDCI 945.

EDCI 986. Advanced Seminar in Curriculum and Instruction. (Var.) On sufficient demand. These seminars will critically consider recent research in the designated fields. The emphasis will be upon individual studies and small group interaction. Enrollment is restricted to those students who have been admitted to the doctoral program in education and who have completed substantial amounts of graduate study in the designated fields.

EDCI 991. Internship in Curriculum and Instruction. (Var.) I, II, S. Studies of and field experiences in the development of programs in cooperating schools and educational or related agencies under the supervision of College of Education graduate faculty members. A maximum of 6 credit hours may be chosen from the areas listed. Pr.: Permission of department head.

EDCI 999. Research in Curriculum and Instruction. (Var.) I, II, S. Doctoral research demonstrates the candidate's ability to conduct significant original research related to curriculum and instruction, to analyze the information obtained from the research, and to present the results in a dissertation format appropriate to the educational field. Pr.: EDCEP 817.

Elementary education courses (EDEL)

Undergraduate and graduate credit in minor field

EDEL 502. Independent Study in Elementary Education. (1-3) I, II, S. Selected topics in professional education. Maximum of 3 hours applicable toward degree requirements. Pr.: Consent of department chair.

EDEL 585. Teaching Participation in the Elementary School. (Var) I, II. Observation and teaching participation under the direction of selected elementary teachers. Pr.: EDEL 300, 470, 471, 472, 473, 474, and admission to student teaching.

EDEL 620. Foreign Language Methods of Elementary Schools. (3) II. Methods of teaching and organization of materials for the foreign language program in the elementary school. Pr.: EDCEP 315 and 24 hours in foreign language. Coreq.: DED 100 or EDEL 585 (4 cr.)

Secondary education courses (EDSEC)

Undergraduate and graduate credit in minor field

EDSEC 500. Content Area Methods in the Secondary and Middle Schools. (3) I, II. Principles of teaching applied to content area instruction in the secondary and middle schools including: motivation, organization of subject matter, lesson/unit planning, assessment and reporting, organization and management of the classroom, and methodology and materials of the secondary and middle schools. Pr.: EDCI 315, EDSP 323 and EDSEC 376.

EDSEC 502. Independent Study in Secondary Education. (1-3) I, II, S. Selected topics in professional education. Maximum of 3 hours applicable toward degree requirements. Pr.: Consent of department chair.

EDSEC 503. Teaching Adult Classes in Agriculture. (2-3) On sufficient demand. Organization and preparation of materials and methods used in teaching adult classes in vocational education in agriculture for young farmers and adults. Departments are visited for evaluation of programs and results. Pr.: EDSEC 620.

EDSEC 505. Field Experience in Agricultural Education. (2-3) On sufficient demand. A course for prospective teachers to help bridge the gap between classroom theory and student teaching. Emphasis will be on observation of and participation in school and community organizations and programs. Pr.: EDSEC 300 and FSHS 110 and consent of instructor.

EDSEC 510. Occupational Family and Consumer Sciences Education. (2) I. Principles and procedures in planning and organizing family and consumer sciences-related occupational programs. The course includes the approved occupational experience in business/industry and consideration of methods and teaching materials peculiar to these programs. Pr.: FSHS 110.

EDSEC 520. Block II Lab: Content Area Methods and Field Experience. (1) I, II. Field-based experience to help the pre-professional teacher practice the incorporation of specific content area methods in the secondary and middle schools. Pr.: EDCEP 315, EDSP 323, and EDSEC 376. Simultaneous enrollment required for EDSEC 477, 500, 520 and EDCI 525 and EDCEP 455.

EDSEC528. Social Studies Colloquium. (3) I II. Application and integration of theories and practices of content disciplines into instruction. Emphasis on design and presentation of lessons through lenses of social studies disciplines. Conc. EDSEC500/520.

EDSEC 560. Art for Exceptional Children. (3) II. Use of art courses and activities to meet the needs of the mentally retarded, physically impaired, emotionally disturbed, or gifted child. Three hours lec. Pr.: PSYCH 110. Same as ART 560.

EDSEC 576. Safety Education. (2) II, S. Personal safety in home, school, community, and work place will be addressed. Special attention is given to local, state, and national resources related to safety practice and safety education.

EDSEC 582. Teaching Participation in Music. (8-12) I, II. Observation and teaching under the direction of selected music teachers in elementary, middle level, and secondary school music programs. Pr.: Admission to student teaching.

EDSEC 586. Teaching Participation in Secondary Schools and Professional Development Seminar. (Var.) I, II. Guided observation, teaching participation, and study of teaching practices under direction of selected teachers in middle/junior and senior high schools. Student teachers will participate in seminar sessions to discuss issues and experiences encountered during this school-based experience. Pr.: EDSEC 420, 476, and 477. Simultaneous enrollment required for EDCI 455, EDCEP 525, and EDSEC 586.

EDSEC 587. Supervised Practicum for Athletic Coaches. (2) I, II. Observation and coaching participation under the direction of selected coaches in public school, club, city recreation, or other nonpublic school sport settings. Pr.: KIN 250, 315, and one coaching and officiating course.

EDSEC 611. Coordination Techniques. (1) II. Acquaints students with techniques in selecting, implementing, and coordinating occupational programs between the school and the business community. Pr.: EDSEC 620.

EDSEC 612. Job Analysis. (1) Acquaints students with techniques of analyzing jobs and tasks related to occupations. Pr.: EDSEC 620.

EDSEC 614. Laboratory Techniques in Teaching Science. (3) I, II. Rationale for laboratory in secondary school science. The design and implementation of laboratory activities and demonstrations in a high school science program. Pr.: EDSEC 476 (Science).

EDSEC 615. Laboratory and Safety Techniques in Teaching Agriculture. (3) I. The course is designed to provide students with the knowledge and skills necessary to design, organize, and conduct programs in agricultural laboratory instruction in secondary agricultural education programs. Students will gain experiences in the development of laboratory lesson plans, safety and technical demonstrations, student management in a laboratory setting, laboratory design, and laboratory curriculum development. Pr.: Conc. enrollment in EDSEC 420 Block II Lab/Ag.

EDSEC 620. Principles and Philosophy of Career and Technical Education. (2-3) Principles of career and technical education in Kansas and other states and countries; principles and philosophy underlying such education, relation of career and technical education to school objectives and community, state, and national needs.

EDSEC 621. Program Planning in Career and Technical Education. (2-3) I, II, S. The program development and planning process; development of guides for teaching a devaluating reimbursable secondary programs. Pr.: EDSEC 620.

For additional information on graduate programs and application materials please contact:
College of Education
18 Bluemont Hall
1100 Mid-Campus Drive
Manhattan, KS 66506-5315
785-532-5595

Calendar

Summer 2007 | Fall 2007 | Spring 2008
Summer 2008 | Fall 2008 | Spring 2009 | Summer 2009

Summer Semester 2007

May 21
Session I-first day of classes.

May 28
Student/University holiday.

June 4
Session II-first day of classes.

June 29
Session I-last day classes.

July 2
Session III-first day of classes.

July 4
Student/University holiday.

July 27
Session II-last day of classes.

August 10
Session III-last day of classes.

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Fall Semester 2007

August 20
Semester begins.

September 3
Student/University holiday.

October 1
Student holiday.

November 21-23
Student holiday.

November 22-23
University holiday.

December 7
Last day of semester courses.

December 7-8
Commencement.

December 10-14
Semester examinations.

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Spring Semester 2008

January 17
Semester begins.

January 21
Student/University Holiday

March 17-21
Student holiday.

May 9
Last day of semester courses.

May 12-16
Semester examinations.

May 16-17
Commencement.

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Summer Semester 2008

May 27
Session I-first day of classes.

May 26
Student/University holiday.

June 9
Session II-first day of classes.

July 3
Session I-last day classes.

July 7
Session III-first day of classes.

July 4
Student/University holiday.

Aug 1
Session II-last day of classes.

Aug 1
Session III-last day of classes.

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Fall Semester 2008

August 25
Semester begins.

September 1
Student/University holiday.

October 6
Student holiday.

November 19-21
Student holiday.

November 20-21
University holiday.

December 12
Last day of semester courses.

December 12-13
Commencement.

December 15-19
Semester examinations.

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Spring Semester 2009

January 15
Semester begins.

January 19
Student/University Holiday

March 16-20
Student holiday.

May 8
Last day of semester courses.

May 11-15
Semester examinations.

May 15-16
Commencement.

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Summer Semester 2009

May 26
Session I-first day of classes.

May 25
Student/University holiday.

June 8
Session II-first day of classes.

July 2
Session I-last day classes.

July 6
Session III-first day of classes.

July 3
Student/University holiday.

July 31
Session II-last day of classes.

July 31
Session III-last day of classes.

cience; genetic diseases in animals; hazardous substances; industrial and organizational psychology; infectious disease research; landscape architecture; life science research in space; materials science; military history; prairie ecology; rural sociology; space biology; statistics; surface chemistry; and wheat genetics and breeding.

Civil Engineering

Program description | Program requirements | Research facilities | Financial support | Career opportunities | Area of emphasis | Civil engineering courses | More information

Head:
James Koelliker (iterim)

Director of graduate studies:
Mustaque Hossain

Graduate faculty:

Alok Bhandari, Ph.D., Virginia Polytechnic Institute and State University.

Sunanda Dissanayake, Ph.D., University of South Florida.

Asadollah Esmaeily, Ph.D., University of Southern California.

Mustaque Hossain, Ph.D., Arizona State University.

Alexander P. Mathews, Ph.D., University of Michigan.

Hani G. Melhem, Ph.D., University of Pittsburgh.

Yacoub M. Najjar, Ph.D., University of Oklahoma.

Dunja Peric, Ph.D., University of Colorado, Boulder.

Robert J. Peterman, Ph.D., Purdue University.

Hayder A. Rasheed, Ph.D., University of Texas, Austin.

Lakshmi N. Reddi, Ph.D., Ohio State University.

Stefan A. Romanoschi, Ph.D., Louisiana State University.

Steven K. Starrett, Ph.D., Iowa State University.

David R. Steward, Ph.D., University of Minnesota.

Robert W. Stokes, Ph.D., Texas A&M University.

Program description

The Department of Civil Engineering at Kansas State University offers comprehensive programs leading to the degrees of master of science within the department and doctor of philosophy within the College of Engineering. Established programs of study are available in structural analysis and design, geotechnical engineering, water resources engineering, environmental engineering and transportation engineering and materials. An active research program is conducted in each of these areas, and it is the goal of the department to maintain a close association between graduate study, research, teaching, and engineering practice.

Program requirements
The general requirements for admission to the civil engineering graduate program include the receipt of a bachelor of science degree from an accredited civil engineering department and evidence that the applicant has the ability to do satisfactory graduate work. However, students not possessing a degree in civil engineering may be admitted if their undergraduate work is closely related to a specific discipline within the civil engineering program and they complete a core program of undergraduate civil engineering course work.

Students admitted for work toward a master of science degree can select a program of study requiring the completion of a master's thesis or a master's report within their area of interest. Students admitted for work toward a doctor of philosophy degree are required to develop an original research program, and complete a doctoral dissertation under the guidance of faculty members from the College of Engineering.

For information about the Ph.D. program, see the Engineering section of this catalog.

Research facilities

The Department of Civil Engineering has several laboratories which can be used to perform a wide variety of graduate research projects. These include laboratories in the areas of environmental engineering, hydraulic engineering, materials testing, geotechnical engineering, structural engineering, and water resources engineering.

The department also has the Civil Infrastructure Systems Laboratory (CISL) which includes a full-scale Accelerated Pavement Testing facility, and a shake-table for Dynamic Testing of Structures and Seismic Research.

In addition, the department has modern computing facilities including a number of personal computers and workstations.

Financial support

The department has several graduate research assistantships and graduate teaching assistantships available. These positions are generally 0.4 or 0.5 time appointments and the stipends vary accordingly. In addition, a number of graduate research assistantships are supported through externally funded research projects obtained by individual faculty members. Student fees are assessed at the in-state level for graduate students who receive research or teaching assistantships.

Career opportunities

Graduate study in civil engineering will provide students with training for a wide variety of academic, technological, and public service careers. Students completing the master of science degree program typically find employment related to their chosen discipline in either private consulting firms or governmental agencies. Students completing the doctor of philosophy degree program can also expect to find employment in academic positions, or in government and private research laboratories.

Areas of emphasis

Environmental and water resources engineering: Bhandari, Mathews, Starrett, Steward

Structural analysis and design: Esmaeily, Melhem, Peterman, Rasheed

Geotechnical engineering: Najjar, Perics, Reddi

Transportation and materials engineering: Dissanayake, Hossain, Romanoschi, Stokes

Civil engineering courses

Undergraduate and graduate credit in minor field

CE 522. Soil Mechanics I. (3) I, II. Identification, classification, and engineering properties of soils; theory and application of consolidation, compressibility, and strength of soils; ground water retention and movement; slope stability and lateral earth pressures; stress distribution in soil. Two hours rec. and three hours lab a week. Pr.: CE 533.

CE 528. Foundation Engineering. (3) I. Prediction of soil variation, soil investigations; stress distribution and bearing capacity; dewatering analysis and procedures; retaining structures and lateral earth pressures; shallow foundations, pile foundations; underpinning and grouting. Three hours rec. a week. Pr.: CE 522. Pr.: or conc.: CE 544.

CE 530. Statics and Dynamics. (3) I, II. A shortened combined course in (1) statics, including a study of force systems, free-body diagrams, and problems in equilibrium, friction, centroids, and moments of inertia; and (2) dynamics, including a study of the kinematics and kinetics of particles and rigid bodies using the method of force-mass acceleration. Three hours rec. a week. Pr.: MATH 222 and PHYS 213.

CE 533. Mechanics of Materials. (3) I, II. Elementary theories of stress and strain, behavior of materials, and applications of these theories and their generalizations to the study of stress distribution, deformation, and instability in the simple structural forms which occur most frequently in engineering practice. Three hours rec. a week. Pr.: CE 333 or CE 530. Pr.: or conc.: MATH 222.

CE 534. Mechanics of Materials Laboratory. (1) I, II. Determination of selected mechanical properties of several engineering materials, including iron-carbon alloys, aluminum alloys, concrete, wood, and plastics; relationship between structure and mechanical properties of these materials; elementary problems in experimental stress analysis and structural behavior; test procedures, instrumentation, and interpretation of results. One hour lab instruction and two hours lab a week. Pr.: or conc.: CE 533.

CE 537. Introduction to Structural Analysis. (3) I, II. Elastic analysis of determinate and indeterminate beams, frames, and trusses; construction of shear and moment diagrams and influence lines; calculation of deflections using conjugate beam and virtual work; solution of indeterminate structures by slope-deflection, moment distribution, and matrix stiffness method; with microcomputer applications. Three hours rec. a week. Pr.: CE 533. Pr.: or conc.: CE 380.

CE 542. Structural Engineering in Steel. (3) II. Introduction to design of steel structures. Theoretical, experimental and practical bases for proportioning members and their connections. Two hours rec. and three hours lab. a week. Pr.: CE 537.

CE 544. Structural Engineering in Concrete. (3) I. A study of the theories of reinforced concrete and of its characteristics as a construction material; design of reinforced concrete structures. Two hours rec. and three hours lab. a week. Pr.: CE 537.

CE 550. Water Resources Engineering. (3) I. Introduction to: surface water hydrology, design of water handling structures, flood protection, pipe flow hydraulics, pump selection, and flow in soils. Two hours rec. and three hours lab a week. Not available for students with credit for BAE 530. Pr.: STAT 490 and PHYS 213.

CE 552. Hydraulic Engineering. (3) II. Applications of the principles of fluid mechanics to control and use of water; reservoir, dam, and spillway design; enclosed conduit and open-channel design; hydraulic machinery and hydro-power development; principles of fluid measurement; laboratory-flow and velocity metering, hydraulic models, pipe losses, open-channel flow. Two hours rec. and three hours lab. a week. Pr.: ME 571. Pr. or conc.: CE 551.

CE 560. Activity Center Traffic. (3) Intersession. The planning and design of any activity center (shopping mall, business center, sports stadium) must consider vehicular access/egress and parking. If not properly planned and designed, the impact on the surrounding streets and the center can be chaotic. The course will cover techniques of determining parking needs, parking layout, internal and external circulation design, and design of access/egress and the adjacent street system to minimize the impact on the surrounding street network. A major design project will be required. Pr.: Junior standing.

CE 563. Environmental Engineering Fundamentals. (3) I, II. Basic physical, chemical, and biological concepts and the applications to the protection of the environment with emphasis on techniques used in water and wastewater treatment. Two hours rec. and three hours lab a week. Pr.: CHEM 230 and MATH 222.

CE 565. Water and Wastewater Engineering. (3) II. Design of municipal water and wastewater treatment systems. Three hours rec. a week. Pr.: CE 550, CE 563, PHYS 214 and ME 571.

CE 570. Transportation Planning. (3) Intersession. Fundamentals of transportation planning. Historical development and current status of techniques used in travel demand forecasting; trip generation, trip distribution, mode choice, and traffic assignment. Current microcomputer models and applications. Pr.: CE 380 or equivalent and junior standing.

CE 572. Highway Engineering, Planning and Management. (3) I. Applications of the principles of traffic engineering and capacity analysis techniques to analyze, design and maintain street and highway systems. Fundamentals of transportation planning; site planning and design; traffic impact studies; fundamentals of pavement design and management. Two hours rec. and three hours lab a week. Pr.: CE 411 and 522 or consent of instructor.

CE 580. AI Applications in Civil Engineering. (2) Intersession. A review of the available techniques in artificial intelligence and a survey of applications in the different areas of civil engineering (structures, transportation/materials, geotechnical, hydraulics/water resources, and environmental engineering). Knowledge representation, inference mechanisms, system development and evaluation, object-oriented programming. Use of expert system shells, neural networks and fuzzy logic. Hands on applications on microcomputers in the MS-Windows environment. Three hours rec. for 10 days. Afternoon lab hours additional in computer lab. Pr.: CE 380.

CE 585. Civil Engineering Project. (1-3) I, II. A comprehensive civil engineering project, to be taken in the last semester of the B.S. program. Requires integration of skills acquired in civil engineering elective courses. Students must prepare and present written and oral design reports. One hour rec. and two three-hour labs a week. Pr.: ENGL 415 and 6 hours of CE electives. Pr.: or conc.: 6 additional credit hours of CE electives.

Undergraduate and graduate credit

CE 625. Principles of Geoenvironmental Engineering. (3) II. Introduction to soil formation, structure, flow and mass transport in soils, mass transfer principles, waste containment and isolation, and physical, chemical, and biological remediation principles. Three hrs. rec. a week. Pr.: CE 522.

CE 641. Civil Engineering Materials I. (3) I. Properties and behavior of structural metals, timber, portland cement concrete, and bituminous concrete; standard specification and methods of test; inspection and control; long-term protection and durability. Two hours rec. and three hours lab a week. Pr.: CE 534 and ENGL 415. Pr.: or conc.: either CE 528 or 542 or 544.

CE 654. Design of Groundwater Flow Systems. (3) I. Introduction to fundamental, mathematical and physical concepts of groundwater flow; application of simple analytic models; introduction to field methods; application of computer modeling tools to address design with practical significance. Three hours rec. per week. Pr.: ME 571.

CE 663. Unit Operations and Processes in Environmental Engineering. (2) II, even years. A laboratory study of various physical, chemical and biological operations and processes used in the professional practice of environmental engineering. Topics covered will be selected from reactor hydrodynamics, oxidation-reduction, coagulation-flocculation, chemical precipitation, ion exchange, adsorption processes, biological oxidation, anaerobic digestion and the activated-sludge process. Six hours lab per week. Pr. or conc.: CE 565 and CE 552.

CE 680. Economics of Design and Construction. (3) II. Selection of alternative engineering design and construction solutions through study of unit cost determination, cost estimating, and financing procedures. Introduction to construction scheduling. Three hours rec. a week. Pr.: Senior standing in engineering or graduate standing for non-engineering majors.

CE 690. Selected Topics in Civil Engineering. (Var.) I, II, S. Pr.: Approval of instructor.

CE 703. Responsibility in Engineering. (3). II. Course designed to help engineers, scientists, and technical managers to: understand fundamental "canons" of professional societies, establish or revitalize personal ethical standards using these canons, realize when situations are

ethical dilemmas, and to develop a process to solving dilemmas. Key activities are: interviewing peers, analyzing current environment for potential challenges, developing ethics workshops, and writing individual code of ethics. Pr: Graduate standing or senior with instructor approval.

CE 718. Engineering Photo Interpretation. (3) II. Photo interpretation techniques, types of aerial photographic film and their uses; application in land use studies, land surveying, site selection, rainfall runoff and stream flow, location of construction materials, and in the determination of soil properties; other applications. Two hours rec. and three hours lab a week. Pr.: Senior standing and consent of instruction.

CE 723. Designing with Geosynthetics. (3) II, in alternate years. History of geosynthetics; overview of geosynthetic functions, applications and properties; relationship between testing and applications. Designing with geotextiles, geogrids, geonets, geomembranes, geosynthetic clay liners and geocomposites. Three hours rec. a week. Pr.: CE 522.

CE 725. Seepage in Permeable Materials. (3) I, in alternate years. Analysis of seepage; groundwater movement in slopes, embankments, dams, and earth-supporting structures; construction of flow nets; dewatering systems; filter and drain design. Three hours rec. a week. Pr.: CE 522 and CE 552.

CE 728. Advanced Geotechnical Design. (3) II. Advanced studies of soil investigations; design of retaining structures and reinforced earth walls, sheet piles, anchored bulkheads, underground conduits and tunnels; analysis and repair of failed structures. Two hours rec. and three hours lab a week. Pr.: CE 528.

CE 732. Advanced Structural Analysis I. (3) I. Plane truss and frame analysis by direct stiffness method; equivalent nodal forces; thermal and settlement effects; stiffness by energy methods; analysis of space frames and trusses; grid structures; advanced topics. Three hours rec. a week. Pr.: CE 537.

CE 741. Civil Engineering Materials II. (3) II. Advanced study of civil engineering materials including concrete, steel and bituminous concrete. Two hours rec. and three hours lab a week. Pr.: CE 641 or CHE 350.

CE 742. Advanced Steel Design. (3) II. Plastic design of steel structures; stability problems in plastic design; design of complex steel structures. Three hours rec. a week. Pr.: CE 542.

CE 743. Advanced Reinforced Concrete Theory. (3) II. Advanced theories and methods of design and analysis of reinforced concrete structures. Three hours rec. a week. Pr.: CE 544.

CE 745. Structural Dynamics. (3) I. Introduction to fundamental concepts in structural dynamics; free and forced vibration of single and multiple degrees of freedom systems with and without damping, numerical methods for linear and non-linear dynamic analysis, and basics of the earthquake response and design of structures. Three hours rec. a week. Pr.: MATH 240, ME 512, CE 537 or equivalent

CE 751. Hydraulics of Open Channels. (3) I. Properties of open-channel flow; types of open channels; conservation of mass, momentum, and energy; critical, uniform, and gradually varied flow; design of erodible channels; rapidly varied flow. Three hours rec. a week. Pr.: CE 552.

CE 752. Advanced Hydrology. (3) I. Review of basic principles; point and regional rainfall and flood frequency analyses; hydrologic and hydraulic flood routing; drainage and flood control facilities design; hydrologic modeling and simulation flood plain analysis and planning. Three hours rec. a week Pr.: CE 551.

CE 760. Environmental Engineering Seminar. (0) I, II. Discussion of current advances in research and practice of environmental engineering. One hour seminar biweekly. Pr. None. Cross-listed with BAE 760.

CE 762. Water Treatment Processes. (3) II. Physical and chemical process principles and their application to water treatment plant design. Three hours rec. a week. Pr.: CE 565.

CE 766. Wastewater Engineering: Biological Processes. (3) I. Biological process principles and their application to the design of wastewater treatment plants. Three hours rec. a week. Pr.: CE 565.

CE 768. Geoenvironmental Engineering Design. (3) II. A team design project in geoenvironmental engineering focused on resolving interdisciplinary issues related to containment of pollutants and remediation of soil and groundwater. Three hrs. rec. a week. Pr.: one of the following: AGRON 605, AGRON 746, BAE 690, CE 625, CE 654, CHE 531 or GEOL 611. Cross-listed with BAE 768, CHE 768.

CE 771. Travel Demand Modeling. (3) II. Historical development and current status of techniques used in urban transportation planning and travel demand forecasting; trip generation, trip distribution, mode choice, and traffic assignment. Two hours rec. and three hours lab a week. Pr.: CE 572 or consent of instructor.

CE 773. Hot Mix Asphalt Mixture Design and Construction. (3) II, in alternate years. An in-depth study of the properties of constituent materials for asphalt concrete mixtures. Marshall and Superpave methods for hot-mix asphalt design. Theory and practice of asphalt concrete mix for pavements, including specifications and construction methods for hot-mixes and surface treatments. Maintenance and rehabilitation of flexible pavement. Relationships of material engineering properties to pavement design and performance. One two-hour lec. and one three-hour lab session per week. Pr.: CE 641.

CE 774. Pavement Design. (3) I. On sufficient demand. Methods of evaluating the load-carrying capacity of soil subgrade, subbase, and base courses; critical analysis of the methods of design for flexible and rigid pavements; methods of increasing the load-carrying capacity of highway and airport pavements. Two hours rec. and three hours lab a week. Pr.: CE 522.

CE 775. Traffic Engineering. (3) I. Traffic operations of roads, streets, and highways; traffic engineering studies; use of signs, signals, and pavement markings as traffic control devices; highway and intersection capacity, design and operations of traffic signals; current microcomputer models and applications. Pr.: CE 572.

CE 776. Pavement Performance and Management Systems. (3) I, in alternate years. Pavement management systems including pavement condition and structural evaluation, analysis, and optimization. Economics analysis and rehabilitation planning including computer applications. Three hours rec. a week. Pr.: CE 572.

CE 777. Portland Cement Concrete Pavements. (3) II. Portland cement concrete mix design and production. Paving operations. Saw and seal operations. Subgrade preparation. Base selection. Drainage selection, design and construction. Bonded and unbonded concrete overlays. Whitetopping and Ultra-Thin Whitetopping. Concrete pavement restoration; Quality Assurance and Quality Control in Concrete Pavement Construction. Three hous rec. a week. Pr.: CE 641.

CE 786. Land Development for Civil Engineers and Planners. (3) I. Engineering problems involved in site planning and design. The comprehensive planning process, zoning and subdivision regulations; design and location of streets and highways, water supply and sanitary facilities, drainage and public utilities. Two hours rec. and three hours lab a week. Pr.: CE 572 or consent of instructor.

CE 790. Problems in Civil Engineering. (Var.) I, II, S. Pr.: Approval of instructor.

CE 791. Research in Civil Engineering. (Var.) I, II, S. Original investigation or advanced study in some field related to the practice of civil engineering. Pr.: Approval of department head.

Graduate credit

CE 802. Advanced Mechanics of Materials and Applied Elasticity. (3) I, odd years. Two- and three-dimensional deformation analysis , equilibrium, and elastic constitutive laws. Stress-strain transformations between coordinate systems. Advanced topics in bending, shearing, torsion and combined loads, with applications to engineering problems. Three hours rec. a week. Pr.: CE 533. Cross-listed with ME 802.

CE 803. Numerical and Analytic Techniques for Engineers. (3) I. Theory and application of linear algebra, differentiation, integration, optimization and complex variables to a broad range of engineering problems; introduction to solving partial differential equations using finite difference, finite element and boundary element methods. Three hours rec. a week. Pr.: MATH 240.

CE 807. Applied Geostatistics. (2) Spring Intersession, odd years. Analysis of spatially-correlated data. Univariate, bivariate, and spatial description; global and point estimation; random function models; stationarity; intrinsic hypothesis; semivariogram; correlogram; ordinary and block kriging; cross validation; cross correlation and cokriging; experimental design. One hour lec. and one hour computer lab a day. Pr.: STAT 510 or STAT 703. Cross-listed with AGRON 807.

CE 816. Selected Topics in Civil Engineering. (Var) I, II, S, on sufficient demand. Study of intermediate level topics of interest in civil engineering. Topics announced when offered. Pr.: Graduate standing and approval of instructor.

CE 822. Shear Strength and Slope Stability of Soils. (3) II, in alternate years. Advanced theories of soil strength and failure; soil improvement; theories of lateral earth pressure with applications; stability analysis by both classical and numerical methods. Selected soil mechanics laboratory project. Three hours rec. a week. Pr.: CE 728.

CE 823. Engineering Properties of Cohesive Soils. (3) I. Mineralogy and structures of clay minerals; fabric and bonding of the clay particles; compressibility and strength characteristics of clays; moisture effects, retention, and movement through clay. Three hours rec. a week. Pr.: CE 522 and CE 725.

CE 824. Strength and Deformation of Geo-materials (3). I, in alternate years. Mathematical and physical modeling in geotechnical engineering. Advanced laboratory testing of soils. Plasticity, dilatancy, failure and critical state. Finite element applications: Laboratory strength tests and/or simple field problems. Three hrs. rec. per week. Pr.: CE 522 or equivalent.

CE 825. Environmental Geotechnology. (3) I, in alternate years. Soil/environment and soil/pollutant interactions; pollutant effect on soil strength and behavior; design and performance of waste containment structures; clay liners, surface seals, and slurry walls; slope stability problems for landfills. Three hours rec a week. Pr.: CE 725.

CE 828. Advanced Soil Mechanics. (3) I. Permeability and seepage analysis involving dams and sheet piles; stress distribution in earth masses, one- and three-dimensional consolidation theories; advanced study of compressibility of soil, numerical method applications in consolidation and seepage; analysis of settlement. Selected soil mechanics laboratory project. Three hours rec. a week. Pr.: CE 522 and CE 802.

CE 833. Advanced Structural Analysis II. (3) II. Application of matrix methods of analysis to complex structures; structural optimization, selected advanced topics in structural analysis. Three hours rec. a week. Pr.: CE 537.

CE 836. Energy Methods and Applied Variational Principles. (3) II, in alternate years. Theory and applications of virtual work, minimum potential, and variational principles using generalized coordinates, displacements, and forces to derive and solve advanced problems in structural, soil and hydrodynamic problems. Three hours rec. a week. Pr.: CE 801.

CE 837. Structural Stability. (3) II. Analysis of flexible members. Linear and nonlinear buckling of beams, frames, plates and complicated

structural systems; post buckling behavior of steel structures. Three hours rec. a week. Pr.: CE 802.

CE 844. Prestressed Concrete Design. (3) I. Study of prestressing methods including strength and load-balancing approaches and their application to the analysis and design of beams, slabs, and axially loaded members. Flexural, shear, torsion, and anchorage-zone analysis. Study of deflection and time-dependent losses. Three hours rec. a week. Pr.: CE 544.

CE 854. Analysis of Groundwater Flow. (3) II. Principles of flow through porous media; applications of flow theory to well analysis and design; groundwater resource evaluation and regional groundwater systems analysis. Three hours rec. a week. Pr.: CE 552.

CE 857. Advanced Civil Engineering Design Using GIS. (3) II. Investigating the usage of Geographic Information Systems (GIS) technology to better solve engineering problems. Teams of students will use GIS to design solutions to various civil engineering related situations. Pr.: Graduate standing and approval of instructor.

CE 861. Environmental Engineering Chemistry. (3) I. Chemical kinetics and equilibria, acid-base chemistry, complex formation, precipitation and dissolution processes, and applications to the analysis of environmental engineering problems. Three hours rec. a week. Pr.: CE 565, CE 762.

CE 863. Water Supply and Wastewater Collection Systems. (3) I, in alternate years. Analysis and design of water distribution networks, pump stations and storage reservoirs; wastewater collection and pump station system design; computer applications and systems optimization. Three hours rec. a week. Pr.: CE 565, CE 801.

CE 864. Unit Operations and Processes in Environmental Engineering. (3) II, alternate years. A laboratory study of physical, chemical and biological phenomena operative in engineered environmental systems. One hr. rec. and six hrs. lab a week. Pr. or conc.: CE 762 and CE 766.

CE 866. Advanced Wastewater Treatment. (3) II. Recent advances in municipal and industrial wastewater treatment. Wastewater microbiology, wastewater biochemistry, applications of biotechnology in wastewater engineering, recent advances in nutrient removal processes, wastewater treatment technologies, and water reclamation. Three hours rec. Pr.: CE 766.

CE 872. Transportation Safety (3) II , in alternate years. Importance of transportation safety, crash data collection, common crash databases, traffic safety studies, accident data analysis, identification of high crash locations, traffic control devices as related to safety, special population group safety, traffic conflict studies, accident reconstruction, statistical methods in crash data analysis and traffic calming. Three hrs. rec. per week. Pr: CE 572 or consent from the instructor.

CE 873. Airport Design. (3) II. On sufficient demand. Planning and design of a regional airport, including site selection in conformance with state and federal regulations; layout and design of runway system; size and layout of terminal buildings, landside facilities, parking lots, and circulation system. Two hours rec. and three hours lab a week. Pr.: CE 572.

CE 875. Traffic Flow Theory. (3) II. Theory of traffic flow, traffic stream characteristics, car following models, shock wave analysis, queuing analysis, application of statistical methods to traffic engineering problems, traffic simulation. Two hours rec. and three hours lab a week. Pr.: CE 775. Pr. or conc.: STAT 510.

CE 890. Graduate Seminar in Civil Engineering. (0) I, II. Discussion of current advances and research in civil engineering. One hour seminar biweekly. Pr.: None.

CE 898. Master's Report. (Var.) I, II, S. Topics selected with approval of major professor and department head.

CE 899. Master's Thesis. (Var.) I, II, S. Topics selected with approval of major professor and department head.

CE 916. Advanced Topics in Civil Engineering. (Var.) I, II, S. On sufficient demand. A course reserved for study of current topics in civil engineering. Topics announced when offered. Pr.: Eighteen hours graduate credit in areas approved by instructor.

CE 930. Advanced Topics in Geotechnical Engineering. (Var.) I, II. On sufficient demand. Advanced study of selected topics in geotechnical engineering. Topics announced when offered. Pr.: Eighteen hours graduate credit in areas approved by instructor.

CE 935. Structural Dynamics. (3) I, in alternate years. Analysis of structures subject to dynamic loadings. Optimization of structural systems to minimize earthquake hazards. Three hours rec. a week. Pr.: CE 802.

CE 938. Theory of Plates and Shells. (3) I, in alternate years. Equations and solutions of bending of thin plates of various edge conditions and shapes. Membrane and bending theory of shells of revolution. Nonlinear theory of plates and shells. Three hours rec. a week. Pr.: CE 802.

CE 950. Advanced Topics in Structural Engineering. (Var.) I, II. On sufficient demand. Advanced study of selected topics in structural engineering. Topics announced when offered. Pr.: Eighteen hours graduate credit in areas approved by the instructor.

CE 967. Physicochemical Processes. (3) II, in alternate years. Advanced study of physical and chemical processes in the movement and removal of particulates and organics in natural and engineered systems. Three hours rec. a week. Pr.: CE 861.

CE 970. Advanced Topics in Environmental and Water Resources Engineering. (Var.) I, II. On sufficient demand. Advanced study of selected topics in environmental and water resources engineering. Topics announced when offered. Pr.: Eighteen hours graduate credit in areas approved by the instructor.

CE 980. Advanced Topics in Transportation and Materials Engineering. (Var.) I, II. On sufficient demand. Advanced study of selected topics in transportation engineering and civil engineering materials. Topics announced when offered. Pr.: Eighteen hours graduate credit in areas approved by the instructor.

CE 999. Dissertation Research. (Var.) I, II, S. Topics selected with approval of major professor and department head.

For more information

For additional information and application materials please contact:
Dr. Mustaque Hossain, Director of Graduate Studies
Kansas State University
Department of Civil Engineering
2118 Fiedler Hall
Manhattan, KS 66506-5000

785-532-1576
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Home Page: http://www.ce.ksu.edu

Graduate Certificate Programs

- Academic advising *(available through distance education only)*
- Applied statistics
- Air quality
- Business administration
- Classroom technology
- Community planning and development
- Complex fluid flows
- Conflict resolution
- Entomology
- Feedlot production management
- Food Safety and Defense *(available on-campus and via distance education)*
- Food science *(available through distance education)*
- Geoenvironmental
- Geographic information science
- Gerontology *(available through distance education only)*
- International service
- Occupational health psychology *(available through distance education)*
- Organizational leadership
- Personal financial planning *(available through distance education only)*
- Public administration
- Real-time embedded system design
- Teaching students with autism spectrum disorders
- Technical writing and professional communication
- Women's studies
- Youth development administration *(available through distance education only)*
- Youth development professional *(available through distance education only)*

General information

The Graduate School offers certificates of graduate study as a non-degree credential designed to provide students with specialized knowledge that is less extensive than, and different from, a master's degree program. A certificate program is a focused collection of courses that, when completed, affords the student some record of coherent academic accomplishment in a given discipline or set of related disciplines.

Some certificate programs are linked to specific graduate degree programs and require initial admission to a master's or doctoral program, thereby providing an interdisciplinary experience within a defined body of knowledge. It is equally acceptable that the certificate program should be appropriate for students in a range of academic programs.

If a certificate program is free standing, that is, not linked to a graduate degree program, students are admitted to the Graduate School in a non-degree status. Contact information about each certificate is included.

Academic advising *(available through distance education only)*

Contact: Steve Benton
E-mail: leroy@ksu.edu
Home Page: www.dce.ksu.edu/education/advising/

Professionals who are entering the field of academic advising from teaching positions or other academic and student services areas often wish to expand their knowledge about college student personnel services, including learning theory, student development theory, counseling skill development, career development, and academic advising. Even advisors with terminal degrees or graduate degrees in other areas can benefit from some graduate work in this area. Therefore, the Department of Counseling and Educational Psychology, in collaboration with the National Academic Advising Association (NACADA), has developed a graduate certificate in academic advising. The 15-credit hour program is consistent with standards and guidelines for academic advising specified by the Council for the Advancement of Standards (CAS) in Student Services. The courses within the certificate program contribute to the student's understanding and practice of these standards and guidelines, including the areas of mission, program, leadership, organization and management, human resources, financial resources, facilities and equipment, legal responsibilities, equal opportunity and access, campus and community relations, diversity, ethics, and assessment. The courses are delivered exclusively in an on-line format.

Air quality

Contact: M.H. Hosni
E-mail: hosni@ksu.edu
Home Page:http://ww2.mne.ksu.edu/labs/EAQ/

Graduate students in several disciplines are conducting research related to air quality. In order to strengthen their educational programs and the quality of graduate education without detracting from the existing graduate degree programs, an air quality certificate program is offered with the following educational objectives:

- Prepare graduates for careers related to air quality;
- Encourage interdisciplinary educational experiences in air quality;
- Enhance the educational experiences of participating graduate students.

Applied statistics

Contact: John Boyer
E-mail: jboyer@ksu.edu
Home Page: http://www.k-state.edu/stats

The department offers the Graduate Certificate in Applied Statistics to recognize the preparation and proficiency of non-majors in data analysis in a wide variety of subject matter areas. Graduate students in a variety of academic disciplines are conducting research that requires knowledge in applied statistics. Such students may wish to demonstrate proficiency in applied statistics as it may be useful when looking for meaningful employment opportunities, in addition to helping them become better researchers in their chosen fields. In order to strengthen their educational programs and the quality of graduate education, a Graduate Certificate in Applied Statistics has been developed.

Business administration

Contact: Jeff Katz
E-mail: gradbusiness@ksu.edu
Home Page: http://www.cba.k-state.edu/departments/gradstudies/certificateprogram.htm
DCE Home Page: http://www.dce.ksu.edu/gradcib/

The graduate certificate in business administration is designed for non-business graduate students who want to gain basic business knowledge in five different functional areas of business. Students in the certificate program are expected to complete 15 credit hours in accounting, finance, marketing, operations management and behavior management. The primary goal of the business certificate program is to prepare any graduate student so that he or she is better able to both "speak" and understand the language of business and interact successfully with anyone in the business world.

Classroom technology

Contact: Rosemary Talab
E-mail: talab@ksu.edu
Home Page: http://www.k-state.edu/grad/gscurrent/catalog/c&i.htm

The departments of elementary and secondary education offer a 15-hour graduate certificate in classroom technology. The five required courses are consonant with International Society for Technology in Education, state and national content standards, and National Board of Professional Teacher Standards Licensure goals. All courses in the graduate certificate are offered on weekends or summers in short formats or by video, web, or other distance education formats. A statewide advisory group provides guidance to this graduate certificate program.

To be accepted into the classroom technology graduate certificate program, candidates must be admitted to the graduate program in curriculum and instruction and be accepted in the classroom technology area of specialization. To enter the classroom technology specialty an educator must have a current teaching certificate, classroom teaching experience or the equivalent, regular access to a computer, word processing application experience appropriate to grade level, access to the internet, and e-mail. Participants must have a commitment to integrating curriculum and technology to enhance student learning. Note that this certificate does not lead to an endorsement as a computer studies teacher.

Community planning and development

Contact: Al Keithley
E-mail: cak@ksu.edu
Home Page: http://larcp.arch.ksu.edu/LARCP/programs/Certificate%20in%20Planning.htm

The Department of Landscape Architecture/Regional and Community Planning offers a graduate certificate in community planning and development for graduate students in curricula other than planning. The intent of this certificate program is to encourage or improve professional knowledge of community planning and development issues. Students are required to complete 15 credit hours of planning courses with a cumulative GPA of 3.0 and no grade lower than a "B" in any course applied to the certificate program requirements. The program consists of three credit hours from the core requirement, Planning Principles and Process, and 12 credit hours of elective chosen from a list of approved planning courses. An external elective option is also available.

Complex fluid flows

Contact: Prakash Krishnaswami
E-mail: prakash@ksu.edu
Home Page: ww2.mne.ksu.edu/cff/

The Department of Mechanical and Nuclear Engineering offers a graduate certificate in complex fluid flows for students in other disciplines. The intent of this certificate is to conduct research and train graduate students in the general area of modern fluid dynamics. Given the highly complex and difficult problems encountered in this area, this program strives to blend three important branches of research: fundamental physics, experimental verification, and computational fluid dynamics.

Since more and more employment opportunities at the graduate level require interdisciplinary training, the certificate program in complex fluid flows serves to make our graduate students attractive to future employers in industry and academia. Through the interdisciplinary graduate courses, seminars, and innovative research in complex fluid flows, students receive a much broader exposure to all facets of complex fluid flow research than they could receive within a single department.

Conflict Resolution

Contact: Terrie McCants
E-mail: terrie@ksu.edu
Home Page: http://www.dce.k-state.edu/humanecology/conflictresolution/

The Graduate Certificate in Conflict Resolution offers students the fundamentals of conflict resolution and practice. It is intended to meet the needs of those individuals who seek introductory graduate training in conflict resolution. It may also be appropriate for professionals who have already earned a graduate degree in their professional field, but who would benefit from academic study of applications of conflict analysis and resolution in their current profession.

Entomology

Contact: Tom Phillips
E-mail: entomology@ksu.edu
Home Page: http://www.entomology.k-state.edu/DesktopDefault.aspx?tabindex=149&tabid=100

Graduate students in several disciplines -- agronomy, animal science, biochemistry, biological sciences, genetics, veterinary diagnostic medicine and pathobiology, horticulture, and plant pathology -- are conducting research on topics that may include insects and plant protection/pest management. Such students may wish to demonstrate proficiency in entomology, making them more suitable for certain jobs. In order to strengthen their educational programs and the quality of graduate education without detracting from their existing graduate degree programs, an entomology certificate program has been developed. Its objectives are to prepare graduates for careers related to entomology or plant protection/pest management, encourage interdisciplinary educational experiences in entomology and enhance the educational experiences of participating graduate students.

Feedlot production management

Contact: Dan Thomson
E-mail: dthomson@vet.ksu.edu
Home Page: http://www.vet.k-state.edu/depts/ClinicalSciences/agpract/production/feedlot.htm

There is a growing need for health professionals to have a knowledge base in management practices relating to nutrition, animal health, environmental and regulatory issues, and the data management associated with the operation of cattle confinement feeding facilities. To meet this need, a certificate program in feedlot production management has been developed. The program is a joint venture of regional cattle producers, private industries, and academic and research units at Kansas State University, and it is designed to train students to manage a modern confinement feeding facility.

The primary function of the certificate program is to prepare graduates for a career in feedlot production management while encouraging interdisciplinary educational experiences. The courses selected for the program are consistent with program objectives. They are intended to expand a student's educational and career background with an understanding of the interdisciplinary nature of feedlot management by demonstrating the interrelationship of business administration, veterinary medicine, and livestock nutrition in the feeding industry. We anticipate that the scientific and medical training of veterinarians, coupled with specialized knowledge of feedlot production management, will place certificate holders in a unique position to work with producers to develop cost-efficient programs that provide high quality, safe food products.

Food Safety and Defense *(available on-campus and via distance education)*

Contact: Thomas Herald
E-mail: therald@ksu.edu
Home Page: http://foodsci.k-state.edu/DesktopDefault.aspx?tabid=754

By providing a distance education Food Safety and Defense graduate certificate program we will serve the needs of industry and agencies that must protect the human food supply from accidental or deliberate contamination with pathogenic microbes and/or toxicants. In an era of terrorism and global food systems, effective control of foodborne hazards requires advanced education. There is an urgent need for online education for food industry personnel who, while working fulltime, would like to pursue more in-depth specialized training in food safety and security that is pertinent to their job. Many food-related industry and agency professionals have a B.S. in some aspect of food and agricultural sciences or related area along with good technical background and work experience but they may not be able to pursue a full graduate degree, due to expense, time constraints and/or interests. These needs warrant the development of a program to prepare graduate students and food-related professionals to effectively deal with food safety and biosecurity issues.

Upon completion of the graduate certificate, students will be better prepared to meet the challenges of accidental or deliberate food contamination within the food industry to protect public health, prevent foodborne illnesses, and facilitate or improve the profitability of food industries by minimizing health risks related to foodborne pathogens and toxicants.

Food science *(available through distance education)*

Contact: Thomas Herald
E-mail: therald@ksu.edu
Home Page: http://foodsci.k-state.edu/DesktopDefault.aspx?tabid=720

Graduate students who are conducting research in a closely related discipline or qualified food industry personnel who want to expand their knowldege of food science (in order to strengthen formal education or to help with promotion criteria) are encouraged to apply for a food science graduate certificate. To be accepted into the food science certificate program, candidates must apply for admission and be accepted by the Food Science Graduate Admission Committee.

A food science graduate certificate requires the completion of 20 credit hours of graduate level courses. Up to six hours of graduate credit directly relating to food science can be transferred. A bachelor's degree is required for entry into the program and the program requirements and application procedures are the same as for the on-campus graduate program. Please refer to the Kansas State University Graduate School Handbook for policies and procedures. Courses taken for undergraduate credit cannot count for graduate credit.

Geoenvironmental

Contact: Larry Erickson
E-mail: lerick@ksu.edu
Home Page: http://www.engg.ksu.edu/geoenviron/geoenviron_home.htm

The purpose of the geoenvironmental certificate program is to:

- Prepare graduates for careers related to geoenvironmental engineering;
- Promote interdisciplinary educational experiences in geoenvironmental engineering and;
- Enhance interactions among faculty and students in the allied science and engineering disciplines related to geoenvironmental engineering.

Consistent with the other certificate programs established by the Graduate School, this certificate program requires 12 credit hours of coursework. It includes nine credit hours from three required courses and three credit hours of elective chosen from a list of approved courses. The geoenvironmental certificate program is administered and coordinated in the Department of Civil Engineering.

Geographic information science

Contact: J.M. Shawn Hutchinson
E-mail: shutch@ksu.edu
Home Page: http://www.k-state.edu/geography/academics/gis.html

Geographic information systems (GIS) are an organized collection of computer hardware, software, geographic data, and people designed and organized to efficiently capture, store, update, manipulate, analyze, and display all forms of geographically referenced information. Effective use of GIS has evolved into a requisite skill for most academic research, as well as an important skill for agencies in both the public and private sectors. Graduate students from such varied disciplines as agronomy, biological sciences, economics, engineering, geography, landscape architecture, and sociology benefit from applying GIS and such related technologies as global positioning systems, remote sensing, geostatistics, and computer programming to input, analyze, model, and display (map) location-based data.

The geographic information science (GIScience) certificate is designed to provide graduate students with the fundamentals necessary to succeed in the rapidly expanding field of GIScience or apply GIScience concepts in their own field of study. Three components comprise the program curriculum: A set of prerequisites to gain entry into the program, core geospatial courses focusing on geographic information advanced themes in GIScience, and/or the application of GIScience in geography or related disciplines. The graduate certificate in GIScience may be awarded as a "stand-alone" certificate or in conjunction with the completion of graduate degree requirements in one of the academic units at Kansas State University. The certificate program is administered by the Department of Geography and is supervised by a multidisciplinary group of instructors and researchers from across the K-State campus.

Gerontology *(available through distance education only)*

Contact: Kim Misenhelter
E-mail: gpidea@ksu.edu
Home Page: www.k-state.edu/gerontology/distance.htm

Gerontology is the most recent addition to interinstitutional graduate programs offered through the Great Plains Distance Education Alliance (GP-IDEA), a consortium of universities that have come together to offer post-baccalaureate programs through distance education to students whose family or career keeps them from completing an on-campus graduate degree or certificate. The 21-credit gerontology certificate program is designed to prepare professionals who are either working directly with older people or who are involved in education or research related to aging issues. Professionals offering direct services often are involved in health promotion programs; directing intergenerational activities; managing senior centers or retirement communities; counseling older people and their families; and helping people plan for retirement. Professionals involved in education and research may evaluate community-based services; teach others about the aging process; develop policies and programs to serve the needs of older adults; work with business and industry on issues related to an aging work force; and consumer education.

Universities collaborating on the gerontology certificate program are Colorado State University, Iowa State University, Kansas State University, Montana State University, North Dakota State University, Oklahoma State University, and Texas Tech University. Students select a "home" institution through which they will apply to the program and enroll. Students will then take courses taught by their home institution as well as the other cooperating universities. The program has been designed to provide students with the core competencies identified by the Association for Gerontology in Higher Education.

The certificate program consists of five required three-credit courses, listed below. The remaining six credits can be taken from other core courses or from gerontology electives offered through GP-IDEA or at the home institution (with prior approval). Up to three credits of practicum experience may be included in the certificate program.

The certificate program has been designed for students who seek a credential in gerontology and who do not need a master's degree.

Required Courses:

- Perspectives in Gerontology
- Adult Development
- Physical Health and Nutrition in Aging
- Program Evaluation and Research Methods
- Professional Seminar in Gerontology

International service

Contact: Jeffrey Pickering
E-mail: jjp@ksu.edu
Home Page: http://www.k-state.edu/polsci/programs/certificates/index.html

The certificate program in international service is designed to prepare graduate students for a wide variety of careers in international service. To permit maximum flexibility, students are able to specialize in a variety of areas. In addition to the traditional study of diplomacy and specific geographic areas of the world, students have the option of taking courses in the nationally recognized colleges of agriculture, business, and architecture and planning.

All students entering the program are required to take basic core courses in the social sciences as well as display language skills. Because language-qualified students are attractive to potential employers because they save companies the cost of employing interpreters, the certificate program stresses the importance of language competency. To prove to these employers that graduates of this program are especially well qualified, all students will be required to take a language examination similar to that given by the K.S. Department of State. Students obtaining the certificate will leave the program with a solid academic degree in political science as well as the practically oriented training needed to succeed in any career in international affairs.

Occupational health psychology *(available through distance education)*

Contact: Ron Downey
E-mail: downey@ksu.edu
Home Page: www.k-state.edu/psych/graduate_health.htm
DCE home page: www.dce.ksu.edu/occupationalhealthpsych/

Kansas State University has fully implemented a graduate certificate in occupational health psychology (OHP). The four three-credit hour courses that are required for the completion of the certificate are offered on-line in a distance format. Students can enroll for each class at their convenience adn will be granted the certificate upon completion of the four-course sequence. This involves a proseminar survey of the field, a seminar on key topics, a review of relevant research methods, and a practicum/internship in OHP. Students with prior course work in social science research methods may be granted credit for that

requirement. The program has been designed for individuals from a wide variety of social science, psychology, and helath related academic backgrounds. Students must have completed a bachelor degree to enroll in the certificate program. All four courses have been approved by the American Psychological Association for continuing education credits (45 credits for each course). Students who meet the requirements can enroll in any OHP course without enrolling in the certificate program.

Organizational leadership

Contact: Jeff Katz
E-mail: gradbusiness@ksu.edu
Home Page: www.cba.k-state.edu/departments/gradstudies/certleader.htm

The purpose of the online Graduate Certificate in Organizational Leadership (GCOL) program is to provide an opportunity for individuals to gain leadership skills and basic business knowledge without having to participate in a full MBA program (52 credit hours). Students will attain an understanding of leadership skills and the basic functional areas of business and how each contributes to an effective business organization. Results of an online survey of K-State alumni provide evidence of potential demand for a graduate certificate in this area.

Personal financial planning *(available through distance education only)*

Contact: Kim Misenhelter
E-mail: ipfp@ksu.edu
Home Page: www.ksu.edu/ipfp

Kansas State University's personal financial planning certificate program is a CFP Board-Registered Program, offered through the School of Family Studies. Accurate and timely information in the key area of financial planning will be provided, in addition to meeting the educational requirements of CFP Board, qualifying students to sit for the CFP® Certification Examination.

K-State's certificate in personal financial planning is unlike any other program in the country. The majority of programs registered with Certified Financial Planner Board of Standards Inc. either require in-class attendance or they rely on self-study materials. The K-State program offers students an opportunity to combine self-study with a mentoring classroom-type experience. The program is offered totally online.

The certificate in personal financial planning is available on a non-credit basis, or for 18 hours graduate credit. The program consists of six courses: Fundamentals of Financial Planning, Insurance Planning for Families, Investing for the Family's Future, Personal Income Taxation, Retirement Planning Employee Benefits and the Family, and Estate Planning for Families. For graduate credit, students must be accepted to graduate school. Non-credit students must either have an undergraduate degree (any area), or a minimum of three years experience in the field.

Public administration

Contact: Krishna K. Tummala
E-mail: tummala@ksu.edu
Home Page: www.k-state.edu/polsci/programs/certificates/index.html

The mission of the Graduate Certificate in Public Administration is to be a flexible professional certificate program for those who desire to pursue education in the principles of public management to advance in their administrative careers in the public sector, not-for-profit sector, and military. Certificate holders will be trained for entry level management positions with government agencies at the federal, state, or local level, and with regional or sub-state organizations. After obtaining the certificate, students will be allowed to apply their certificate hours towards a Master of Public Administration at Kansas State University. All course work will be offered via various distance learning technologies so that students from all over the state, nation, and world will be able to obtain this certificate.

Students with a Graduate Certificate in Public Administration will understand the general principles of public administration, including but not limited to public sector budgeting, personnel, public organization theory, and research methods. Students will also have the option of specializing in one of the following two areas in public management, administrative law or not-for-profit management. The overall educational goal is to provide professional training for a wide range of administrative venues, while providing students the flexibility to specialize in an area of interest.

Real-time embedded system design

Contact: Mitchell Neilsen
E-mail: neilsen@cis.ksu.edu
Home Page: http://www.cis.ksu.edu/files/grad-certificate.pdf

The purpose of the graduate certificate program is to provide opportunities for students with various engineering backgrounds to gain knowledge and experience on design and implementation of real-time embedded systems. This program offers students systematic training in multiple engineering fields, including computer science and engineering, electrical engineering, and other engineering fields to which real-time embedded systems are applied.

Graduate students pursuing an M.S. or a Ph.D. degree in any engineering discipline may apply for the Real-time embedded system graduate certificate program. Students may also apply for this program without linking it to a graduate degree program. Applications will be reviewed and approved by the coordinating committee of the program. A total of 18 credit hours are required to complete the certificate program. This includes 6-9 credit hours from a selected course list and 9-12 credit hours from a four-semester course sequence in real-time embedded system design.

Teaching students with autism spectrum disorders

Contact: Marilyn Kaff
E-mail: mkaff@ksu.edu

The central goal of the certificate program in autism is to provide special education teachers with understanding and skills to provide special education programs for students with autism. Specifically, students will learn the characteristics and causes of autism, identification and assessment procedures, effective educational interventions, program delivery and transition approaches. In addition, students will participate in an advanced practicum under the supervision of a university supervisor and qualified cooperating teacher.

The autism certificate program extends the training of graduate students who have either already completed a M.S. degree in special education or who are currently enrolled in the M.S. program in special education at KSU and wish to add the autism certificate. In order to strengthen their educational programs and the quality of graduate education without detracting from the existing graduate degree programs, the autism certificate program has been developed.

Technical writing and professional communication

Contact: Irene Ward
E-mail: iward@ksu.edu
www.ksu.edu/english/programs/techwriting.html

The graduate certificate in technical writing and professional communication recognizes the complexities and demands of written, oral, and digital communication in the workplace as well as the interdisciplinary character of writing and communication studies in the academy. Thus, while centered on writing, the certificate includes course options in rhetoric, communication, design, digital media, speech, and group dynamics.

The certificate is available to any student with an undergraduate degree. A current undergraduate may take courses toward the graduate certificate if they enroll and pay for graduate credit. Classes for the certificate do not count toward their undergraduate degree. In some cases, courses may count toward a graduate degree. Interested students should meet with the program contact for advising and planning a course of study before taking any courses.

The certificate requires four courses (12 credit hours): one in writing, one in rhetorical or communication theory, and two electives.

At least one course must be from outside the student's home discipline. Because of the wide variety of electives available, students can craft much of the certificate to meet their own career and educational goals. As with graduate degrees, participants are required to map out a coherent Program of Study with the certificate coordinator. The structure of the certificate is flexible enough so that most students, with advance planning, can pursue it without impeding regular degree progress.

Women's studies

Contact: Torry Dickinson
E-mail: dickins@ksu.edu
Home Page: www.ksu.edu/womst
Graduate Catalog Webpage: http://www.k-state.edu/grad/gscurrent/catalog/womst.htm

Women's Studies offers a graduate certificate for students in M.A., M.S., Ph.D and professional programs at Kansas State. It consists of 12 hours of graduate level courses in women's studies and/or gender studies. One core course--Women's Studies 810, An Interdisciplinary Overview of Feminist Thought and Practice--is required. Three other courses (at the 500 level and above) can be chosen from an approved list of electives from a variety of disciplines. Interested students should apply by letter to the Women's Studies Certificate Coordinator detailing their goals and gender focus and how a certificate will enhance their program of study. The letter should be signed by both the student and her/his major professor or department head. After acceptance, students will meet with the Certificate Coordinator of Women's Studies to select those courses most congruent with their program of study. A member of the Women's Studies Graduate Faculty will serve on the student's supervisory committee.

Youth development administration *(available through distance education only)*

Contact: Kim Misenhelter
E-mail: gpidea@ksu.edu
Home Page: www.ksu.edu/ksugpidea/yd

The objective of the certificate program in youth development administration is to train graduates to understand and apply conceptual approaches to youth development, and to display an understanding of the development and impact of local, regional, state, federal, and global policies on youth, as well as the impact of family and cultural influences on positive youth outcomes. They will also be able to develop and apply resources for successful implementation and management of youth-serving organizations.

The certificate requires 12 credit hours in addition to a one-hour fundamentals course chosen from a list of approved courses.

This program is a collaborative, multi-institution effort with course work delivered via the Internet/World Wide Web. Faculty from Colorado State University, Kansas State University, Michigan State University, Montana State University, and University of Nebraska share knowledge and expertise in youth development. These land-grant universities are members of the Great Plains-Interactive Distance Education Alliance and have a history of success in distance education.

Youth development professional *(available through distance education only)*

Contact: Kim Misenhelter
E-mail: gpidea@ksu.edu
Home Page: www.ksu.edu/ksugpidea/yd

The objective of the certificate program in youth development professional is to train graduates to understand and apply conceptual approaches to youth development, to display an understanding of the development and impact of local, regional, state, federal, and global policies on youth as well as to recognize the impact of family and cultural influences on positive youth outcomes. In this certificate, students will focus on working with youth in service organizations and will focus their elective courses on youth counseling skills and building helping relationships.

The certificate requires 12 credit hours in addition to a one-hour fundamentals course chosen from a list of approved courses.

This program is a collaborative, multi-institution effort with course work delivered via the Internet/World Wide Web. Faculty from Colorado State University, Kansas State University, Michigan State University, Montana State University, and University of Nebraska share knowledge and expertise in youth development. All institutions are members of the Great Plains-Interactive Distance Education Alliance and have a history of success in distance education.

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Chemical Engineering

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Head:
Mary Rezac

Director of graduate studies:
James Edgar

Graduate faculty:

Richard G. Akins, Emeritus, Ph.D., Northwestern University.

Jennifer L. Anthony, Ph.D., University of Notre Dame.

Vikas Berry, Ph.D., Virginia Polytechnic Institute and State University.

James H. Edgar, Ph.D., University of Florida.

Larry E. Erickson, Ph.D., Kansas State University.

L. T. Fan, Ph.D., West Virginia University.

Larry A. Glasgow, Ph.D., University of Missouri.

Keith L. Hohn, Ph.D., University of Minnesota.

Terry S. King, Ph.D., Massachusetts Institute of Technology.

Benjamin G. Kyle, Emeritus, Ph.D., University of Florida.

John C. Matthews, Emeritus, D.Sc., Washington University.

Peter H. Pfromm, Ph.D., University of Texas at Austin.

Mary E. Rezac, Ph.D., University of Texas at Austin.

John R. Schlup, Ph.D., California Institute of Technology.

Walter P. Walawender Jr., Ph.D., Syracuse University.

Krista Walton, Ph.D., Vanderbilt University.

Program description

The department offers M.S. and Ph.D. programs in chemical engineering and in interdisciplinary areas of bio-based materials science and engineering, food science, environmental engineering, and materials science.

Areas of study and research emphasize biotechnology, reaction engineering, materials science and transport phenomena. Specific areas include activated carbons, advanced separation systems, biomimetics, biomass conversion, biochemical engineering, bioremediation, catalytic conversion of light hydrocarbons, chemical vapor deposition of electronic materials, controlled drug delivery, environmental pollution control, enzyme technology, fluidization, intelligent processing of materials, membrane science and technology, nanotechnology, polymer science, process systems engineering, semiconductor crystal growth, short-contact time reactors and value-added agricultural products.

For more information about the Ph.D. program, see the Engineering section of this catalog.

Research facilities

The Department of Chemical Engineering has modern, well-equipped research laboratories for transport phenomena, environmental pollution control, materials science and engineering, chemical reaction engineering and biochemical engineering. Specialized instrumental capabilities include laser-Doppler velocimetry, high-speed videography, Fourier-transform infrared spectrometry, catalyst preparation equipment, electrodialysis, fermentors, tubular gas reactors, gas and liquid chromotography, mass spectrometry, polymer characterization equipment such as dynamic mechanical analysis, gas adsorption analysis, chemical vapor deposition reactors, membrane permeation systems, ultra-high temperature furnaces and more.

The department also houses the Institute for Systems Design and Optimization, where several artificial intelligence work stations are located for

research in process design and synthesis, and process control.

Program requirements

The Ph.D. degree requires 90 credit hours. This is divided among major course work, minor subjects, and research work. A diversified and flexible choice of minor subjects and a good selection of research topics are available. Qualified students may bypass the master's degree and work directly toward the Ph.D. degree.

An M.S. degree requires 30 credit hours, and can be earned with either the thesis or report options. In the thesis option, 24 hours of course work and 6 hours of thesis are required. The thesis is based on directed research performed by the student. In the report option, 27 hours of course work and 2 hours of report are required. The report is based on a literature review or design project performed by the student.

Air Quality Certificate Program

Introduction

Graduate students in several disciplines are conducting research related to air quality. In order to strengthen their educational programs and the quality of graduate education without detracting from existing graduate degree programs, an air quality certificate program has been developed.

Educational Objectives

The educational objectives of the air quality certificate program are as follows:

1. To prepare graduates for careers related to air quality
2. To encourage interdisciplinary educational experiences in air quality
3. To enhance the educational experiences of participating graduate students

Certification Requirements

The course requirements for the certificate program in air quality are as follows:

1. For the Ph.D. degree, 15 credit hours are required including two credits of Air Quality Seminar, at least one course which includes safety and health/toxicology, at least one course which includes air quality measurement and characterization, and at least one course which includes air quality management and control. To fulfill the interdisciplinary objectives of the program, the course list should include courses from at least three academic departments.
2. For the M.S. degree, 12 credit hours are required including one credit of Air Quality Seminar and courses from at least two of the three areas required for the Ph.D. The course list should include courses from at least three different departments.

It is expected that special topics courses in air quality will be approved for the certificate program by the air quality graduate education committee upon request following the procedure described below.

Administration

The air quality program administrative office is the Institute for Environmental Research in Seaton Hall. This office will administer the air quality certificate program.

Students working toward advanced degrees should submit a proposed list of courses to be used to meet certification requirements to the director of the air quality program. Where these courses are included in a program of study for an advanced degree, they should be approved by the student's supervisory committee and the coordinator of the air quality certificate program. A copy of the approved program should be distributed to the student, major professor, and the graduate school. A file is maintained for each student who is in the certificate program by the administrative office in the Institute for Environmental Research. Where some courses for the certificate program are not included in the advanced degree program of study, the course list should be approved by the major professor and the coordinator of the air quality certificate program. For example, the student may decide to complete the certificate program after the advanced degree program of study is already filed and nearly completed.

The air quality graduate education committee will review the air quality certificate program periodically, and they will have the authority to approve modifications to the approved list of courses.

Air Quality Faculty

Faculty who wish to participate in the air quality program are welcome to do this. Those not presently listed may submit a request to the director to be added to the list.

Coordination

The air quality certificate program is coordinated by Larry Erickson, Department of Chemical Engineering, Durland Hall, and Mo Hosni, Institute for Environmental Research, Seaton Hall. All correspondence should be sent to the administrative office in the Institute for Environmental Research. Mo Hosni is the coordinator who officially approves course lists for the certificate program.

Admission procedures

Highly motivated students interested in the research activities of the department are encouraged to apply. All applicants must submit a completed application form, official copies of their undergraduate transcripts, and 3 letters of recommendation to the department. International applicants must also submit official GRE and TOEFL scores. A $55 application fee applies to international students and a $30 application fee applies to domestic students.

Financial support

Graduate research assistantships and fellowships are available to qualified students. The base stipend begins at $20,000 and some fellowships cover tuition and fees. Sponsored research work can be used toward thesis credit. Supplemental grants and fellowships are also available to outstanding candidates.

Chemical engineering courses

Undergraduate and graduate credit in minor field

CHE 520. Chemical Engineering Thermodynamics I. (2) I. A study of the first and second laws of thermodynamics, real gases, heat of solution and reaction. Two hours rec. a week. Pr.: CHE 320. Pr. or conc.: MATH 240.

CHE 521. Chemical Engineering Thermodynamics II. (3) II. A continuation of the study of the second law, thermodynamic analysis of processes, phase equilibrium, chemical reaction equilibrium. Three hours rec. a week. Pr. or Conc.: CHE 416. Pr.: CHE 520.

CHE 522. Chemical Engineering Laboratory I. (2) II. Laboratory experiments on momentum and heat transfer. Five hours lab a week. Pr.: CHE 520 and 530.

CHE 530. Transport Phenomena I. (3) I. A unified treatment of the basic principles of momentum, energy, and mass transport. Three hours rec. a week. Pr.: CHE 320 and MATH 240.

CHE 531. Transport Phenomena II. (3) II. Continuation of Transport Phenomena I with special emphasis on mass transfer. Three hours rec. a week. Pr. or Conc.: CHE 416. Pr.: CHE 530.

CHE 542. Unit Operations Laboratory. (3) II. Laboratory experiments on classical unit operations, e.g., distillation, absorption, extraction, and on chemical kinetics and process dynamics. Eight hours lab a week. Pr.: CHE 535, 550 and 560. Pr. or conc.: CHE 561.

CHE 550. Chemical Reaction Engineering. (3) I. Applied chemical kinetics and catalysis including the analysis and design of tubular, packed bed, stirred tank, and fluidized bed chemical reactors. Three hours rec. a week. Pr.: CHE 521 and 531.

CHE 560. Separational Process Design. (3) I. Development of the basic theory and design of separational processes such as distillation, gas absorption, liquid extraction, adsorption, and ion exchange. Three hours rec. a week. Pr.: CHE 521 and 531.

CHE 561. Chemical Process Dynamics and Control. (3) II. A study of the unsteady state behavior and control of chemical processes. Three hours rec. a week. Pr.: CHE 550.

CHE 570. Chemical Engineering Systems Design I. (2) I. Basic concepts of process economics with application to the design of chemical processes. Two hours rec. a week. Pr. or conc.: CHE 550 and 560.

CHE 571. Chemical Engineering Systems Design II. (4) II. Basic concepts of process optimization with application to the synthesis and design of chemical processing systems. Emphasis will be on the solution of comprehensive systems design problems. Two hours rec. and six hours lab a week. Pr.: CHE 550, 560, and 570. Pr. or conc.: CHE 561.

CHE 580. Problems in Chemical Engineering or Materials Science. (Var.) I, II, S. An introduction to chemical engineering research. Pr.: Approval of department head.

Undergraduate and graduate credit

CHE 626. Bioseparations. (2) II, in even years. Study of separations important in food and biochemical engineering such as leaching, extraction, expression, absorption, ion exchange, filtration, centrifugation, membrane separation, and chromatographic separations. Two hours rec. a week. Pr.: CHE 531 or BAE 575.

CHE 648. Processing of Composite Materials. (3) I, II. Principles of composite materials, including ceramic, metal, and polymer matrix composites; properties and processing of fibers; role of interfaces in composites; basic concepts in mechanics, failure, and testing of composite materials. Three hours lec. a week. Pr.: CHE 350 or 352.

CHE 650. Hazardous Waste Engineering Seminar. (1) I, II, S. Topics in hazardous materials management and control, waste reduction and minimization, hazardous substance tracking, and hazardous waste engineering. One hour rec. a week. Pr.: CHM 230.

CHE 653. Ceramic Materials. (3) I, II. Structure and bonding in glasses and ceramics; phase equilibria and transformation kinetics; defects and microstructure within ceramic materials; mechanical, thermal, optical, electrical, and magnetic properties of ceramics and glasses. Three hours rec. a week. Pr.: CHE 350 or 352.

CHE 656. Polymer Science and Engineering. (3) I, in even numbered years. An introduction to polymeric materials, including chemistry, structure and formation; physical states and transitions; and, basic physical and mechanical properties. Three hours rec. a week. Pr.: CHM 531.

CHE 661. Processing of Materials for Solid State Devices. (3) I, II. Structure, properties and processing of materials for solid state devices. Crystal growth, epitaxy, oxidation, diffusion, lithography, and etching as applied to device fabrication. Three hours rec. a week. Pr.: CHE 350 or 352.

CHE 664. Electrochemical Engineering. (3) I, II. Thermodynamics, electrode kinetics, and transport phenomena of electrochemical systems. Three hours rec. a week. Pr.: CHE 521 and 531.

CHE 670. Sustainability Seminar. (1) I, II, S. Topics in environmental sustainability, green engineering, life cycle analysis, sustainable development, and sustainability science. Pr.: CHM 230.

CHE 681. Engineering Materials II. (3) I, II, S. The structure and bonding in crystalline and amorphous materials; crystallography; thermodynamic stability in materials; equilibrium diagrams and the phase rule; rate theory and kinetics of solid-state transformations; mechanical behavior of engineering materials; dislocations; failure mechanisms. Three hours lec. a week. Pr.: CHE 350 or 352.

CHE 682. Surface Phenomena. (3) I, in odd numbered years. Principles and applications of interfacial phenomena, including capillarity, colloids, porosity, adsorption, and catalysis. Three hours rec. a week. Pr.: CHE 520, CHM 585, ME 513, or PHYS 664.

CHE 715. Biochemical Engineering. (3) I. The analysis and design of biochemical processing systems with emphasis on fermentation kinetics, continuous fermentations, aeration, agitation, scale up, sterilization, and control. Three hours rec. a week. Pr. or conc.: CHE 550.

CHE 725. Biotransport Phenomena. (3) I, II. Principles of transport phenomena applied to biological and physiological processes. Membrane transport processes, circulatory system transport phenomena, transport and distribution of drugs. Pr.: CHE 530.

CHE 735. Chemical Engineering Analysis I. (3) I, II, S. The mathematical formulation of problems in chemical engineering using partial differential equations, vector and tensor notation. Solution of these problems by analytical and numerical. Three hours rec. a week. Pr.: CHE 530.

CHE 745. Analysis of Physiological Processes. (3) II. Principles of process and systems analysis applied to problems in biology and medicine. Analysis of mixing in-flow systems, principles and applications of tracer analysis, analysis of kinetic and adsorption processes. Pr.: CHE 550.

CHE 750. Air Quality Seminar. (1) I. Topics in air quality including health effects, toxicology, measurement, characterization, modeling, management, and control. One hour recitation a week. Pr.: CHEM 230.

CHE 768. Geoenvironmental Engineering Design. (3) II. A capstone design project in geoenvironmental engineering focused on resolving issues related to containment of pollutants and remediation of soil and groundwater. Pr.: one of the following: AGRON 605, AGRON 746, BAE 690, CE 625, CE 654, CHE 531, or GEOL 611. Cross-listed with CE 768 and BAE 768.

Graduate credit

CHE 802. Selected Topics in Materials Science. (Var.) I, II, S. Areas of current interest in materials including solidification, transformations, solutions, dislocations, creep, fracture, failure analysis, and failure prevention. Pr.: CHE 681.

CHE 805. Selected Topics in Biochemical Engineering. (3) II, S. Subjects of current interest in the broadest sense of biochemical engineering. These involve not only chemical engineering problems which contain biochemical biological, or medical elements but also applications of chemical engineering principles and methodologies to biochemical, biological, medical, and ecological problems. Pr.: CHE 715.

CHE 810. Research in Chemical Engineering. (Var.) I, II, S. Original investigations in transport phenomena, unit operations, thermodynamics, process dynamics, applied chemical kinetics and process development. The results of these investigations may be used for the master's thesis or the doctoral dissertation.

CHE 815. Advanced Chemical Engineering Thermodynamics. (3) I, II, S. Advanced topics in thermodynamics, with emphasis on a chemical and physical equilibria and the estimation of thermodynamic properties. Three hours rec. a week, Pr.: Graduate standing in chemical engineering.

CHE 822. Advanced Chemical Reaction Engineering. (3) I, II, S. Theory of kinetics and catalysis in homogeneous and heterogeneous systems, with applications in chemical reactor design and process development. Three hours rec. a week. Pr.: CHE 550.

CHE 826. Advanced Unit Operations I. (3) I, II, S. Advanced study of mass transfer operations. Three hours rec. a week. Pr.: CHE 560.

CHE 850. Advanced Chemical Process Dynamics. (3) I, II, S. The dynamical behavior of chemical reaction systems and process equipment used in chemical plants. Control mechanisms for these systems. Three hours rec. a week. Pr.: Graduate standing in chemical engineering.

CHE 862. Advanced Transport Phenomena I. (3) I, II, S. Advanced treatment of momentum, energy, and mass transport, with emphasis on momentum transport in chemical engineering applications. Three hours rec. a week. Pr.: CHE 735.

CHE 867. Advanced Transport Phenomena II. (3) I, II, S. Advanced treatment of momentum, energy, and mass transport, with emphasis on energy and mass transport in chemical engineering applications. Three hours rec. a week. Pr.: CHE 862.

CHE 871. Advanced Process Design and Optimization. (3) I, II, S. Advanced problems in the optimal design and economic evaluation of plant equipment and processes for the chemical and allied industries. Three hours rec. a week. Pr.: CHE 571 and 735.

CHE 875. Graduate Seminar in Chemical Engineering. (1) I, II. Discussion of current advances and research in chemical engineering and related fields.

CHE 898. Master's Report. (Var.) I, II, S. Topics selected with approval of department head and major professor.

CHE 899. Master's Thesis. (Var.) I, II, S. Topics selected with approval of department head and major professor.

CHE 901. Selected Topics in Reaction Engineering. (3) I, II, S. Advanced study in this field of such topics as complex reactions, catalysis, dispersion effects, fast reactions, reactions in fluidized beds. Three hours rec. a week. Pr.: CHE 822 and one course in chemical engineering numbered 851 or higher.

CHE 906. Selected Topics in Semiconductor Processing. (Var.) I, II, S. Areas of current interest in semiconductor processing including solid state diffusion, plasma-assisted deposition and etching, thin film deposition processes, contamination control, and contact metallurgy. Pr.: CHE 661 and CHE 815.

CHE 910. Selected Topics in Transport Phenomena. (3) I, II, S. Subjects of current interest such as surface phenomena, turbulent transport, droplet mechanics, multicomponent systems. Three hours rec. a week. Pr.: CHE 867.

CHE 915. Selected Topics in Process Dynamics. (3) I, II, S. Study of the most recent methods for analysis of the dynamic behavior and control of complex systems and industrial processes. The use of Lyapunov theorems and the maximum principle are examples of the methods to be studied. Three hours rec. a week. Pr.: CHE 850 and one graduate course in chemical engineering numbered 851 or higher.

CHE 920. Selected Topics in Unit Operations. (3) I, II, S. Study of such topics as zone melting, foam fractionation, membrane permeation, thermal diffusion, and unsteady state operations. Three hours rec. a week. Pr.: CHE 826 or 832 and one course in chemical engineering numbered 851 or higher.

CHE 925. Selected Topics in Process Design and Optimization. (3) I, II, S. Study of advanced methods of process design and optimization, such as modern variational methods and dynamic programming. Applications to be chosen mainly from the chemical and allied industries to include stochastic as well as deterministic problems. Three hours rec. a week. Pr.: CHE 871.

CHE 930. Selected Topics in Thermodynamics. (3) I, II, S. Advanced study in this field of such topics as irreversible thermodynamics, solution theory, and surface phenomena. Three hours rec. a week. Pr.: CHE 815 and one course in chemical engineering numbered 851 or higher.

CHE 999. Dissertation Research. (Var.) I, II, S. Topics selected with approval of department head and major professor.

For more information

For additional information and application materials please contact:
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Chemistry

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Head:
Eric Maatta

Directors of graduate studies:
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Graduate faculty:

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Mark D. Hollingsworth, Ph.D., Yale University.

Duy H. Hua, Ph.D., Southern Illinois University at Carbondale.

Takashi Ito, Ph.D., University of Tokyo.

Ryszard Jankowiak, Ph.D., Technical University, Gdansk, Poland.

Kenneth J. Klabunde, Ph.D., University of Iowa.

Stefan Kraft, Ph.D., University of Wisconsin-Madison.

Jun Li, Ph.D., Princeton University.

Christopher J. Levy, Ph.D., University of Western Ontario.

Jun Li, Ph.D., Princeton University

Eric A. Maatta, Ph.D., Indiana University.

Sundeep Rayat, Ph.D., University of Missouri-Columbia.

Paul E. Smith, Ph.D., University of Liverpool, England.

Graduate faculty emeriti:

Copeland, James L., Ph.D., Indiana University.

Fateley, William G., Ph.D., Kansas State University.

Hammaker, Robert M., Ph.D., Northwestern University.

Hawley, M. Dale, Ph.D., University of Kansas.

Kruh, Robert E., Ph.D., Washington University, St. Louis.

McDonald, Richard N., Ph.D., University of Washington.

Meloan, Clifton E., Ph.D., Purdue University.

Moser, Herbert Charles, Ph.D., Iowa State University.

Setser, Donald W., Ph.D., University of Washington.

Sherwood, Peter, Ph.D., Cambridge University.

Facilities

Kansas State University is committed to providing its students and faculty with an excellent and stimulating atmosphere in which to conduct research. This commitment is reflected by the over two million dollars of new instrumentation added to the department in recent years and by the construction of our new Chemistry-Biochemistry building. As a medium-sized chemistry department, K-State is large enough to ensure that our students are provided access to a variety of first-rate equipment, yet small enough to assure our students of a close personal interaction with faculty. We recognize that our students are individuals, and our programs are structured so as to allow each student to reach his or her potential at an appropriate pace.

The Department of Chemistry occupies a complex of three buildings: Willard Hall, King Hall and the state-of-the-art, four-story Chemistry/Biochemistry Laboratory. Over 75,000 total square feet of laboratory and office space are available for research by 18 faculty members and approximately 70 graduate students and postdoctoral fellows.

Kansas State University provides excellent library facilities and support for research in the chemical sciences. The library currently subscribes to more than 150 journals representing virtually every major chemical specialty. Additionally, the library participates in an interlibrary loan service that permits researchers access to work that has been published in obscure journals. Photocopying facilities and on-line structure and database searching of Chemical Abstracts are available.

The Department is well equipped with instrumentation to support modern chemical research, most of which is available for hands-on use by graduate students, postdoctoral fellows, and faculty. Major instruments, housed either in central departmental facilities or in individual research groups, include Varian 500-MHz, 400-MHz, and 200-MHz multinuclear NMR spectrometers, a Tecmag 300 MHz solid state NMR spectrometer with magic angle spinning and static sample capabilities, a Bruker ER 200D-SRC EPR spectrometer, a Hewlett-Packard GC/LC/MS facility with EI, CI and FAB ionization capabilities, a laser pulsed desorption Fourier transform mass spectrometer, several FTIR instruments, an absorbance/fluorescence microplate reader, several diode array and scanning uv/vis spectrophotometers, a fluorometer with dual monochromators and photon counting capabilities, surface science facilities (three XPS instruments, one equipped with scanning Auger and SIMS), wavelength dispersive X-ray analysis, and a Mossbauer spectrometer. A full-time support specialist maintains the NMR facility.

Laser instrumentation for spectroscopy, dynamics, and kinetics includes multiple argon ion and cw-dye lasers, green and red HeNe lasers, several diode lasers, excimer lasers, nanosecond pulsed Nd:YAG lasers and YAG-pumped dye lasers with frequency doubling and tripling capabilities. There is also a tunable femtosecond/picosecond mode-locked Ti:sapphire laser with pulse picking and frequency doubling/tripling capabilities. Laser spectroscopic capabilities include steady-state and picosecond time-resolved fluorescence, and single molecule fluorescence.

Microscopy facilities include transmission electron microscopy, scanning electron microscopy, atomic force microscopy, extensive light microscopy facilities, a sample-scanning confocal microscope and a near-field optical microscope, both of which have demonstrated single-molecule detection sensitivity.

The Chemistry Department's small molecule X-ray crystallography facility is equipped with a Bruker SMART 1000 CCD instrument and low temperature device. The instrument is also capable of powder X-ray experiments. Most data collections involve use of a molybdenum X-ray source, though copper radiation is also available. The facility is run by a full-time staff crystallographer.

Equipment available for synthesis and characterization includes a differential scanning calorimeter, thermal gravimetric analyzer, surface area/pore structure analyzer, viscometer, polarimeter, programmable temperature-controlled crystal growth facilities, metal vapor reactors, inert atmosphere boxes, an ozone generator, and a high pressure reactor.

Biochemical equipment includes centrifuges, a thermocycler, gel electrophoresis equipment, and a water purification system.

Computational facilities include multiple IBM PowerPC and IBM RS6000 workstations, a Dell Precision 410 with dual processor, a DEC AlphaServer, and Silicon Graphics 10000, Indy, and O2 workstations, and numerous Pentium PCs. Chemistry researchers can also obtain access to a multiprocessor Convex facility housed in the Physics department. Molecular modeling, simulation, and electronic structure software include Insight II, Sybyl, Spartan, Cerius2, GAUSSIAN 98, CRYSTALL 92, GSTAT, and the Cambridge Structural Database.

The Department also has a well-stocked chemical storeroom, electronics and machine shops (staffed with full-time personnel), and a professional master glassblower.

Programs of study and group structure

The Department of Chemistry offers programs leading to the M.S. and Ph.D. degrees specializing in analytical, biological, inorganic, materials, organic, and physical chemistry. The department faculty and research programs are operated through six overlapping "groups". Each "group" has faculty and adjunct faculty who work together to coordinate a "group" graduate program involving graduate courses, seminar programs and a cumulative examination system.

Entering students are administered diagnostic exams in each of the traditional areas of chemistry (analytical, inorganic, organic, and physical) designed to assess their preparations for graduate studies. Outstanding students are encouraged to take advanced standing exams that allow

certain required course work to be bypassed. A minimum grade of C must be obtained in all courses in order to earn credit and a minimum overall grade point average of 3.0 (out of a possible 4.0) is necessary. Original research is the most important part of the graduate program, and selection of a research director is made during the first semester in residence in order to allow students to start work on their research projects at an early date.

Ph.D. degree

A program of study must be selected from a "group program" that will include at least 20 hours of graduate course work, which may include courses from all areas of chemistry, and must include at least 16 hours of graduate course work in Chemistry. A total of 90 semester hours is required, including at least 50 hours of research for students entering with a bachelor's degree and 36 hours for students entering with a master's degree.

The preliminary exam for the Ph.D. degree consists of a series of written cumulative exams on topics within the student's area of specialization and an oral research proposition examination that the student must prepare and defend before his or her supervisory committee. Completion of the Ph.D. degree requires the submission of a written dissertation and its oral defense before one's supervisory committee.

Group Programs

There are six programs of graduate course work that can be followed for the Ph.D. degree:

- Analytical Group Program
- Biological Group Program
- Inorganic Group Program
- Materials Group Program
- Organic Group Program
- Physical Group Program

The program of study is different in each program, but has the following common features:

Departmental Requirements:
Two credit hours of common course work are required for all group programs.

Credit Seminar Programs:
Two credit hours of credit seminar are required together with attendance at a seminar program throughout the entire program of study. Students register for 0 credit hours in the seminar course when the seminar program is not taken for credit.

Group Programs:

- Substantive Group Courses: A number of credit hours are required in course work specific to a particular group.
- Other Chemistry Department Courses: A number of credit hours are required in chemistry department courses.
- Additional Courses: A number of credit hours may be required that may be taken from chemistry department courses and sometimes from courses offered in other departments.

Cumulative Examinations:

- There are separate cumulative examinations in the Analytical, Inorganic, Materials, Organic and Physical groups.

Department Requirements (2 credit hours)
Every student in the Chemistry Department is required to take the following one credit hour courses:

CHM 601	Safe Chemical Laboratory Practices
CHM 700	Practicum in Teaching Chemistry

Credit Seminar Programs (2 credit hours)
All students in the Chemistry Department are required to attend the appropriate group seminar program every semester (registering for 0 or 1 credit hour), and to register for a total of 2 credit hours during their Ph.D. program. When the seminar program is taken for credit, the student will be evaluated on a 50 minute seminar.

Analytical Group Program - **CHM 901** Graduate Seminar in Analytical Chemistry

Biological Group Program - one from **CHM 901, CHM 902, CHM 903, CHM 904**

Inorganic Group Program - **CHM 902** Graduate Seminar in Inorganic Chemistry

Materials Group Program - one from **CHM 901, CHM 902, CHM 903, CHM 904**

Organic Group Program - **CHM 903** Graduate Seminar in Organic Chemistry

Physical Group Program - **CHM 904** Graduate Seminar in Physical Chemistry

Group Programs (16 credit hours)

Analytical Group Program
Substantive Group Courses: **9 credit hours** required consisting of at least **three** 3-credit-hour analytical group courses that can be chosen from the following courses:

CHM 920	Analytical Separations
CHM 937	Applications of Surface Science to Chemistry
CHM 940	Chemical Microscopy
CHM 944	Electroanalytical Chemistry
CHM 947	Applied Molecular Spectroscopy

Other Chemistry Department Courses: **3 to 6 credit hours** are required consisting of *one or two* 3-credit-hour courses chosen from the following courses:

CHM 711	Inorganic Chemistry I
CHM 712	Inorganic Chemistry II
CHM 752	Advanced Organic Chemistry
CHM 801	Chemical Thermodynamics
CHM 820	Materials Chemistry
CHM 854	Theoretical Chemistry I
CHM 856	Chemical Kinetics
CHM 862	Organic Spectroscopy
CHM 929	Physical Methods in Inorganic Chemistry
CHM 954	Theoretical Chemistry II
CHM 965	Physical Organic Chemistry

Additional Courses: **The remaining 1 to 4 credit hours** may be taken from the two previous lists **or** from:

Any science or engineering courses at the 600 level or higher in any department other than Chemistry in the colleges of Arts and Sciences, Agriculture, Human Ecology, or Engineering.

CHM 600	Scientific Glassblowing
CHM 650	History of Chemistry
CHM 657	Inorganic Techniques
CHM 800	Chemistry in Outer Space and in the Laboratory
CHM 930	Homogeneous Catalysis

Biological Group Program
Students must meet the group requirement by completing one of the other group programs (Analytical, Inorganic, Materials, Organic or Physical). In addition, students in the biological group may select additional courses offered either inside or outside the Department of Chemistry. A list of possible courses that students may choose to take that are offered outside the department include the following:

BIOCH 755	Biochemistry I (3 credits)
BIOCH 765	Biochemistry II (3 credits)
BIOCH 790	Physical Biochemistry (3 credits)
BIOL 855	Molecular Biology of Cellular Membranes (3 credits)
BIOL 860	Molecular and Cellular Biology (3 credits)

Inorganic Group Program
Substantive Group Courses: **9 credit hours** required consisting of the following courses:

CHM 711	Inorganic Chemistry I
CHM 712	Inorganic Chemistry II
CHM 929	Physical Methods in Inorganic Chemistry

Other Chemistry Department Courses: **3 to 6 credit hours** from the following courses:

CHM 752	Advanced Organic Chemistry
CHM 801	Chemical Thermodynamics
CHM 820	Materials Chemistry
CHM 854	Theoretical Chemistry I
CHM 856	Chemical Kinetics
CHM 862	Organic Spectroscopy
CHM 920	Analytical Separations
CHM 935	Topics in Inorganic Chemistry
CHM 937	Applications of Surface Science to Chemistry
CHM 940	Chemical Microscopy
CHM 944	Electroanalytical Chemistry
CHM 947	Applied Molecular Spectroscopy
CHM 954	Theoretical Chemistry II
CHM 965	Physical Organic Chemistry

Additional Courses: **The remaining 1 to 4 credit hours** may be taken from the two previous lists **or** from:

Any science or engineering courses at the 500 level or higher in any department other than Chemistry in the colleges of Arts and Sciences, Agriculture, Human Ecology, or Engineering.

CHM 600	Scientific Glassblowing
CHM 650	History of Chemistry
CHM 657	Inorganic Techniques
CHM 800	Chemistry in Outer Space and in the Laboratory
CHM 930	Homogeneous Catalysis

Materials Group Program

Substantive Group Courses: **3 credit hours** required consisting of the following course:

CHM 820	Materials Chemistry

Other Chemistry Department Courses: **9 to 12 credit hours** from the following courses:

CHM 711	Inorganic Chemistry I
CHM 712	Inorganic Chemistry II
CHM 752	Advanced Organic Chemistry
CHM 801	Chemical Thermodynamics
CHM 854	Theoretical Chemistry I
CHM 856	Chemical Kinetics
CHM 862	Organic Spectroscopy
CHM 920	Analytical Separations
CHM 929	Physical Methods in Inorganic Chemistry
CHM 935	Topics in Inorganic Chemistry (which can be up to **three** different courses: *Nanostructured Materials* or *Supramolecular Chemistry* or *Metal-Ligand Multiple Bonds*
CHM 937	Applications of Surface Science to Chemistry
CHM 940	Chemical Microscopy
CHM 944	Electroanalytical Chemistry
CHM 947	Applied Molecular Spectroscopy
CHM 954	Theoretical Chemistry II
CHM 965	Physical Organic Chemistry

Additional Courses: **The remaining 1 to 4 credit hours** may be taken from the two previous lists **or** from:

Any Science or Engineering courses at the 500 level or higher in any department other than chemistry in the College of Arts and Sciences, Agriculture, Human Ecology, or Engineering. Special consideration should be given to the following courses:

PHYS 655	Physics of Solids (3 credits)
CHM 600	Scientific Glassblowing
CHM 650	History of Chemistry
CHM 657	Inorganic Techniques
CHM 800	Chemistry in Outer Space and in the Laboratory

CHM 930 Homogeneous Catalysis

Organic Group Program
Substantive Group Courses: **13 credit hours** required consisting of the following courses:

CHM 752 Advanced Organic Chemistry (3 credits)
CHM 860 Synthetic Organic Chemistry (4 credits)
CHM 862 Organic Spectorscopy (3 credits)
CHM 965 Physical Organic Chemistry I (3 credits)

Other Chemistry Department Courses: **0 to 3 credit hours** from any Chemistry Department courses with numbers above 710 excluding seminar courses.

Additional Courses: **0 to 3 credit** from any science or engineering courses at the 500 level or higher in any department other than Chemistry in the colleges of Arts and Sciences, Agriculture, Human Ecology, or Engineering.

Physical Group Program
Substantive Group Courses: **3 credit hours** consisting of the following course:

CHM 854 Theoretical Chemistry I

And **3 credit hours** from the following list of courses:

CHM 801 Chemical Thermodynamics
CHM 856 Chemical Kinetics
CHM 937 Applications of Surface Science to Chemistry
CHM 947 Applied Molecular Spectroscopy
CHM 950 Chemical Statistical Mechanics
CHM 954 Theoretical Chemistry II
CHM 965 Physical Organic Chemistry

Other Chemistry Department Courses: **6 credit hours** from any Chemistry Department courses with numbers above 710 excluding seminar courses.

Additional Courses: **The remaining 4 credit hours** may be taken from the two previous lists **or** from:

Any Science or Engineering courses at the 600 level or higher in any department other than chemistry in the College of Arts and Sciences, Agriculture, Human Ecology, or Engineering.

CHM 600 Scientific Glassblowing
CHM 650 History of Chemistry
CHM 657 Inorganic Techniques
CHM 800 Chemistry in Outer Space and in the Laboratory
CHM 930 Homogeneous Catalysis

M.S. degree

A minimum of 30 semester hours of graduate credit is required for this degree program, of which no less than 22 hours will be earned in course work. The program of study for the master's degree will normally include up to 15 hours in the student's major area of study, 6 to 12 hours in related areas, and one hour of graduate seminar. At least two semester hours of credit must be earned at the 700 level or higher in each of three of the following groups: analytical, inorganic, organic, physical, materials, and biological. A master's thesis that is based on 6 to 8 semester hours of original research must also be defended before one's supervisory committee.

Group Programs (up to 15 credit hours):

Analytical Group Program
CHM 920 Analytical Separation
CHM 937 Application of Surface Science to Chemistry
CHM 940 Chemical Microscopy
CHM 944 Electroanalytical Chemistry
CHM 947 Applied Molecular Spectroscopy

Inorganic Group Program
CHM 711 Inorganic Chemistry I
CHM 712 Inorganic Chemistry II
CHM 929 Physical Methods in Inorganic Chemistry

CHM 930 Homogeneous Catalysis

CHM 935 Topics in Inorganic Chemistry

Materials Group Program
CHM 820 Materials Chemistry

Organic Group Program
CHM 752 Advanced Organic Chemistry
CHM 860 Synthetic Organic Chemistry
CHM 862 Organic Spectroscopy
CHM 965 Physical Organic Chemistry

Physical Group Program
CHM 801 Chemical Thermodynamics
CHM 854 Theoretical Chemistry I
CHM 856 Chemical Kinetics
CHM 937 Applications of Surface Science to Chemistry
CHM 947 Applied Molecular Spectroscopy
CHM 950 Chemical Statistical Mechanics
CHM 954 Theoretical Chemistry II
CHM 955 Selected Topics in Physical Chemistry

Biological Group Program
Any 700 level or higher Biochemistry course

Admission to advanced degree programs

Undergraduate transcripts are required as are letters of recommendation from persons familiar with your chemistry background. Applicants are strongly encouraged to take the GRE, including both the general test and the subject test in chemistry. Students considering graduate work at Kansas State are encouraged to visit the department, to meet with members of the faculty and with other students, and to observe our facilities and educational environment.

We welcome applications from well-qualified international students. Two requirements must be satisfied in order to demonstrate proficiency in English: a score of 550 or higher on the TOEFL and a score of 50 or higher on the TSE. International applicants must also submit the results of the Graduate Record Examinations, including the chemistry subject test.

Financial support

Most graduate students are supported for the duration of their studies by various teaching assistantships, research assistantships, and fellowships. Incoming students are generally awarded teaching assistantships; summer support also is provided if performance in course work and teaching duties during the academic year is satisfactory. Students with excellent undergraduate credentials frequently receive supplemental departmental fellowships and are considered for graduate fellowships on a university-wide competitive basis. Outstanding graduate students are recognized annually through teaching and research awards.

General chemistry courses

Undergraduate and graduate credit in minor field

CHM 599. Senior Thesis Research. (1-3) I, II, S. A final written report and oral presentation are required. Pr. Consent of instructor

Undergraduate and graduate credit

Unless otherwise stated, all chemistry courses numbers 600 or above require the following as minimum prerequisites: CHM 550 Organic Chemistry II; CHM 532 Organic Chemistry Laboratory; CHM 595 Physical Chemistry II; and CHM 598 Physical Chemistry II Laboratory.

CHM 600. Scientific Glassblowing. (1) II. The basic techniques of bending, sealing, and blowing glass used to fabricate scientific glassware. Three hours of laboratory including one lecture demonstration a week. Pr.: Senior or graduate standing in physical sciences.

CHM 601. Safe Chemical Laboratory Practices. (1) I. A general safety course for persons working or teaching in a chemical laboratory. One hour of lecture per week. Pr.: Consent of instructor.

CHM 700. Practicum in Teaching Chemistry. (1) I. Principles and methods of instruction in laboratories and recitation classes in chemistry, including one semester of supervised experience as an instructor in a chemical laboratory. This is a required course of all teaching assistants in the Department of Chemistry. May be taken only once for credit. Pr.: Senior standing in chemistry or consent of instructor.

CHM 766. Case Studies in Green Chemistry. (2) I. This is an interdisciplinary course that looks at concepts and issues in green chemistry by examining case studies in which polluting processes have been transformed to reduce their environmental impact. Focus will be on understanding the chemistry involved and the green principles that have been applied. Two hours lecture/discussion per week. Pr.: CHM 350 or 531, or graduate standing in chemistry or chemical engineering, or by consent of instructor.

CHM 777. Practical NMR Spectroscopy. (1) II. Fundamental aspects of 1D and 2D nuclear magnetic resonance (NMR) spectroscopy, as applied to the Chemistry Department's Varian 200- and 400-MHz spectrometers. Pr.: Senior or graduate standing in the physical sciences, or by consent of the instructor.

CHM 799. Problems in Chemistry. (Var.) I, II. S. Problems may include classroom or laboratory work. Not for thesis research. Pr.: Consent of instructor.

Graduate credit

CHM 899. Research in Chemistry. (Var.) I, II, S. Research in analytical chemistry, inorganic chemistry, organic chemistry, and physical chemistry for the M.S. degree.

CHM 999. Research in Chemistry. (Var.) I, II, S. Research in analytical chemistry, inorganic chemistry, organic chemistry, and physical chemistry for the Ph.D. degree.

Analytical chemistry courses

Undergraduate and graduate credit in minor field

CHM 545. Chemical Separations. (2) II. Principles of modern separation techniques. One hour. lec. and three hours lab a week. Pr.: CHM 250 or 371, CHM 532 and CHM 550.

CHM 566. Instrumental Methods of Analysis. (3) I. Introduction to theory and practice of electrochemical methods, molecular and atomic spectroscopy, surface science, mass spectrometry, separation methods, and electronics in analytical chemistry. Three hours lec. a week. Pr.: CHM 250 or 371; CHM 531; and CHM 500 or CHM 585.

Graduate credit

CHM 901. Graduate Seminar in Analytical Chemistry. (0-1) I, II, S.

CHM 920. Analytical Separations. (3) II. The theory, instrumentation, and application of classical and modern separation techniques are covered in this lecture course. Pr.: CHM 566 and CHM 595.

CHM 937. Applications of Surface Science to Chemistry. (3) II, in even years. Chemical bonding in the solid state. Surface science and related techniques as applied to chemical problems. Special topics including data analysis and corrosion studies.

CHM 940. Chemical Microscopy. (3) II, in even years. The theory, instrumentation and applications of modern microscopic methods are covered in this lecture course. Emphasis is given to the study of chemically-important phenomena in material systems.

CHM 944. Electroanalytical Chemistry. (2-3) II, in odd years. Theory and applications of electrochemical methods: chronoamperometry, chronopotentiometry, cyclic voltammetry, coulometry, polarography, potentiometry, and instrumentation.

CHM 947. Applied Molecular Spectroscopy. (3) II, in odd-numbered years. Experimental, and theoretical methods associated with ultraviolet and visible absorption, fluorescence, Raman scattering, and nonlinear optical spectroscopies. Pr.: CHM 854.

Inorganic chemistry courses

Undergraduate and graduate credit

CHM 650. History of Chemistry. (2) II, in even years. Traces the beginnings of chemistry from 3500 B.C. to 1920 A.D. Early metallurgy, Greek thought about atoms, alchemy, atomic theory, discovery of gases; definition of elements, chemical bonds, organic, inorganic, and physical chemistry. Pr.: CHM 230 or CHM 250.

CHM 657. Inorganic Techniques. (1-2) I. The preparation, characterization, and study of transition metal, main group, and organometallic compounds using techniques commonly encountered in industrial and academic research. One hour lecture and three hours lab a week. Pr.: CHM 585

CHM 711. Inorganic Chemistry I. (3) I. Atomic and molecular structure, bonding concepts used in the practice of inorganic chemistry. Applications of symmetry and group theory to structure, bonding, and spectra. Three hours lec. a week. Pr.: CHM 550, 595.

CHM 712. Inorganic Chemistry II. (3) II. Structure, reactivity, and mechanistic aspects of main group and transition metal complexes. Organometallic reactions, catalysis, and bioinorganic chemistry. Three hours lec. a week. Pr.: CHM 550, 595.

Graduate credit

CHM 800. Chemistry in Outer Space and in the Laboratory. (2) II, in odd years. The generation of reactive atoms and molecules in outer space and in the laboratory is covered, as well as their chemical reactions and spectroscopy. Extreme conditions of high and low temperatures, synthesis using atoms, nanoscale particles of inorganic materials, and matrix isolation are discussed. Pr.: CHM 712.

CHM 902. Graduate Seminar in Inorganic Chemistry. (0-1) I, II, S.

CHM 929. Physical Methods in Inorganic Chemistry. (3) II. Theory and application of infrared, Raman, visible, ultraviolet, NMR, ESR, NQR, Mossbauer, and mass spectrometry to inorganic chemistry. Three hours lec. a week. Pr.: CHM 711.

CHM 930. Homogeneous Catalysis. (2) II, in even years. The study of industrially important and synthetically useful catalysis of organic reactions by soluble metal complexes. Two hours lec. a week. Pr.: CHM 712 or consent of instructor.

CHM 935. Selected Topics in Inorganic Chemistry. (1-3) I, II. A lecture course in inorganic chemistry in areas of specialization of the faculty, with emphasis on current developments. Specific topics will be changed from semester to semester, so a student may take the course for credit more than once. Pr.: Consent of instructor.

Materials chemistry courses

Graduate credit

CHM 820. Materials Chemistry. (3) II. Concepts of materials chemistry developed from an understanding of the chemical composition and structure of materials, and their relationship to the properties of matter. Students will be introduced to the structures and composition of materials and the diverse range of materials, including metals, metal clusters, semiconductors, nanomaterials, supramolecular materials, sol-gel materials, liquid crystals, glasses, polymers and composites. Pr.: Consent of instructor.

Organic chemistry courses

Undergraduate and graduate credit in minor field

CHM 531. Organic Chemistry I. (3) I, II. Topics to be covered include fundamental concepts in organic chemistry such as hybridization, molecular orbitals, structure and bonding, acids and bases, kinetics and thermodynmaics, stereochemistry and chirality, and conformational analysis. The basic knowledge will be used to study the syntheses, reactions, and mechanisms of functional groups such as alkanes, haloalkanes, and alkenes. Structural determination using infrared spectroscopy and nuclear magnetic resonance will also be included. Three hours lec. a week. Pr.: CHM 230 or 250.

CHM 532. Organic Chemistry Laboratory. (2) I, II. One five-hour lab and one hour of lec. a week. Pr.: CHM 550 or conc. enrollment.

CHM 550. Organic Chemistry II. (3) I, II. A continuation of Organic Chmistry I (CHM 531). CHM 550 represents the second semester of a two-semester survey of organic chemistry. Topics to be discussed include syntheses, reactions, and mechanisms of alkynes, aldehydes and ketones, carboxylic acids and thier derivatives, amines, benzene and its derivates, organometallic chemistry, conjugated unsaturated systems and pericyclic reactions, polymers, carbohydrates, lipids, amino acids, proteins, and nucleic acids. Structural identification will be studied using various spectroscopic methods. Three hours lec. a week. Pr.: CHM 531.

CHM 551. Advanced Organic Laboratory. (2) I, II. One five-hour lab and one hour of lec. a week. Pr.: CHM 550 and CHM 532.

Undergraduate and graduate credit

CHM 752. Advanced Organic Chemistry. (3). I. Advanced study of organic compounds and fundamental types of reactions. Three hours lec. a week. Pr.: CHM 532, CHM 550 and CHM 595.

Graduate credit

CHM 860. Synthetic Organic Chemistry. (4) II. Conditions, scope, and applications of reactions useful in synthetic organic chemistry. Four hours lec. a week.

CHM 862. Organic Spectroscopy. (3) I. The principles of IR, UV-VIS, mass, and NMR spectroscopies applied to the problem of structure determination. Three hours lec. a week.

CHM 903. Graduate Seminar in Organic Chemistry. (0-1) I, II, S.

CHM 965. Physical Organic Chemistry. (3) II. Principles of orbital symmetry, thermochemistry, kinetics, and other topics applied to the understanding of reaction mechanisms. Three hours lec. a week.

CHM 970. Selected Topics in Organic Chemistry. (1-3) On sufficient demand. A lecture course in organic chemistry in areas of specialization of the faculty, with emphasis on current developments. Specific topics will be changed from semester to semester, so a student may take the

course for credit more than once.

Physical chemistry courses

Undergraduate and graduate credit in minor field

CHM 500. General Physical Chemistry. (3) II. Elementary principles of physical chemistry. Three hours lec. a week. Pr.: CHM 230 or CHM 250 and MATH 210 or MATH 220, and PHYS 114 or equivalent.

CHM 585. Physical Chemistry I. (3) I. Elementary chemical thermodynamics and kinetic theory of gases. Three hours lec. a week. Pr.: CHM 350 or CHM 531, MATH 222, and PHYS 214.

CHM 595. Physical Chemistry II. (3) II. Elementary quantum chemistry, spectroscopy, statistical thermodynamics, and chemical kinetics. Three hours lec. a week. Pr.: CHM 350 or CHM 531, MATH 222, and PHYS 214.

CHM 596. Physical Methods Laboratory. (1-2) II. Experiments that relate to physical and instrumental methods. Three to six hours lab a week. Pr.: CHM 566 and MATH 221 and PHYS 114 or PHYS 214.

Graduate credit

CHM 801. Chemical Thermodynamics. (3) II, in alternate years. The laws, principles, and methods of thermodynamics and their applications to chemical systems. Statistical-molecular approach emphasized. Three hours lec. a week.

CHM 854. Theoretical Chemistry I. (3) I. Introduction to quantum mechanics and atomic and molecular spectroscopy. Three hours lec. a week.

CHM 856. Chemical Kinetics. (3) I, in alternate years. Survey of experimental and theoretical aspects of dynamics of chemical reactions. Three hours lec. a week. Pr.: CHM 801 or CHM 854.

CHM 904. Graduate Seminar in Physical Chemistry. (0-1) I, II, S. Presentation of topics from literature in physical chemistry.

CHM 950. Chemical Statistical Mechanics. (3) I, in alternate years. Application of classical and quantum statistical mechanics to chemical phenomena. Three hours lec. a week. Pr.: CHM 801, 854.

CHM 954. Theoretical Chemistry II. (3) II. Quantum theory of atomic and molecular structure. Three hours lec. a week. Pr.: CHM 854.

CHM 955. Selected Topics in Physical Chemistry. (1-3) On sufficient demand. A lecture course in physical chemistry in areas of specialization of the faculty, with emphasis on current developments. Specific topics will be changed from semester to semester, so a student may take the course for credit more than once. Pr.: CHM 854.

For more information

For additional information and application materials please contact:
Graduate Admissions Committee
Kansas State University
Department of Chemistry
111 Willard Hall
Manhattan, KS 66506-3701
785-532-6665
Home Page: http://www.ksu.edu/chem

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Head:
Virgil Wallentine

Director of graduate studies:
Gurdip Singh

Graduate faculty:

Torben Amtoft, Ph.D., University of Aarhus.

Daniel Andresen, Ph.D., U. of California, Santa Barbara.

Anindya Banerjee, Ph.D., Kansas State University.

Myron Calhoun, Emeritus, Ph.D., Arizona State University.

Doina Caragea, Ph.D., Iowa State University.

Scott A. DeLoach, Ph.D., Air Force Institute of Technology.

David Gustafson, Ph.D., University of Wisconsin-Madison.

William Hankley, Ph.D., Ohio State University.

John Hatcliff, Ph.D., Kansas State University.

Rodney Howell, Ph.D., University of Texas-Austin.

William Hsu, Ph.D., University of Illinois at Urbana-Champaign.

Masaaki Mizuno, Ph.D., Iowa State University.

Mitchell Neilsen, Ph.D., Kansas State University.

Xinming (Simon) Ou, Ph.D., Priceton University.

Robby, Ph.D., Kansas State University.

David Schmidt, Ph.D., Kansas State University.

Gurdip Singh, Ph.D., State University of New York-Stony Brook.

Allen Stoughton, Ph.D., Edinburgh University.

Elizabeth Unger, Ph.D., University of Kansas.

Maarten Van Swaay, Emeritus, Ph.D., Princeton.

Virgil Wallentine, Ph.D., Iowa State University.

Maria Zamfir-Bleyberg, Emeritus, Ph.D., University of California-Los Angeles.

The Department of Computing and Information Sciences offers courses of study leading to the master of science, master of software engineering, and doctor of philosophy degrees. As of spring 2003, the department consisted of 17 graduate faculty members, 105 M.S. students, 65 M.S.E. students, and 19 Ph.D. students.

Current faculty research projects are funded by the National Science Foundation, Office of Naval Research, U.S. Air Force, AT&T, U.S. Department of Agriculture, Lucent Technologies, and DARPA.

Objectives

The department is committed to excellence in scholarly activities and research; interdepartmental and interuniversity collaborative projects are particularly emphasized. Key research areas include programming languages, distributed and real-time systems, databases, software engineering,

graphics and visualization, and artificial intelligence.

Research groups

Programming languages research in the department concentrates upon techniques and tools for designing, analyzing, and implementing programming languages. Specific topics include abstract interpretation, algebraic semantics, compiler synthesis from denotational semantics definitions, full abstraction, lambda definability, type theory, probabilistic semantics, concurrency theory, and model checking.

Research performed by the distributed and real-time systems research group broadly falls under the following categories: distributed programming structures and models, fault-tolerance, concurrency control, distributed network protocols and algorithms, distributed and parallel discrete event simulation, parallel programming and synchronization, and real-time systems. In each category, issues in formal modeling, specification and verification, computational complexity, and implementation are investigated. Formal modeling provides the theoretical basis for the analysis of distributed systems; specification and verification validates the correctness of distributed programming primitives and communication protocols. Computational complexity investigates the feasibility of proposed designs and implementation allows building of prototype systems that encapsulate newly designed primitives, abstractions, and protocols.

Database research in the department focuses on basic theoretical and practical issues in mainstream database systems, as well as on issues lying at the border of databases and knowledge and data engineering (KDE). Topics include database and knowledge base design, database security and integrity, static and dynamic integrity constraints, extensible database management systems, temporal and active databases, data warehousing, online analytical processing (OLAP), data cleansing, data mining, knowledge discovery in databases (KDD), and information visualization.

The department's artificial intelligence (AI) research focuses on knowledge representation for reasoning and planning under uncertainty, machine learning for knowledge discovery and data mining, intelligent information retrieval, web and clickstream mining, expert systems, and intelligent control systems, also known as real-time intelligent systems. Methodologies range over inductive, analytical, and multistrategy learning and include research programs in artificial neural networks, genetic and evolutionary computation, and probabilistic learning and inference. Application areas include decision support; human-computer intelligent interaction (HCII); industrial, commercial and defense automation; autonomous robotics; and multi-agent systems.

Computer graphics and visualization research in the department focuses on high-performance photorealistic rendering and animation and on information visualization. The department visualization laboratory is dedicated to implementation projects on these topics, and the curriculum emphasizes human-computer intelligent interaction, virtual environments, intelligent multimedia, and software for visualization and image analysis (machine vision) and synthesis.

The department's software engineering research encompasses measures, specification, testing and analysis of sequential and concurrent software systems. Software measures research applies measurement theory to the development of practical software measures and specification methodologies. Software specification research uses formal approaches for describing the intended behavior of complex systems. Testing and analysis research involves development and evaluation of approaches for validation and verification of software. Research that spans these areas is ongoing and ranges from theoretical developments, through construction of toolsets that enable application of research results, to empirical evaluation of software engineering techniques.

The robotics laboratory supports research into software engineering approaches to building robust autonomous robotics software, including multi-agent solutions. Teams from the lab have placed first, second, and third in the annual AAAI Robotics competitions.

In addition to research projects in mainstream areas of computing, the department actively seeks to synthesize the knowledge of computing specialists with that of engineers and scientists in a wide spectrum of academic disciplines. Such interaction will stimulate interdisciplinary knowledge production and contribute to the solution of "grand challenges" in such subject areas as general computing, robotics, simulation, manufacturing, computational mathematics, computational biology, computational physics, and computational chemistry.

Research facilities

The department maintains a large network of servers and workstations connected to Internet and Internet2. The servers include Sun servers running Solaris, Windows based PC servers, and a Beowulf cluster system consisting of 8 dual and 4 quad Intel processors running Linux. The department also has an 80 processor NCR Teradata database server with 1.6 terabytes of online storage. The workstations include Sun systems running Solaris and PCs running Windows and Linux. Many software packages are available including CASE tools, embedded system and robotics system development environments, and database systems.

Additional campus-wide computer facilities are provided by the university's Computing and Network Services organization and the college of Engineering, including Sun servers and PC based workstations throughout campus.

Master of science degree

The M.S. degree requires a minimum of 30 credit hours of graduate level course work. The degree program can take one of three forms: a report option requiring 30 hours including 2 credit hours of report and 1 credit hour of seminar; a thesis option requiring 30 hours including 6 credit hours of research; and a non-thesis/report option requiring 33 hours of computer science classes. An oral presentation is required for each option and original research is required for the thesis option.

Course work must include a course from each of the following areas:

Languages: CIS 705, 706, 771, or 806

Systems: CIS 720, 721, 725

Structures: CIS 730, 740, or 761

Theory: CIS 770 or 775

Implementation: Every student must successfully complete a significant implementation under the guidance of a faculty member. This will usually be done as a part of CIS 636, CIS 706, CIS 722 or CIS 690. The effort must be certified by a faculty member and the sudent must request this in writing at the beginning of the course.

Specialization: Any course numbered CIS 800 or higher except seminar, projects, and research courses. No course may be used to satisfy more than one requirement.

The student must receive a grade of B or better for all classes assigned by the Graduate Studies Committee and for each course used to satisfy the above requirements.

Master of software engineering degree

The master of software engineering degree (MSE) enables students who have a computer science, computer engineering, or related engineering or science degree to learn software engineering technology and thus be able to specify, design, implement, document, and maintain large software systems in their specialty areas. The discipline of software engineering covers the application of engineering principles to the building of computer software. The field covers the theories, tools and methods for systematic representation, design, verification, development, production, validation, and maintenance of software products including programs, prototypes, documentation, and user interfaces. Software engineering is applicable not only to computer systems software-the techniques of software engineering offer benefits for software developed for all disciplines.

The program of study for the MSE program consists of 33 credits that must include the following:

CIS 740, 748, and 771

One course from CIS 644, 725, 746, and 764

One course from CIS 826, 841, 842, and 864

Two courses from an application area such as: parallel and distributed systems, operating systems and real-time systems, database engineering, knowledge-based systems, artificial intelligence, graphics, or specialty areas from Electrical Engineering, Computer Engineering, Industrial Engineering, Mechanical Engineering, Nuclear Engineering, Chemical Engineering and other areas by special arrangement

CIS 895 (six credits)

Six credits of technical electives (computer science or application area courses).

Each student specializes in an application area and does a project related to that application area. Each student will produce and present a "software portfolio" that contains a collection of documents related to the software development activity.

The student must receive a grade of B or better for all classes assigned by the Graduate Studies Committee and for each course used to satisfy the above requirements.

Doctor of philosophy

The Ph.D. degree requirements include 90 semester hours of graduate-level credit. All work must be completed within seven years.

General requirements include: take and pass a preliminary examination; write a research proposal about the dissertation research; and write and successfully defend the dissertation in an open forum.

Course work requirements include:

24 hours of course credit at Kansas State University beyond the master's degree level

15 hours must be 800 level or above

One or more courses in theoretical or fundamental topics

At least 30 hours of Ph.D. research credits.

Admission

The primary admission requirement for the M.S.E. program is a baccalaureate degree in computer science, computer engineering, or a related engineering or science area, with a grade point average of 3.0 or above (junior/senior years). Applicants with degrees in other areas must have mathematical maturity as demonstrated by courses in logic or discrete mathematics, plus courses in programming, data structures, and algorithms, and either a course or experience in software engineering.

In addition to the requirements for admission to the M.S.E. program, an M.S. applicant's background must include mainstream computing science, namely object-oriented and nonprocedural programming languages, architecture, operating systems, database systems, and computing-related mathematics. An applicant must take the GRE receiving minimum scores of 400 Verbal, 650 Quantitative, and 600 Analytical. The advanced exam in computer science is recommended. International students must take the TOEFL exam and receive a minimum score of 575 (paper based), or 233 (computer based). International students who want to be considered for a graduate teaching assistant (GTA) position must take the TSE exam and receive a minimum score of 50.

In addition to the requirements for admission to the M.S. program, an applicant for the Ph.D. program must have a master's degree in computing science or a bachelor's degree plus strong, advanced computing knowledge. Solid preparation in theoretical computer science and advanced knowledge in one or more applications areas (compiling, operating systems, database systems, etc.) are also required.

Computing and information science courses

CIS 501. Software Architecture and Design. (3) I, II. Principles and patterns for design and structure of software, development of object-oriented models, examples of software architecture. Pr.: CIS 300.

CIS 505. Introduction to Programming Languages. (3) I, II. History, programming language concepts including type, scope and extent, abstraction mechanisms and control; programming paradigms, including one or more of logic, functional, and object-oriented programming, and programming languages supporting the selected paradigms; interpreters, compilers and virtual machines for the selected languages; storage management and garbage collection; type checking and type inference. Pr.: CIS 300, CIS 301.

CIS 520. Operating Systems I. (3) I, II. Operating systems concepts, services, and implementation: interrupt processing, processes, concurrency, deadlocks, resource scheduling and system structure; resource management: real and virtual storage, input/output systems, disk scheduling and file systems; design and construction of concurrent programs. Pr.: CIS 450 or EECE 431; CIS 308, and CIS 501.

CIS 521. Real-Time Programming Laboratory. (3) I. Project-oriented introduction to asynchronous processes and related systems software: device drivers, event-driven operations, hierarchical and time-sliced process scheduling, spooling operations, interjob and intermachine communications. Projects will be built on a single-use environment. Pr.: EECE 241 and CIS 350, conc.: CIS 520.

CIS 522. Introduction to Data Structures. (1) II. Introduction to basic data structures such as stacks, queues, lists, and priority queues, and algorithmic techniques for sorting, searching and hashing. Emphasis on modularity and reuse. Introduction to the concept of object-oriented design and interface specifications. Not available to students with credit for CIS 300. Three hours rec. a week. Course meets in one contiguous block of five weeks. Pr.: C, or C++ programming.

CIS 523. Introduction to Concurrent Programming. (1) II. Introduction to concurrent programming techniques based on message passing primitives (send/receive) and shared memory (semaphore based P/V operations and Monitor based wait/signal operations). Not available to students with credit for CIS 520. Three hours rec. a week. Course meets in one contiguous block of five weeks. Pr.: C, or C++ programming and CIS 300 or CIS 522.

CIS 525. Telecommunications and Data Communication Systems. (3) Basic concepts including OSI 7 layer model, data transmission methods, medium access, link control, connections management; network applications including electronic mail, file transfer, distributed computing, window systems; network management including OSI and Internet management frameworks. Pr.: CIS 300.

CIS 530. Introduction to Artificial Intelligence. (3) I. Fundamental background in intelligent systems for undergraduate students. Intelligent agents, problem-solving, uninformed and informed (heuristic) search, game tree search, foundations of knowledge representation and reasoning using logic and probability, and a first introduction to planning and machine learning. AI topics include the problem areas of natural language processing (NLP) and perception and methodologies such as artificial neural networks and genetic and evolutionary computation. Applications to practical design and development of intelligent systems will be emphasized, leading to individual projects on current topics and applications in AI. Pr.: CIS 301 and 501.

CIS 540. Software Engineering Project I. (3) I. The first semester of a two-semester capstone course. Current practices of software development, requirements, design, prototyping, measures and evaluation. Specification, design, and prototyping of a software system. Not available for credit to students with credit in CIS 543. Pr.: CIS 308 and 501.

CIS 541. Software Engineering Project II. (3) II. Continuation of CIS 540. Final implementation, integration, and testing of a software system. Introduction to configuration management, project management, and software maintenance. Pr.: CIS 540 (which must be taken in the preceding semester).

CIS 543. Software Engineering Design Project. (3) I. Current practices of software development, requirements, design, prototyping, measures and evaluations. Specification, design, and prototpying of a software system. Not available for credit to students with credit in CIS 540. Pr.: CIS 308 and CIS 501.

CIS 544. Advanced Software Design and Development. (3) II, S. Advanced concepts and practicum in object-oriented analysis, modeling, design, implementation, testing, and use of CASE tools; relationships among structural, static, and dynamic models; relationship among conceptual, system, and implementation models. Pr.: CIS 501.

CIS 548. Software Management. (3) II, S. Topics related to the management of software, including organization, project planning, process models, life cycle models, TQM, software quality assurance, cost estimation, configuration management. Pr.: CIS 562

CIS 560. Database System Concepts. (3) I, II. Concepts, approaches, and techniques in database management. Representation of information as data, data storage techniques, foundations of logical data models, data retrieval, database design, transaction management, integrity and security. Pr.: CIS 501; CIS 301 or MATH 510.

CIS 562. Enterprise Information Systems. (3) II. Conceptual models for E-Commerce and for business applications, database management systems, relational data model, normal forms, query language, security features, web access and scripting languages, development process and management, issues in management of enterprise information systems. Pr: CIS 501.

CIS 570. Introduction to Formal Language Theory. (3) I. Formal languages, automata, regular expressions, grammars, introduction to computability theory. Reading and writing informal mathematical proofs pertaining to these topics. Pr.: MATH 510 and CIS 505.

CIS 575. Introduction to Algorithm Analysis. (3) II. An introduction to mathematical analysis of time- and space-complexity of algorithms, including worst-case, average-case, and amortized complexity. An examination of various algorithmic designs, such as greedy algorithms, divide-and-conquer algorithms, and dynamic programming algorithms. Techniques for proving correctness of algorithms. Pr.: CIS 300, CIS 301, and MATH 510.

CIS 580. Numerical Computing. (3) I. Introduction to numerical algorithms fundamental to scientific computer work, including elementary discussion of error, roots of equations, interpolation, systems of equations, quadrature, and introduction to methods for solution of ordinary differential equations. Pr.: CIS 300, MATH 221 and MATH 551.

CIS 590. Special Topics in Computer Science. (1-4) On sufficient demand. Selected topics in Computer Science. Pr.: Permission of instructor.

CIS 591. Computer Science Applications. (3) Programming, program libraries, and design of algorithms. For students with minimal background in computer science. Not for credit by CIS majors. Pr.: Graduate standing in student's own area and knowledge of at least one procedural programming language.

CIS 597 Information Systems Project. (3) I, II. Directed studies: selection and completion of a project; may include collaboration with other students; may include design, analysis, and implementation. Completion of a plan, two progress reviews, and a final report with literature review and project evaluation. Pr: CIS 562 and senior standing in Information Systems.

CIS 598 Computer Science Project. (3) I, II. Directed studies: selection, investigation and report on some topic not covered in prior courses; may include an implementation and/or experimentation component; may be done in collaboration with other students. Completion of a plan, two reviews, and a final report with literature review and project evaluation. Pr: CIS 560 and senior standing in Computer Science.

CIS 604. Set Theory and Logic for CS. (3) Informal and axiomatic set theory, propositional and predicate logic, proof techniques. Pr.: Graduate standing.

CIS 621. Real-Time Programming Fundamentals. (1) I. Relationship between C/C++ constructs and corresponding assembly code generated by compilers. Introduction to special techniques used to implement microcontrollers, such as initialization of programmable CPU modules/peripheral devices, techniques to link assembly and C/C++ codes, producing ROM-able code, and EPROM burning/Flash programming. Three hours rec. a week. Course meets in one contiguous block of five weeks. Pr.: C or C++ programming, and CIS 523 and either CIS 300 or CIS 522.

CIS 622. Real-Time Operating Systems. (1) I. Basic real-time operating systems concepts and services; interrupt processing; process and thread models; real-time software architectures and development environments. Detailed study of design and implementation of real-time applications using real-time operating systems. Three hours recitation per week. Course meet in one contiguous block of five weeks. Pr.: CIS 621.

CIS 625. Concurrent Software Systems. (3) I. Architecture, design, modeling, implementation, and verification of concurrent, parallel, and distributed software; aspects such as real-time programming, parallel simulation; fault-tolerant programming; grid computing, embedded systems control. Pr.: CIS 501.

CIS 635. Introduction to Computer-Based Knowledge Systems. (3) I. Introduction to the applications of artificial intelligence concepts to solving knowledge-dependent tasks. Review of knowledge-representation ideas. Survey of expert system design. Introduction to existing knowledge-based tools available on personal computers. Development of an intelligent system. Pr.: CIS 300.

CIS 636. Introduction to Computer Graphics. (3) I, II. Devices and software for graphics display and user interaction, development of software for direct graphic manipulation applications. Pr.: CIS 300.

CIS 638. Multimedia Systems. (3) II. Introduction to computer graphics devices, user interaction; history and scope; multimedia structure, encoding methods and standards, mark-up and scripting languages, software tools, and applications; readings in current literature; class

presentation; multimedia project. Pr.: CIS 300, senior standing.

CIS 640. Software Testing Techniques. (3) II. Survey of software testing methodologies; evaluation of software testing strategies; experience in a variety of software testing practices. CIS 501.

CIS 645. Software Development Environments. (3) On sufficient demand. Survey of current development environments and/or an in-depth study of one development environment. Pr.: CIS 501.

CIS 690. Implementation Project. (3) I, II, S. The department will suggest various design or implementation projects for individuals or groups in areas such as translators, interpreters, microprogramming, minicomputer operating systems, graphics, numerical software, etc. Pr.: Junior standing.

CIS 697. Seminar in Computer Science. (1-3) Pr.: Junior standing.

CIS 705. Programming Languages. (3) II. Programming language concepts, including typing, scoping, abstraction and exceptions; programming paradigms, including one or more of logic, functional, object-oriented and concurrent programming, and programming languages supporting the selected paradigms; introduction to programming language semantics; programming language design; development environments. Pr.: CIS 505 and MATH 510.

CIS 706. Translator Design I. (3) I. Compilers and interpreters, including description of languages, finite state scanners. LL(1) parsing, symbol tables, syntax-directed semantics, simple code generation. Constructing a simple compiler. Pr.: CIS 501, and CIS 605.

CIS 710. Computer Simulation Experiments. (3) On sufficient demand. Principles of digital computer simulation; discrete simulation method, statistics of simulations; implementations. Pr.: CIS 300.

CIS 720. Advanced Operating Systems. (3) Process synchronization and communication, distributed programming primitives, transactions and concurrency control, distributed scheduling, distributed storage, deadlock, security. Pr.: CIS 520.

CIS 721. Real-Time Systems. (3) The design of hard real-time embedded systems, including language and operating system support, scheduling, schedulability analysis, fault tolerance, and design tools. Pr.: CIS 520 or both CIS 622 and EECE 633.

CIS 722. Operating System Practices. (3) II. Structure and functions of modern operating systems. Emphasis on reading and modifying the source code of a working operating system. This includes memory management, input/output, process management, file systems, and network interconnection software construction. Pr.: CIS 520.

CIS 725. Advanced Computer Networks. (3) Network algorithms: routing and congestion control; protocol engineering: protocol decomposition, specification and verification, synthesis; protocols for high speed networks, parallel implementations, light-weight protocols. Pr.: CIS 520, and CIS 525.

CIS 726. Advanced World Wide Web Technologies. (3) II. An advanced course on the technologies that make up the World Wide Web. WWW site designs and analysis, WWW software architecture, server-side technologies, dynamic executable scheduling, digital libraries, WWW security. Pr.: CIS 520, CIS 525.

CIS 730. Principles of Artificial Intelligence. (3) II. Introduction to the fundamental concepts and techniques of AI: problem solving, search and planning, knowledge representation and qualitative reasoning, expert systems, natural language processing and cognitive modeling, computer vision, and machine learning. Pr.: CIS 501.

CIS 732. Machine Learning and Pattern Recognition. (3) I. Theory and methodology of inductive learning, including decision trees, artificial neural networks, probabilistic and instance-based learning, and inductive logic programming; unsupervised and reinforcement learning, bagging and boosting; genetic algorithms and genetic programming; and applications to data mining. Pr.: CIS 501 or CIS 575.

CIS 736. Computer Graphics. (3) Topics in computer representation and display of images and graphic interaction. Pr.: CIS 308.

CIS 740. Software Engineering. (3) Software life cycle, equirements, specifications, design, validation, measures, and maintenance. Pr.: CIS 540.

CIS 744. Advanced Software Analysis and Design. (3) II, S. Advanced concepts and practicum in object-oriented analysis, modeling, design, implementation, testing, and use of CASE tools; relationships among structural, static, and dynamic models; relationship among conceptual, system, and implementation models. Pr. CIS 540.

CIS 746. Software Measurement. (3) Measurement theory; development, validation and use of software measures; software measures in the lifecycle, including cost estimation, design measures, software complexity and software reliability. PR.: CIS 540.

CIS 748. Advanced Software Management. (3) II, S. Topics related to the management of software, including organization, project planning, process models, life cycle models, TQM, software quality assurance, cost estimation, configuration management. Pr.: CIS 740.

CIS 750. Advanced Computer Architecture Experiments. (3) On sufficient demand. Characteristics of various computers including those with execution support of multiprocessing, multiprogramming, microprogrammable, highlevel language, stack processing, and communication architectures. Two hours lecture and three hours lab a week. Pr.: CIS 450.

CIS 751. Computer and Information Security. (3) I. A comprehensive coverage of computer and information security. Basic cryptography, access control, authentication, authorization, network security, software security, and social aspects of security. The lectures discuss when and where things can go wrong and how design flaws in a system can be exploited to compromise security. Common attack techniques are introduced, and students have the opportunity to work on course projects that cover both the defense and offense aspects in cyber space. Pr.: CIS 450 or 520.

CIS 761. Data Base Management Systems. (3) Data models and languages, hierarchical, network, relational systems; implementational and operational requirements; programming projects using data base management systems. Pr.: CIS 560, CIS 604.

CIS 762. Office Automation. (3) Characteristics of information work; modeling systems for characterizing aspects of office environment; form-based systems; office automation and description languages, ergonomics, local area networks and tools used in the automation of offices. Pr.: CIS 525, 560.

CIS 764. Database Design. (3) On sufficient demand. Conceptual, logical, physical, and user interface design for database management systems. Pr.: CIS 501.

CIS 770. Formal Language Theory. (3) Regular languages, finite automata, context-free languages, pushdown automata, context-sensitive languages, linear bounded automata, recursively enumerable languages, Turing machines. Pr.: CIS 570.

CIS 771. Software Specification. (3) Formal logic or specification of software components; algebraic vs. model-based specifications; common abstract types; verification of properties of specifications; introduction to specification of concurrent systems. Pr.: CIS 301.

CIS 775. Analysis of Algorithms. (3) I. Study and application of techniques and procedures used in the analysis of algorithms including the worst and average cases of both time and space. Study of the P and NP classes. Pr.: CIS 575.

CIS 798. Topics in Computer Science. (Var.) Pr.: Prerequisite varies with the announced topic.

CIS 801. Translator Design II. (3) On sufficient demand. LR parsing, storage allocation, code generation, data flow optimization, compiler generators. Pr.: CIS 706.

CIS 806. Semantics of Programming Languages. (3) Introduction of formal semantics description methods for programming languages; comparison of operational, denotational, algebraic, and axiomatic methods; analysis of relationship of formal semantics definitions to computer implementation. Pr.: CIS 771.

CIS 810. Logic Programming. (3) Selected topics; constraint logic programming, deductive databases, concurrent logic programming, object-oriented logic programming, mathematical theory of logic programming specification and transformation of logic programs. Pr.: Knowledge of Prolog.

CIS 820. Topics in Theory of Asynchronous Systems. (3) Safety and liveness properties, synchronous and asynchronous message passing systems, virtual circuit and datagram communication, process failure, concepts of composition and superimposition, temporal logic, reachability analysis, theory of concurrency control, atomic commitment, replica control. Pr.: CIS 720.

CIS 825. Topics in Distributed Systems. (3) Models of distributed computation, events and global states, failure semantics, communication abstractions, synchronization in distributed programs; distributed algorithms: election, termination and deadlock detection, broadcast programming and algorithms. Pr.: CIS 720; or CIS 725 and permission of the instructor.

CIS 826. Protocol Engineering. (3) Basic concepts of protocol design, specification languages and formal description techniques, safety and liveness properties, protocol validation, protocol synthesis, protocol translation and conformance testing. Pr.: CIS 725.

CIS 830. Current Topics in Artificial Intelligence. (3) Advanced techniques and new ideas in artificial intelligence. Includes applications and case studies of artificial intelligence in action. Pr.: CIS 730.

CIS 841. Verification and Validation. (3) Practical techniques for verifying and validating software including formal verification, software testing, reliability measurement and modeling. Pr.: CIS 740.

CIS 842. Specification and Verification of Reactive Systems. (3) Review of formal specification languages; architecture of concurrent and reactive systems; specification methods including: Z, Petri nets, temporal logic, state transition models; development and evaluation of system specifications; verification structures including layered systems, serialization, and predicate automata. Pr.: CIS 771.

CIS 844. Agent-Oriented Software Engineering. (3) II. Analysis, design, and implementation of large, complex, distributed, and adaptive software systems using agent-oriented paradigm. Will survey various modeling languages and agent-oriented methodologies. Pr.: CIS 730, CIS 740.

CIS 860. Advanced Database Systems. (3) Advanced topics in database and intelligent information systems. Possible topics include active, temporal, object-oriented, and multimedia databases, warehousing and data mining. Pr.: CIS 761 or CIS 764.

CIS 864. Data Engineering. (3) Advanced topics in database design and maintenance including performance monitoring, query optimization and tuning in centralized and distributed data systems. Pr.: CIS 761 or 764.

CIS 870. Theory of Computability. (3) Formal models for computability; universal programs; Church's thesis; unsolvable problems and reducibilities; partial recursive functions; recursive and recursively enumerable sets; s-m-n theorem and the recursion theorem. Pr.: CIS 770.

CIS 890. Special Topics in Computer Science. (2-4) Topics of the current state-of-the-art of computer science. Pr.: Prerequisite varies with the announced topic.

CIS 895. MSE Project. (Var.) This course takes the student through the process of developing a project. This process typically takes more than one semester to complete. Includes reviews and walkthroughs of the requirements, design, and implementation. Pr.: CIS 740, CIS 748, CIS 771, and three additional credits toward the MSE degree.

CIS 897. Seminar in Computer Science. (1) I,II,S. Introduction to computing as a discipline; the relationship of computing to other disciplines; the interaction of computing and ethics; the development of a written and oral research proposal. Pr.: full graduate standing in CIS (CR/NCR only)

CIS 898. Master's Report in CIS. (1-3) I,II,S.

CIS 899. Research in Computer Science. (1-6) Pr.: CIS 897.

CIS 901. Topics in Translator Design. (3) Topics involving incremental, extensible, conversational compilers; program development systems, portability and validation of compilers; compiler generators. Pr.: CIS 801.

CIS 905. Theory of Programming Languages. (3) Formal definition languages; operational and formal semantic models; equivalence of semantic models; formal properties of programming languages. Pr.: CIS 806.

CIS 920. Research Topics in Distributed Systems. (3) Topics on current state-of-the-art research in distributed systems. Pr.: Permission of the instructor.

CIS 926. Computation Structures. (3) Petri nets, flowgraph schemata, dataflow models, relationships between abstract computational models and hardware models and programming languages. Pr.: CIS 771.

CIS 930. Expert Systems. (3) Advanced theory and techniques in the development of expert systems. Focuses on knowledge acquisition and knowledge organization used in expert systems. Includes design, implementation, and evaluation of an expert system. Pr.: CIS 830.

CIS 940. Research Topics in Software Engineering. (3) Research on one of the topics in CIS 840. May be repeated for credit. Pr.: CIS 840.

CIS 960. Theory of Data Base Systems. (3) Advanced topics in data base systems including distributed data bases, integrity, security, normalization, data base machines, performance models, query languages. Pr.: CIS 840.

CIS 990. Research Topics. (2-3) Study of current topics in computer science. Pr.: Permission of the instructor.

CIS 999. Research in Computer Science. (Var.)

For more information

For additional information and application materials please contact:
Graduate Admissions Secretary
Kansas State University
Department of Computing and Information Sciences
234 Nichols Hall
Manhattan, KS 66506-2302

E-mail: office@cis.ksu.edu
Home Page: http://www.cis.ksu.edu/

Course Descriptions

The following course description key explains the system used for courses listed throughout the catalog.

Sample course description

ECON 710. History of Economic Thought. (3) I. Development of economic ideas and doctrines and the relation of these to conditions existing when they were formulated. Pr: ECON 110.

The letters *ECON* denote the department in which the course is offered (in this case, Economics).

The three digits of the course number *810* represent the level of the course.

Level numbers:

000-099 Not applicable toward degree requirements.

100-299 Lower division undergraduate. Designed as freshman or sophomore course.

300-499 Upper division undergraduate. Designed as junior or senior course.

500-699 Upper division undergraduate. Primarily for a junior or senior. A 500 level course may be taken for graduate credit only in a minor field. A course numbered 600 may be taken for credit in a graduate student's major.

700-799 Graduate and upper division, primarily for graduate level.

800-899 Graduate level for master's course or professional course beyond the undergraduate level.

900-999 Graduate level, primarily for doctoral candidate.

The number in parenthesis *(3)* following the course title indicates the units of credit given for the course. Each credit unit usually represents one 50-minute period of lecture or recitation each week of the semester.

The *I, II, S,* and/or *intersession* following the course title indicate the semester, or semesters, each course is usually offered:

- I stands for fall semester
- II for spring
- S for summer school
- intersession for the term between semesters

The abbreviation *Pr.* indicates prerequisites for the course. In the sample course, students would be required to have completed ECON 110 before enrolling for ECON 810. Some courses may allow or require concurrent enrollment in other courses This is indicated by the abbreviation *Conc.*

Clinical Sciences

About the department | Veterinary Medical Teaching Hospital |
Requirements for admission | Application for admisssion |
General requirements | Courses | More information

Interim Head:
Bonnie Rush

Chair of graduate committee:
Lisa Freeman

Graduate faculty:

David Anderson, DVM, North Carolina State University; MS, Kansas State University.

Michael D. Apley, DVM, PhD, Kansas State University.

Laura J. Armbrust, DVM, Kansas State University.

Mary Bagladi-Swanson, DVM, Kansas State University.

Laurie A. Beard, DVM, Washington State University; MS, The Ohio State University.

Warren L. Beard, DVM, Texas A&M University; MS, The Ohio State University.

David Biller, DVM, Auburn University.

Michele Borgarelli, Ph.D., University of Torino, Italy.

Janine L. Brown, (Adjunct) PhD, MS, Washington State University.

James Carpenter, DVM, MS, Oklahoma State University.

Johann (Hans) Coetzee, BVSc, University of Pretoria; Ph.D, Iowa State University.

James Coffman, DVM, MS, Oklahoma State University.

Deborah Davenport, (Adjunct) DVM, Auburn University; MS, Ohio State University.

Elizabeth G. Davis, DVM, University of Florida; Ph.D, Kansas State Univesity.

Shane F. DeWitt, DVM, University of Prince Edward Island.

Maria Soledad Ferrer, DVM, University of Buenos Aires, Argentina.

Roger Fingland, DVM, University of Missouri-Columbia; MS, Ohio State University; MBA, Baker University.

Ronette Gehring, BVSc., MMedVet, University of Pretoria.

Gregory Grauer, DVM, Iowa State University; MS, Colorado State University.

Harriett Davidson Graves, DVM, MS, Michigan State University.

Kenneth Harkin, DVM, Iowa State University.

Meredyth Jones, DVM, Oklahoma State University.

Shelie Laflin, DVM, Kansas State University.

Robert L. Larson, DVM, Ph.D, Kansas State University.

James Lillich, DVM, Colorado State University; MS, Ohio State University.

Guy H. Loneragan, (Adjunct) Ph.D, Colorado State University; MS, Ohio State University.

Marco L. Margiocco, DMV, University of Pisa, Italy.

Diane Mason, DVM, MS, Ohio State University; PhD, Kansas State University.

Dudley McCaw, DVM, University of Illinois.

Rose McMurphy, DVM, Washington State University.

Robert T. O'Brien, DVM, Ohio State University; MS, University of Cincinnati

Amy J. Rankin, DVM, Univesity of Wisconsin.

David C. Rankin, MS, Washington State University.

Walter Renberg, DVM, Oklahoma State University; MS, Virginia Polytechnic Institute and State University.

Daniel Richardson, (Adjunct) DVM, BS, Kansas State University.

James Roush, DVM, Purdue University; MS, University of Wisconsin-Madison.

Bonnie Rush, DVM, MS, Ohio State University.

Michael Sanderson, DVM, Colorado State University; MS, Washington State University.

Thomas Schermerhorn, VMD, University of Pennsylvania.

Daniel U. Thomson, DVM, Iowa State University; PhD, Texas Tech University; MS, South Dakota State University

Brad J. White, DVM, University of Missouri-Columbia; MS, Mississippi State University.

Ancillary Graduate Faculty Members:

Steve Dritz, DVM, Universityof Minnesota; PhD, Kansas State University.

About the department

The Department of Clinical Sciences offers a graduate program leading to the Master of Science (Veterinary Biomedical Science) degree. Graduate work in clinical sciences may be pursued in several fields of specialization including agricultural practice, anesthesiology, equine medicine and surgery, oncology, exotic and wildlife medicine, ophthalmology, radiology, small animal medicine, small animal surgery, and theriogenology. The department, along with the Veterinary Medical Teaching Hospital, has modern facilities and equipment for both basic and applied studies.

The primary goal of graduate study programs in clinical medicine is to prepare students for careers in teaching and research in a clinical specialty area. After completing graduate work, the student will be better prepared to conduct research both independently and as a team member. Adequate training in planning research projects and writing research proposals will give the student the ability to function with teams of scientists from the biomedical field. The student's experience in clinical teaching and literature study will form the basis for development of future teaching programs within his or her discipline.

A residency program designed to prepare and qualify a veterinarian for specialty boards recognized by the AVMA is usually combined with the graduate program. While a graduate program can be accomplished in a shorter period of time, the duration of combined programs is usually three years. This reflects the minimum time required to satisfy the objectives of each program. Details of an individual residency program can be obtained from the Director of KSU, Veterinary Medical Teaching Hospital. An individually tailored graduate program concurrent with professional veterinary school or for non-DVM applicants can be arranged on an individual basis.

Veterinary Medical Teaching Hospital

The KSU-Veterinary Medical Teaching Hospital (KSU-VMTH) is equipped for diagnosis and treatment of animal disease and for instruction of veterinary students, house officers, and postgraduate veterinarians.

The hospital has a capacity of 82 large animal patients and 150 small animal patients. Clinical faculty accompanied by students provide clinical veterinary service to clients in the local community, for clients of referring veterinarians from an eight-state region, and on local and regional farms and ranches. In addition to caring for sick animals, they provide preventative medical services and consultation on production medicine and management. KSU-VMTH provides full veterinary service for clients and referring veterinarians from Kansas, Nebraska, Missouri and Oklahoma and some educational programs are conducted in conjunction with the University of Nebraska Veterinary Educational Center at Clay Center, Nebraska.

Fourth-year students are active participants in the hospital and clinical services. Students are regularly assigned on a rotation basis during the year to various specialists on the clinical and pathology staffs.

The department presents courses in medicine, surgery, oncology, dermatalogy, exotics, cardiology, ophthalmology, theriogenology, and other clinical specialties to veterinary students and post-DVM trainees.

Admission Requirements

Admission requirements include holding a doctor of veterinary medicine degree or its equivalent. Applicants for graduate study must have a minimum grade average of B. Applicants currently enrolled in the professional veterinary curriculum or those holding a baccalaureate degree will be considered on an individual basis.

A student who has less than a B average, based on individual merit, may be admitted on probationary status. Full standing is attained automatically upon completion of at least 9 hours of course work for graduate credit with grade of B or better and upon the removal of any deficiency which was specified at the time of admission. International students must have a health certificate and an acceptable score on the Test of English as a Foreign Language (TOEFL).

Additionally, international students must be able to demonstrate proficiency in written and oral English to the Departmental Graduate Committee. Qualifications of students must be approved, in writing, by the Departmental Graduate Committee prior to recommending acceptance in to graduate studies to the department head.

A graduate student may be denied continued enrollment in the university in case of:

a. Failure to satisfy conditions necessary for removal of probationary status.

b. The accumulation of 6 or more semester hours of work with grades less than B, or grade point average less than 3.0.

c. Demonstrable lack of diligence in meeting published degree requirements.

d. Failure to acquire mastery of the methodology and content of one's field sufficient to complete a successful thesis.

Application for admission

Department-sponsored postgraduate residencies normally start each year in June and are advertised in the American Association of Veterinary Clinicians Directory of Intern Matching Program and Residencies. Three letters of recommendations, AAVC application, undergraduate and professional transcripts, letter of interest, and a completed Graduate School Application and Information Blank should be filed with the department head for consideration by the Graduate Committee.

General requirements

Participation in the teaching program is considered to be part of graduate education. The extent of the participation will be to a level that is deemed of value for each particular student. A certain amount of advanced clinical training is required of graduate students. This will usually be conducted in the KSU Veterinary Medical Teaching Hospital.

Clinical science and professional veterinary medicine courses

- *Courses 700-799 are offered for the doctor of veterinary medicine degree only.*
- *Courses 800-849 are offered for the doctor of veterinary medicine degree and graduate credit with permission of instructor.*
- *Courses 850-900 are given for graduate credit only with permission of the instructor.*

For a listing of all courses, see the Department of Clinical Sciences.

Doctor of veterinary medicine degree only

CS 709. Medicine I. (4) II. Consideration of medical and pathophysiologic aspects of diseases affecting the musculoskeletal, respiratory, cardiovascular special senses, nervous hemic and lymphatic systems. Four hours lec. a week. Pr.: Second-year standing in the College of Veterinary Medicine.

CS 710. Medicine III. (4) II. A study of the etiology, clinical signs, diagnosis, treatment, and control of infectious or contagious diseases which affect horses. Four hours lecture a week. Pr.: CS 709 and CS 711.

CS 711. Medicine II. (4) I. Consideration of the medical and pathophysiological aspects of diseases affecting the gastrointestinal, endocrine, urinary, and integumentary systems. Four hours lec. a week. Pr.: Third-year standing in the College of Veterinary Medicine.

CS 712. Food Animal Medicine. (4) I. A study of the etiology clinical signs, diagnosis, treatment and control of diseases which affect cattle, swine, and sheep. Four hours lec. a week. Pr.: Third-year standing in the College of Veterinary Medicine.

CS 713. Production Medicine. (2) II. The role of the veterinarian in livestock production units, including interactions with producers, nutritionists, investors and others in decision analysis. Emphasis is on the professional service that veterinarians provide to beef feedlot, cow/calf, swine, dairy, equine, and dog kennel segments of animal production. Pr.: Third-year standing in the College of Veterinary Medicine.

CS 714. Clinical Nutrition. (3) II. The clinical aspects of nutrition as it relates to (a) medical and surgical management of diseased and convalescent animals (therapeutic nutrition), and (b) programs of disease prevention of the common domestic species of food-producing, companion animals, pet birds, and exotic animals (nutritional preventative medicine). Same as ASI 886 and AP 886. Pr.: Third-year standing in the

College of Veterinary Medicine.

CS 715. Radiology. (3) II. The theory and principles of x-rays, production and interpretation of radiographs and exposure factors, special radiographic methods, film storage and handling, processing, safety measures, and biologic effects of radiation. Two hours lec. a week. Pr.: Second-year standing in the College of Veterinary Medicine.

CS 720. Supplemental Equine Theriogenolgy. (1) I. An in-depth exposure to methods of maximizing reproductive efficiency in the mare and the stallion. Advanced equine reproductive physiology, diagnostics, and therapeutics are emphasized. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 723. Core Food Animal Rotation. (1) S. Each student enrolled in the D.V.M. degree curriculum will be required to complete a one week rotation at the Great Plains Veterinary Educational Center (GPVEC) on the Meat Animal Research Center (MARC) near Clay Center, Nebraska, during the summer semester between the first and second years of the curriculum.

CS 724. Veterinary Diagnostic Imaging I. (3) I, II, S. Radiographic, ultrasonographic and nuclear imaging in the clinical setting, with emphasis on making/identifying images of diagnostic quality, interpretation, indications for imaging, and radiation safety. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 725. Clinical Anesthesia. (3) I, II, S. Practical instruction in the skills and techniques used in the practice of clinical veterinary anesthesia of both large and small animals. May be repeated once. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 726. Clinical Externship and/or Programmed Study. (1-3) I, II, S. Provides the professional student with the opportunity to study with specialists not available at Kansas State University or in unique areas of veterinary medical practice or research. Pr.: Fourth-year standing in the College of Veterinary Medicine and the approval of the externship or program of study by the course coordinator.

CS 727. Ophthalmology. (2-3) I, II, S. The study of the surgery and medical diagnosis and treatment of ocular disease in animals in the setting of the veterinary medical center. Problem solving, differential diagnosis, diagnostic procedures and medical and surgical therapy will be emphasized using veterinary patients. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 728. Theriogenology. (3) II. Consideration of prevention, diagnosis, and treatment of disease and maintenance of health and productivity of the genital tract of domestic animals. Three hours lec. a week. Pr.: Third-year standing in College of Veterinary Medicine.

CS 729. Veterinary Surgery I. (5) I. Introduction to the basics of veterinary anesthesia, surgical techniques, and patient management by a systems design. Problems common to all species of domestic animals will be presented to provide foundations of surgical knowledge and experience. Four hours lec. and one hour lab a week. Pr.: Third-year standing in the College of Veterinary Medicine.

CS 730. Veterinary Surgery II. (5) II. A continuation of Veterinary Surgery I. Introduction to the basics of veterinary anesthesia, surgical techniques, and patient management by a systems design. Problems common to all species of domestic animals will be presented to provide foundations of surgical knowledge and experience. Four hours lec. and one lab a week. Pr.: Third-year standing in the College of Veterinary Medicine.

CS 732. Diagnostic Techniques in Equine Medicine. (1) II. This elective course emphasizes the techniques needed for internal medicine. 12 lectures, 3 labs (covering endoscopy, BAL, TTW, V/S, spinal tap, epidural) emphasize skills, indications, and complications. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 736. Pleasure Horse Medicine. (1) S. This course is intended to present topics of interest to equine interested veterinary students. The objectives of the course will focus on diagnosis and clinical management as will be performed in practice. The primary goal of the course is to supplement the equine interested veterinary student with topics that are not offered in the core curriculum, yet will be encountered in an equine or mixed practice setting. The format will use a case and problem-based discussion to present and apply clinically relevant information. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 737. Zoological Medicine. (3) I. Study of the diseases, medicine, and captive management of non-traditional species including: companion birds, reptiles, rabbits, ferrets, and rodents; wildlife and zoo animals. Three hours lecture per week. Pr. Third-year standing in the D.V.M. degree curriculum.

CS 738. Clinical Oncology. (3) I, II, S. The approach to diagnosis and treatment of cancer-bearing patients will be emphasized. Skills to master include fine needle aspirates and basic cytology, biopsy techniques (punch, wedge, pinch and tru-cut), bone marrow aspirate and core biopsy procedures and chemotherapy administration. A greater depth of understanding of the biologic behavior and treatment options of commonly seen tumor types (lymphoma, mast cell tumors, hemangiosarcoma, osteosarcoma, etc.) and chemotherapy safety will be emphasized. Medical management of cancer-related problems as well as treatment of therapy-induced side effects will also be covered. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 739. Dermatology/Medicine. (2) I, II, S. Designed to emphasize dermatology diagnostic work-up and management of dermatologic cases. May include proper techniques for performing procedures such as skin scraping, bacterial and fungal culturing, performing cytology, obtaining skin biopsies, ear clearing and trichography. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 740. Small Animal Emergency Medicine. (1) II. Introduction to the fundamentals of small animal (canine and feline) emergency medicine via a systems approach, including triage, transfusion medicine, and cardiopulmonary resuscitation. Pr.: Third year standing in the College of

Veterinary Medicine.

CS 741. Veterinary Practice Management. (1) I, II. This course provides a foundation in business management and marketing to prepare veterinary students for success in private veterinary practice. Lectures include personal marketing, business organizational structure, gauging and monitoring production, management practice finance, recruitment, personnel management, effective practice marketing (internal and external), achieving better client satisfaction and retention, and the road to practice ownership. Pr.: Third year standing in the College of Veterinary Medicine or consent of instructor.

CS 742. Clinical Skills. (1) II. Demonstration, instruction and experience in physical examination and diagnostic skills necessary for routine veterinary practice. Pr.: Third-year standing in the College of Veterinary Medicine. Three hours lab a week.

CS 743. Grand Rounds I. (1) II. An introduction into veterinary medical problem identification and solving. Emphasis will be on integration of normal anatomy and physiology knowledge and identification of abnormal findings. Pr.: First-year standing in the College of Veterinary Medicine.

CS 744. Grand Rounds II. (1) II. An introduction into veterinary medical problem identification and solving. Emphasis will be on history and physical examination, diagnostic data interpretation and designing a therapeutic plan. Pr.: Second-year standing in the College of Veterinary Medicine.

CS 745. Grand Rounds III. (1) II. Integration of veterinary medical problem identification and solving. The emphasis will be on creation of a rule out list, development of diagnostic plan, data interpretion, medical and surgical treatments and patient follow-up care. Pr.: Third-year standing in the College of Veterinary Medicine.

CS 746. Clinical Equine Theriogenology. (3) II, S. Students will participate in the daily activities of the College's equine theriogenology practice both in-house and in the field. Routine procedures will provide an opportunity for students to develop their skills in handling horses, rectal examinations, ultrasonography, stallion semen collection, evaluation, artificial insemination, uterine therapies and minor surgical procedures. Postpartum and neonatal foal examinations will be performed. The student will have the opportunity to evaluate reproductive records on a breeding farm and acquaint him/herself with diverse management practices. Pr.: Fourth-year standing in the College of Veterinary Medicine or DVM Degree.

CS 747. Systems Integration of Small Animal Internal Medicine. (2) II. Elective course in small animal internal medicine. This course will provide in-depth learning of complex issues regarding case management of the canine and feline patient with an integrated systems approach. The course will also introduce controversial and emerging topics in small animal internal medicine. Pr.: CS 709 and CS 711.

CS 748. Food Animal Local Practice. (3) I, II, S. A study of the role of the veterinarian in the practice of clinical medicine in livestock production units. Students will work under faculty supervision in ambulatory and local practice settings. One week may be taken at GPVEC in an offered elective. If the student desires an additional week at GPVEC, the student must also enroll in CS 761 for 3 credits. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 749. Food Animal Medicine & Surgery. (3) I, II, S. A study of individual food animal medicine and surgery. Students will work under faculty supervision in an in-house setting. One week may be taken at GPVEC in an offered elective. If the student desires an additional week at GPVEC, the student must enroll in CS 762 for 3 credits. Pr.: Fourth-year standing in College of Veterinary Medicine.

CS 750. Equine Medicine & Field Service. (3) I, II, S. This course will offer general exposure to equine internal medicine, field service, and theriogenology. Students will be responsible for diagnoses, treatment and nursing care of out-patients, in-patients, and emergency duties. CS 750 and CS 751 must be taken without interruption. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 751. Equine Surgery & Field Service. (3) I, II, S. This course will offer general exposure to equine surgery, field service, and theriogenology. Students will be responsible for diagnoses, treatment, and nursing care of out-patients, in-patients, and emergency duties. CS 750 and CS 751 must be taken without interruption. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 752. Small Animal Internal Medicine. (3) I, II, S. The study of internal medicine in the setting of the Veterinary Medical Teaching Hospital. Students will be engaged in the diagnosis and management of complex cases referred to the internal medicine service. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 753. Small Animal General Medicine. (3) I, II, S. The study of preventative medicine, general practice medicine, and specialty medicine. Students spend three weeks with the Pet Health Center learning the various aspects of outpatient services. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 754. Clinical Small Animal Soft Tissue Surgery. (3) I, II, S. This course is designed to train senior or elective veterinary students in the diagnosis and treatment of small animal soft tissue and general surgical diseases through participation in the Small Animal Soft Tissue Service of the Veterinary Medical Teaching Hospital. Pr.: Fourth-year standing in the KSU College of Veterinary Medicine.

CS 755. Clinical Small Animal Orthopedic Surgery. (3) I, II, S. This course is designed to train senior or elective veterinary students in the diagnosis and treatment of small animal orthopedic surgical diseases though participation in the Small Animal Orthopedic Service of the Veterinary Medical Teaching Hospital. Pr.: Fourth-year standing in the KSU College of Veterinary Medicine.

CS 756. Comparative Cardiology. (3) I, II, S. The cardiology rotation is designed to expose senior veterinary students to the cardiovascular system of domestic animals, emphasizing clinical management and understanding of common congenital and acquired cardiac diseases. At the end

of the rotation students should be able to perform and evaluate electrocardiograms, interpret thoracic radiographs and be familiar with the various echocardiographic modalities: M-mode, two dimensional, color flow and spectral Dopplar imaging. Students will be able to successfully treat mitral insufficiency, dilated cardiomyopathy, hypertrophic cardiomyopathy, systematic hypertension and heartworm disease. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 757. Equine Lameness I. (1) II. Lameness examination and diagnosis and the first half of a review of specific lameness processes will be presented. 12 lectures, 3 labs. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 758. Equine Lameness II. (1) II. A continuation of Equine Lameness I. This course will complete the review of the most common lameness problems in horses. 12 lectures, 3 labs. Pr.: CS 757.

CS 760. Topics in Global Veterinary Medicine. (1) II. An overview of the role of veterinarians around the world. Topics include international uses and attitudes about animals, problems the world faces pertaining to livestock production, and social tensions. One hour lecture each week. Pr.: 2nd or 3rd-year standing in the College of Veterinary Medicine.

CS 761. Supplemental Food Animal Local Practice. (3) I, II, S. A study of beef cattle herd health and production. Students will be exposed to advanced training for beef cattle practice. Areas of focus will be herd level reproduction, nutrition, infectious disease epidemiology, economics, and data analysis. Two weeks may be taken at GPVEC in an offered elective. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 762. Supplemental Food Animal Medicine & Surgery. (3) I, II, S. Additional studies of individual food animal medicine and surgery. Students will work under faculty supervision in an in-house setting. Two weeks may be taken at GPVEC in an offered elective. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 763. Laboratory Animal Medicine. (3) I, II S. The study of laboratory animal medicine or comparative medicine to include colony health monitoring, preventive medicine, surgery, investigator support, and regulatory oversight. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 764. Beef Cattle Breeding Evaluation. (1) I, II. Female breeding soundness and pregnancy detection in beef cattle through rectal palpation with and without ultrasound technology. Some discussions of infectious diseases that impair reproduction. 3-hour lab each week. Pr.: Third-year standing in the College of Veterinary Medicine.

CS 765. Advanced Food Animal Practice. (3) I. Advanced food animal medicine, surgery, reproduction, and herd health in an integrated format. Students are placed into a practice setting where individual food animal practice is placed in context with production medicine / herd health activities. Field trips and problem-solving exercises applying concepts of production analysis, disease prevention and feedlot management. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 766. Food Animal (Mixed) Practice Mentorship. (1) I, II, S. Structured one week (45 contact hrs) mentorship in a large animal (bovine) practice designed to promote clinical skills training in a private practice setting with practitioners who have completed orientation training and have expressed an interest in training and mentoring veterinary students. To be completed during the first 3 years of veterinary school, prior to entering the 4th year.

CS 767. Small Animal Practice Mentorship. (1) I, II, S. Structured one week (45 contact hrs) mentorship in a small animal practice designed to promote clinical skills training in a private practice setting with practitioners who have completed orientation training and have expressed an interest in training and mentoring veterinary students. To be completed during the first 3 years of veterinary school, prior to entering the 4th year.

CS 768. Non-Traditional Practice Mentorship. (1) I, II, S. Structured one week (45 contact hrs) mentorship in a nontraditional veterinary setting designed to promote skills training and awareness of nontraditional or exclusive practice experiences in a private or public practice setting with veterinarians who have completed orientation training and have expressed an interest in training and mentoring veterinary students. To be completed during the first 3 years of veterinary school, prior to entering the 4th year.

Doctor of veterinary medicine degree and graduate credit with permission of instructor

CS 800. Problems in Medicine or Surgery. (1-9) I, II, S. The course provides for the study of medical or surgical problems. The student, in conference with the major professor, outlines the methodology and procedures, conducts the study, and prepares a detailed report. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 802. Supplemental Clinical Small Animal Soft Tissue Surgery. (3) I, II, S. Additional training in the diagnosis and treatment of small animal soft tissue and general surgical diseases through participation in the Small Animal Soft Tissue Service of the Veterinary Medical Teaching Hospital. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 803. Supplemental Small Animal Internal Medicine. (3) I, II, S. Additional topics in internal medicine. The student may be required to participate in a special problem with a written or oral report. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 806. Supplemental Equine Studies. (3) I, II, S. An opportunity for students to pursue additional equine clinical studies (medicine, surgery, theriogenology, and/or field service) in depth and assume substantial responsibility for care of hospitalized cases. Students will present a seminar on a medicine or surgical subspecialty and pursue a special problem. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 812. Production Medicine of Small Ruminants. (1) II. Lectures and other exercises emphasizing production medicine of small ruminants. Pr.: Third or Fourth-year standing in the College of Veterinary Medicine.

CS 813. Beef Production Medicine. (1) I. A study of the development, initiation, maintenance and monitoring of production-oriented health management delivery systems in beef cattle operations. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 814. Veterinary Diagnostic Imaging II. (3) I, II, S. Students will receive advance training in radiologic interpretation and alternate imaging procedures. Emphasis will be on didactic and hands-on training in ultrasound imaging. Pr.: CS 724.

CS 818. Supplemental Clinical Small Animal Orthopedic Surgery. (3) I, II, S. Additional training in the diagnosis and treatment of small animal orthopedic surgical diseases through participation in the Small Animal Orthopedic Service of the Veterinary Medical Teaching hospital. Pr.: Fourth-year standing in the KSU College of Veterinary Medicine.

CS 821. Vet Medicine for South American Camelids. (1) II. The health concerns of South American Camelids are presented in terms of medicine, surgery, theriogenology, and associated disciplines. Pr.: Third- or fourth-year standing in the College of Veterinary Medicine, DVM degree.

CS 822. Exotic, Wildlife, and Zoo Animal Medicine. (3) I, II, S. Study of exotic, wildlife, and zoo animal medicine through participation in the clinical service in the Veterinary Medical Teaching Hospital. Problem solving, differential diagnosis, diagnostic procedures, and medical and surgical therapy of nondomestic animals will be emphasized. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 823. Companion Small Animal Medicine. (3) I, II, S. Additional elective studies of preventative medicine, general practice medicine, and specialty medicine. Emphasis on animal behavior, canine theriogenology, and general practice experience. The student may be required to participate in a special problem with a written or oral report. Pr.: Fourth-year standing in the College of Veterinary Medicine.

CS 824. Life-Long Learning Skills for Professional Students. (1) II. Develop basic skills in veterinary students and other professional students to help them assess recent scientific literature and continuing education information and help them choose which information to incorporate into their professional skills and knowledge base. Pr: 3rd year standing in the veterinary curriculum.

Graduate credit only with permission of the instructor

CS 850. Research in Medicine. (1-6) I, II, S. An attempted solution of some of the medical and parasitological problems confronting the practitioner of veterinary medicine. Pr.: Consent of staff.

CS 851. Breeding Diseases. (1-5) I, II, S. Advanced studies of the breeding diseases of domestic animals. Pr.: D.V.M. degree or consent of staff.

CS 852. Interpretation of Radiology Studies of Body Systems. (3) I, in odd years. Advanced discussions of radiologic interpretation, indications and interpretation of alternate imaging procedures (MRI, CT, nuclear medicine, ultrasound). Pr.: DVM degree or consent of department head prior to registration.

CS 854. Systemic Medicine I. (1-3) I, II, S. Study of the medical aspects of diseases of the urinary, nervous, and integumentary systems and special senses. Pr.: DVM degree or consent of department head.

CS 855. Systemic Medicine II. (1-3) I. Study of the medical aspects of diseases of the cardiovascular, respiratory, musculoskeletal and endocrine systems. Pr.: DVM degree or consent of department head.

CS 858. Orthopedic Surgery. (4) II, in even years. Fundamentals, theory, and practice concerning genetic, metabolic, infectious, neoplastic, and traumatic diseases of bones and joints. Pr.: DVM degree or consent of department head.

CS 859. Clinical Sciences Seminar. (1) I, II, S. A required seminar for all house officers and graduate students in the Department of Surgery and Medicine. One hour conference weekly. May re-enroll for total maximum of two credits. Pr.: Consent of department head.

CS 861. Advanced Large Animal Surgery 1. (2) I. In depth review and discussion of current basic surgical science and foundations of sound surgical practices. Pr.: DVM (or equivalent) or permission of course coordinator.

CS 862. Advanced Large Animal Surgery 2. (2) I. Concentrated examination of the pre-operative, surgical and post-operative requirements of soft tissue surgical disease/disorders of large animals. Pr.: DVM (or equivalent) or permission of course coordinator.

CS 863. Advanced Large Animal Surgery 3. (2) I. Concentrated examination of the pre-operative, surgical and post-operative requirements of orthopedic or hard tissue surgical diseases/disorders of large animals. Pr.: DVM (or equivalent) or permission of course coordinator.

CS 867. Advanced Diagnostic Imaging - Small Animal. (1) I. Case presentation/discussion of diagnostic imaging techniques used in small animal veterinary practice, including radiography, ultrasonography, nuclear imaging, magnetic resonance imaging, and computer tomography. Clinical cases will demonstrate imaging methods and technology used in the various body systems, with an emphasis on interpretation and clinical diagnosis. Students may re-enroll for a maximum of three credits. Pr.: DVM degree.

CS 868. Topics in Small Animal Internal Medicine I. (1) I. Various topics in small animal internal medicine will be presented. In-depth discussion of pathophysiology and recent advances in diagnostics and therapeutics. Different topis will be covered in various years at instructor's

discretion. Course may be repeated with approval of instructor. Pr.: DVM degree.

CS 869. Topics in Small Animal Internal Medicine II. (1) II. Various topics in small animal internal medicine will be presented. One topic will be covered in a one-hour conference weekly. In-depth discussion of pathophysiology and recent advances in diagnostics and therapeutics. Course may be repeated with approval of instructor. Pr.: DVM degree.

CS 870. Diagnostic Methods in Feedlot Management. (3) S. Practical experience in feedlot operation and bovine necropsy diagnosis consisting of 40 hours in bovine necropsy and 320 hours of an on-location practicum in a cattle feedlot. Pr.: Successful completion of the first-year professional curriculum in the College of Veterinary Medicine with a cumulative GPA of 3.0 or better and no grade below a C.

CS 871. Fundamentals of Feedlot Health and Management. (3) S. Practical experience in feedlot operational management consisting of 320-400 hours of an on-location practicum in a cattle feeding environment. Pr.: CS 870. Successful completion of the second-year of the professional curriculum in the College of Veterinary Medicine with a cumulative GPA of 3.0 or better and no grade below a C.

CS 872. Small Animal Endoscopy. (1) I. Introduction to the fundamentals of small animal (canine and feline) endoscopy, including respiratory and gastrointestinal endoscopy, laparoscopy and anthroscopy. Thirteen lectures with 2 laboratories will be offered. Offered Fall semester only. Pr.: DVM degree and approval from course coordinator.

CS 873. Advanced Topics in Small Animal Surgery. (Var.) I,II. Current and foundational information on techniques, theory, and management in small animal surgery. Pr.: DVM degree or approval on instructor.

CS 874. Clinical Pharmacokinetics. (2) I. An overview of pharmacokinetics with emphasis on practical implications for the clinician, including bioavailability, bioequivalence, residues in food of animal origin, dosage forms and regimens, therapeutic drug monitoring, drug interactions, interspecies differences, and the effect of disease on the pharmacokinetics of drugs. Two hours lecture a week.

CS 875. Advanced Pharmacokinetics. (3) II. Advanced study of the concepts and practical applications of pharmacokinetics for graduate students of veterinary clinical pharmacology, including the design and conduct of pharmacokinetic studies and the analysis and modeling of pharmacokinetic data. Two hours lecture and two hours practical per week. Pr.: CS 874.

CS 890. Clinical Science Problems. (1-3) I, II, S. Advanced instruction in research topics and technologies, emphasizing various clinical disciplines. Pr.: D.V.M. Degree.

CS 895. Research Methods. (1) I, in odd years. Discussion of research design, grantsmanship, practical statistics, manuscript preparation, and ethics. Pr: DVM degree or consent of department head.

CS 899. Thesis Research in Clinical Sciences. (1-6) I, II, S. Individual research in any of the fields of Clinical Sciences. Pr.: Graduate standing. This work may form the basis of the M.S. thesis.

For more information

For additional information and application materials please contact:
Dr. Lisa Freeman, Associate Dean for Research and Graduate Programs
Office of the Dean
Kansas State University
101 Trotter Hall
Manhattan, KS 66506-5601

Veterinary Medicine Home Page: http://www.vet.ksu.edu/

Graduate Degree Programs

On-campus ([A - D] [E - K] [L - Q] [R - Z]) Graduate Certificates | Distance Learning

Accountancy
Adult and Continuing Education: see (Educational Leadership)
Agribusiness: see Agricultural Economics
Agricultural Economics
Agricultural Technology Management
Agriculture, General
Agronomy
American Ethnic Studies
Anatomy and Physiology
Animal Sciences and Industry
Anthropology: see (Sociology)
Apparel, Textiles, and Interior Design
Architectural Engineering
Architecture
Art
Biochemistry
Biological and Agricultural Engineering
Biology
Business Administration
Chemical Engineering
Chemistry
Civil Engineering
Clinical Sciences
College Student Personnel Work: see (Special Education, Counseling and Student Affairs)
Communications
Communication Sciences and Disorders: see (Family Studies and Human Services)
Community Development: see (Regional and Community Planning)
Computing and Information Sciences
Counseling and Student Development: see (Special Education, Counseling and Student Affairs)
Curriculum and Instruction
Dance: see (Speech Communication, Theatre, and Dance)
Diagnostic Medicine/Pathobiology: see Pathobiology
Early Childhood Education: see (Family Studies and Human Services)
Economics
Education
Educational Leadership
Electrical and Computer Engineering
Elementary Education: see (Curriculum and Instruction)
Engineering
Engineering Management: see Industrial and Manufacturing Systems Engineering
English
Entomology
Environmental Design & Planning
Family Life Education & Consultation: see (Family Studies and Human Services)
Family Studies and Human Services
Finance
Food Science
Foods and Nutrition: see (Human Nutrition)
Food Service and Hospitality Management: see (Hotel, Restaurant, Institution Management and Dietetics)
Genetics
Geography
Geology
Gerontology: see (Family Studies and Human Services)
Graduate School
Grain Science and Industry
History
Horticulture, Forestry and Recreation Resources
Hotel, Restaurant, Institution Management and Dietetics
Human Ecology
Human Nutrition

Industrial and Manufacturing Systems Engineering
Interior Architecture and Product Design
Journalism: see (Mass Communications)
Kinesiology
Landscape Architecture
Life Span Human Development: see (Family Studies and Human Services)
Management
Marketing
Marriage and Family Therapy: see (Family Studies and Human Services)
Mass Communications
Mathematics
Mechanical and Nuclear Engineering
Microbiology: see (Biology)
Modern Languages
Music
Nuclear Engineering: see (Mechanical and Nuclear Engineering)
Operations Research: see (Industrial and Manufacturing Systems Engineering)
Pathobiology
Personal Financial Planning: see (Family Studies and Human Services)
Philosophy
Physics
Plant Pathology
Political Science
Psychology
Public Administration: see (Political Science)
Public Health
Regional and Community Planning
School Counseling: see (Special Education, Counseling and Student Affairs)
Secondary Education: see (Curriculum and Instruction)
Security Studies
Social Work: see (Sociology)
Sociology
Software Engineering: see Computing and Information Sciences
Special Education, Counseling and Student Affairs
Speech Communication, Theatre, and Dance
Statistics
Student Affairs in Higher Education: see (Special Education, Counseling and Student Affairs)
Theatre: see (Speech Communication, Theatre and Dance)
Veterinary Medicine
Women's Studies
Youth Development: see (Family Studies and Human Services)

Graduate Certificate Programs

Academic advising
Air Quality
Applied statistics
Business administration
Classroom technology
Community planning
Complex fluid flows
Conflict resolution
Entomology
Feedlot production management
Food Safety and Defense
Food Science
Geoenvironmental
Geographic information science
Gerontology
International service
Occupational health psychology
Organizational leadership
Personal financial planning
Public administration
Real-time embedded system design
Teaching students with autism spectrum disorders

Technical writing and professional communication
Women's studies
Youth development administration
Youth development professional

Distance Learning
Adult and Continuing Education
Agribusiness
Agronomy
Chemical Engineering
Classroom Technology Specialty in Elementary/Secondary Education
Civil Engineering
Educational Administration
Electrical Engineering
Engineering Management
English as a Second Language Specialty in Elementary/Secondary Education
Food Safety and Defense
Food Science and Industry
Gerontology
Industrial/Organizational Psychology
Mechanical Engineering
Merchandising
Personal Financial Planning
Software Engineering
Youth Development

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Degree Requirements

Master's Degrees | Doctoral Degrees | Student Responsibility | Graduate Certificates | Graduate Credit and Grades | Academic Probation and Dismissal | Providing False Information

Master's Degrees

Subject to the approval of the graduate program, the candidate may choose one of the following program options: (1) a minimum of 30 semester hours of graduate credit including a master's thesis of 6 to 8 semester hours; (2) a minimum of 30 semester hours of graduate credit including a written report of 2 semester hours either of research or of problem work on a topic in the major field; or (3) a minimum of 30 semester hours of graduate credit in course work only, but including evidence of scholarly effort such as term papers or production of creative work, as determined by the student's supervisory committee.

Some programs may require more than 30 credits. For example, candidates for the master of public administration must complete at least 42 hours, the master of regional and community planning degree a minimum of 48 hours, the master of business administration 52 hours, and the master of fine arts 60 hours.

Successful completion of a final oral examination or comprehensive written examination or both shall be required of all master's degree candidates, the specific form being determined by individual programs. The final examination is administered by the supervisory committee and may include a defense of the thesis or report, an interpretation of other scholarly products, or a testing of the student's understanding of the field(s) of study.

Before the end of the second semester of graduate study, the student must file with the Graduate School a "program of study" that serves as a planning document. The student's program of study is prepared with the assistance of a supervisory committee consisting of the major advisor and two other graduate faculty members. The program is subject to the approval of the dean of the Graduate School upon recommendation of the supervisory committee and the appropriate department head or program chair. The program may be modified on further recommendation of the supervisory committee and the approval of the graduate dean.

If a student's program of study includes any course credits more than six years old at the time the student is about to complete all degree requirements, the final master's examination will normally include an examination over the body of course work listed on the program of study. The form and content of this competency examination is determined by each master's program, which may impose additional requirements for revalidating the student's competency in the supporting course work. In a master's program for which such a revalidation examination may be inappropriate, an exception to this policy may be sought from the Dean of the Graduate School.

Three copies of theses and reports are required for submission to the Graduate School. All such reports and theses will be sent by the Graduate School to the Kansas State University Libraries and bound in cloth in accordance with specifications for Class A binding of the Library Binding Institute. A charge to cover the cost of binding will be posted to a student's University account after the Graduate School receives the notice from a student of intention to graduate. If students desire to publish all or part of their theses before the degree is conferred, major professors should notify the Graduate School in advance by letter. If approved by the major professor, master's theses may be placed on file with University Microfilms, which will also publish an abstract in *Master's Abstracts.* Since master's theses and reports are submitted as part of degree requirements, the University retains the right to publish any portion as a contribution to knowledge. Patentable items created under University auspices are subject to the Regents patent policy.

Doctoral Degrees

Normally, students admitted to doctoral study hold the master's degree, but some programs allow highly qualified students to proceed directly from the bachelor's degree to the doctorate. Completing a master's degree at Kansas State University does not automatically lead to admission to doctoral study, and a separate application must be made to the program and approved by the graduate dean for those intending to continue to the doctoral degree.

Award of a doctorate normally requires the successful completion of the equivalent of at least three years of full-time study beyond the baccalaureate, as well as the completion of a major research study reported in a doctoral dissertation. Completion of the program involves more than the accumulation of credit and its duration is variable, because the time required to finish the research study cannot be anticipated with certainty. However, guidelines for the times by which the preliminary and final examinations are to be passed mean that in most cases the program should take no longer than eight years. In completing research and the resulting dissertation, students must adhere to the enrollment requirements described in a later section on registration and enrollment.

During the first year of study, a supervisory committee is formed for each student. The committee consists of at least four members of the graduate faculty, one of whom is the major professor (advisor). One member of the supervisory committee must be a graduate faculty member from outside the major professor's department. In consultation with the major professor, a student selects committee members, subject to the approval of the department head/chair. The committee aids the student in the preparation of the program of study. The Supervisory Committee and the program of study must be approved by the Dean of the Graduate School and should be on file in the Graduate School at least one month before the preliminary examination is taken.

Normally, the student will have met the preliminary examination requirement at the close of the second year of doctoral study and should in all cases have met it within three years of entry into the doctoral program. Successful completion of this requirement is a necessary condition for

admission to doctoral candidacy and must be accomplished at least seven months before the doctoral final examination. The Supervisory Committee is responsible for recommending candidacy to the Graduate School. At this time the graduate dean appoints an outside chairperson. The Supervisory Committee plus the outside chairperson form the Examining Committee for the final examination.

Early in the doctoral work a dissertation subject is chosen in the major field and approved by the Supervisory Committee. The dissertation must represent original investigation that contributes new knowledge or understanding to the candidate's field. On completion of at least three years of graduate study as prescribed by the Supervisory Committee and on completion of a dissertation, the candidate must pass a final examination.

The period of candidacy may last up to five years from the end of the semester in which the preliminary examination was passed. If a student fails to complete both the dissertation and final oral examination within this period, the student may be dropped from candidacy. A student whose candidacy has thus lapsed may regain the status of a doctoral candidate by successfully retaking the preliminary exam.

Failure to maintain continuous enrollment for the fall and spring semesters, from the completion of the preliminary examination until the dissertation is accepted by the Graduate School, also will result in loss of candidacy.

Three final copies of the dissertation with abstracts must be submitted to the dean of the Graduate School as a last requirement to be met for award of the degree. Inasmuch as the dissertation is submitted to the University in satisfaction of degree requirements, the University retains the right to use or publish any portion thereof as a contribution to knowledge. Moreover, patentable items created under University auspices are subject to the Regent's patent policy.

If consistent with departmental policy and Graduate School guidelines, the format of theses and dissertations may be in a style suitable for submission to a professional journal. In such cases, additional introductory material, bibliographies, and other supplementary information not to be submitted with the journal manuscript should be included as appendices.

The three copies of the dissertation will be bound in cloth in accordance with specifications for Class A binding of the Library Binding Institute. A charge to cover the cost of binding will be posted to a student's University account after the Graduate School receives the notice from a student of intention to graduate. Each dissertation is microfilmed and an abstract is published in *Dissertation Abstracts*.

If publication of the dissertation, in whole or in part, is to be made before the degree is conferred, the major professor should notify the Dean of the Graduate School by letter in advance of such publication. Publication of any part of a dissertation should show, through footnote or otherwise, that the material is from a dissertation presented in partial fulfillment of the requirements for a doctoral degree in the subject department at Kansas State University.

Doctor of philosophy

Effective Fall 2001, the Graduate School will no longer have residency requirements. Each graduate program has the option to require residency for a given program.

For the Ph.D. a minimum of 30 hours in research is required, not including work done toward a master's degree. Programs of study must include at least 90 hours.

Any foreign language requirement in a doctoral program is determined by the graduate faculty in that program and they shall establish their own standards. The specific foreign languages for a doctoral candidate are determined by the Supervisory Committee. In all cases where a language is required, it is understood that foreign language refers to languages other than English and that the languages required have a significant body of literature relevant to the field. Doctoral students must meet any foreign language requirements at least seven months prior to the final examination.

Doctor of education

Effective Fall 2001, the Graduate School will no longer have residency requirements. Each graduate program has the option to require residency for a given program.

A total of 94 semester hours must be completed. Up to 30 hours for a master's degree and at least 16 hours of dissertation research may be included as part of the total. See the College of Education section of this catalog for additional requiremends for the Ed.D.

Graduate Certificates

The Graduate School offers certificates of graduate study as a non-degree credential designed to provide students with specialized knowledge that is less extensive than, and different from, a master's program. A certificate program represents a focused collection of courses that, when completed, affords the student some record of coherent academic accomplishment in a given discipline or set of related disciplines.

Some certificate programs are linked to specific graduate degree programs and require initial admission to a master's or doctoral program, and thereby providing an interdisciplinary experience within a defined body of knowledge. It is equally acceptable that the certificate program should be appropriate for students in a range of academic programs.

If a certificate program is free standing (i.e. not linked to a graduate degree program), students are admitted to the Graduate School in a non-degree status.

Admission and general requirements

Students must be approved for admission both by the graduate faculty of the certificate program and by the Graduate School. Entrance requirements for admissions to a certificate program are the same as those for a graduate program.

In most instances, students will apply to a graduate certificate program after they are accepted into a graduate degree program within the Graduate School. After admission to a graduate degree program, the student would then apply for admission to the certificate program, using the Graduate School application form.

Where the graduate certificate program is not linked with a graduate degree program, students should apply for admission, using the Graduate School application form, as a non-degree student in the department offering the certificate. The program coordinator will forward to the Graduate School the recommendation that the student be admitted as a non-degree student. In both instances, students should contact the coordinator of the certificate program for admission information and certificate requirements.

Specific graduate certificate programs include:

- Academic Advising
- Air Quality
- Applied Statistics
- Business Administration
- Classroom Technology
- Community Planning
- Complex Fluid Flows
- Conflict Resolution
- Entomology
- Feedlot Production Management
- Food Safety and Security
- Food Science
- Geoenvironmental
- Geographic Information Science
- Gerontology
- International Service
- Occupational Health Psychology
- Organizational Leadership
- Personal Financial Planning
- Public Administration
- Real-Time Embedded System Design
- Teaching Students with Autism Spectrum Disorders
- Technical Writing and Professional Communication
- Women's Studies
- Youth Development Administration
- Youth Development Professional

Student Responsibility

Graduate students are held responsible for knowing all published academic policies and degree requirements and so should familiarize themselves with information in this Catalog and the *Graduate Handbook*. They are likewise held responsible for knowing the regulations concerning the degree they plan to take and any special requirements within the program or academic unit. In addition, it is the student's responsibility to be informed of the University's policies regarding the standard of work required for continued enrollment in the Graduate School. The Graduate School should be consulted if additional information is needed.

Although it is customary for many graduate students to work continuously throughout the year, especially on thesis and dissertation research, the major professor or certain supervisory committee members may not be available during the summer months. This is especially the case for faculty members on nine-month appointments who may be pursuing other activities off campus during that time. Students should take such possibilities into account in scheduling various examinations and thesis or dissertation reviews.

Graduate Credit and Grades

The course and research requirements for graduate degrees are expressed in terms of graduate credit. Graduate credit may not be earned by examination or by correspondence.

Grades

The following grades are used in the Graduate School: A, B, C, D, F, Credit, No Credit, Incomplete, and Withdrawn. A candidate for an advanced degree must have a 3.0 cumulative grade point average and a 3.0 on course work on the program of study. To count for graduate credit

the grade in a course must be C or better and no course may be counted more than once in a program. Retaken courses remain on the transcript and are considered as part of the record. A graduate student's record will be reviewed after the completion of each session.

The grade of Incomplete (I) is given in regular courses (except for theses, dissertations and directed research courses) upon request of the student for personal emergencies that are verifiable. The faculty member has the responsibility to provide written notification to the student of the work required to remove the incomplete. The student has the responsibility to take the initiative in completing the work and is expected to make up the I during the next semester (Fall or Spring) after receiving the grade (except for dissertations and directed research courses). If the student does not make up the I during the next semester after receiving it, a grade may be given by the faculty member without further consultation with the student.

If after the end of the next semester the I remains on the record, it will be designated as F (previously IX) for record keeping and will be computed in the student's GPA, weighted at 0 points per credit. A grade of NR will be treated in a like manner.

Nongraded work

At the discretion of the graduate faculty of the department concerned, seminars or colloquia, in which letter grading conflicts with the objectives intended, may be offered on a Credit/No Credit or Pass/Fail basis rather than for a letter grade. The seminars and colloquia which are to be offered for Credit/No Credit or Pass/Fail shall be listed with the dean of the Graduate School. All courses on the program of study except research (report, thesis, or dissertation) and seminars or colloquia which have been approved for Credit/No Credit or Pass/Fail must be taken for letter grades. All research credit hours must be graded as Credit/No Credit. Independently of the program of study, additional courses may be taken on a Credit/No Credit or Pass/Fail basis with the approval of the major professor and the professor offering the course. These courses may not be applied toward a degree. No more than 3 hours of Credit/No Credit or Pass/Fail courses may appear on the program of study for the master's degree, nor more than 6 for a doctoral degree.

Academic Probation and Dismissal

Admission to and continuation in the Graduate School depends upon a high level of achievement. Students may be placed on probation as a condition of their admission to graduate programs, if warranted by their prior academic record. In addition, students who fail to make satisfactory progress in their graduate programs will be placed on probation. Either of the following conditions will warrant probation: (a) a grade point average lower than 3.0; (b) the recommendation of the major professor or student's committee that the student's progress is unsatisfactory.

Students on probation as a condition of admission will acquire good standing if they achieve a cumulative GPA of at least 3.0 in the first 9 credit hours of graduate course work. Students placed on probation for deficient grades will be restored to good standing if they achieve a cumulative GPA of 3.0. Normally, this must be done within two semesters for full-time students and within 12 credit hours for part-time students. If the student received less than 3.0 in a course listed on the program of study, the student's major professor and the student's supervisory committee may require that the student retake the course. If the course is retaken by the direction of the major professor and the supervisory committee, the original grade is noted as retaken and removed from the grade point average. The retake grade will always be used in computing the grade point average regardless of whether it is higher or lower than the original grade. A student may retake a course with subsequent removal of the prior grade only once for each course and for a total of two courses in a degree program. The Request to Retake a Graduate Course is available in the Graduate School and should be submitted to the Graduate School by the specified deadline.

A graduate student will be denied continued enrollment in the University for any of the following reasons: (a) failure of a student on probation as a condition of admission to achieve a minimum cumulative GPA of 3.0 in the first 9 hours of graduate level course work; (b) failure of a student placed on probation for deficient grades to achieve a cumulative GPA of at least 3.0 within two semesters for full-time students and within 12 credit hours for part-time students; (c) failure to meet published departmental or university requirements; (d) failure to maintain satisfactory progress toward a graduate degree; (e) failure in the preliminary examination (doctoral students only) or the final examination; (f) failure to acquire mastery of the methodology and content in a field sufficient to complete a successful thesis or dissertation; (g) qualifying for placement on probation a second time, except when the first period of probation is a condition of admission or when the second period is a condition of reinstatement.

A student denied the privilege of continued enrollment may petition the graduate dean for reinstatement to the same curriculum or for admission to a different curriculum.

Providing False Information

An individual who withholds information or provides false information on graduate admission applications or to any University official, faculty/staff member, or office may have his/her application denied or may be dismissed from the University. The decision for dismissal will be made by the Dean of the Graduate School. This decision will be made after a complete and thorough review of the situation and an individual conference with the student involved. The individual dismissed has the right to appeal the decision. Contact the Graduate School for information on appeal procedures.

Graduate Catalog
Graduate Programs

Sample Course Description- explains system used for courses listed throughout the catalog

Glossary & Abbreviation- lists definitions of terms and abbreviations used in the catalog

Graduate Degree Programs- complete listing of degrees and links to their descriptions

Graduate Certificate Programs- list of certificate programs with hyperlinks to their descriptions

Economics

Program description | Admission | Master of Arts | Ph.D degree | Financial assistance | Economic courses | More information

Head:
Lloyd B. Thomas, Jr.

Director of graduate studies:
William F. Blankenau

Graduate faculty:

Krishna Rao Akkina, Ph.D., University of Minnesota.

Michael W. Babcock, Ph.D. , University of Illinois-Urbana.

Lance Bachmeier, Ph.D., Texas A&M University.

William F. Blankenau, Ph.D., University of Iowa.

Steven P. Cassou, Ph.D., University of Minnesota.

Yang-Ming Chang, Ph.D., State University of New York at Buffalo.

Wei Chi, Ph.D., University of Minnesota.

Philip Gayle, Ph.D., University of Colorado.

Patrick J. Gormely, Ph.D., Duke University.

Dong Li, Ph.D., Texas A&M University.

Wayne E. Nafziger, Ph.D., University of Illinois-Urbana.

Michael Oldfather, Ph.D., Ohio University.

James F. Ragan, Jr., Ph.D., Washington University.

Lloyd B. Thomas, Jr., Ph.D., Northwestern University.

Tracy M. Turner, Ph.D., University of California at Davis.

Dennis L. Weisman, Ph.D., University of Florida.

Program description

The Department of Economics offers graduate programs leading to the M.A. and Ph.D. degrees. The M.A. degree can be completed in one to two years, and course work for the Ph.D. degree can be completed in three years. The Ph.D. degree also requires passage of preliminary examinations and the completion of a doctoral dissertation.

The graduate program in economics provides a strong foundation in macroeconomic theory, microeconomic theory, and quantitative analysis. In addition, it offers course work by nationally recognized scholars in such fields as development economics, econometrics, international economics, industrial organization, labor economics, and monetary theory and policy. Advanced course work and secondary fields are also available in agricultural economics, computer science, finance, mathematics, political science, statistics, regional planning, and other disciplines.

Admission

In addition to general Graduate School requirements, the Department of Economics has the following requirements for admission.

Course requirements
3 credit hours of intermediate macroeconomic theory
3 credit hours of intermediate microeconomic theory
3 credit hours of statistics
3 credit hours of calculus

If these courses are not part of the student's undergraduate program, admission will be provisional upon completing these courses.

Grade requirements
A 3.0 GPA in the last 60 credit hours taken with no C's, or lower, in the courses listed above. Although students with academic performance below these standards may be admitted because of other considerations such as high GRE scores, admission will be probationary.

Graduate record examination
Applicants for admission to either M.A. or Ph.D. programs are normally expected to provide their Graduate Record Examination general test scores.

Master of arts

Required course work
Each master's degree program must consist of at least 30 hours and include courses in microeconomic theory (ECON 720) and macroeconomic theory (ECON 805) along with a course in statistics, unless the student has previously taken a statistics course for graduate credit.

Specific course requirements beyond these core requirements are selected and agreed upon by the student and his or her advisory committee based on the student's background, objectives, and undergraduate preparation. The program may include a minor consisting of 6 to 12 hours of course credit in a single field (outside the Department of Economics).

Degree options
Three options are available to complete the master's degree: thesis option, report option, and Ph.D. qualifying-exam option.

Thesis option: As part of the required 30 hours of course work, the student must complete a master's thesis, for which 6 semester credit hours are given.

Report option: As part of the required 30 hours of course work, the student must complete a master's report for which 2 semester hours of credit are given.

Ph.D. qualifying-exam option: The Ph.D. qualifying-exam option requires successful completion (a grade of B or higher) of a graduate economics course that has as one of its requirements the writing of a term paper, and a master's-level pass in the Ph.D. qualifying exams in microeconomic theory and macroeconomic theory.

Ph.D. degree

Required course work
As part of the 90 hours required for a Ph.D. degree, each Ph.D. degree program must contain the following 30 hours of course work or equivalent:

ECON 735	Mathematical Economics
ECON 805	Income and Employment Theory I
ECON 905	Income and Employment Theory II
ECON 940	Advanced Microeconomics Theory I
ECON 945	Advanced Microeconomics Theory II
ECON 830	Econometrics I
ECON 930	Econometrics II
ECON 710	History of Economic Thought or one graduate economics course at the 800-level or above in a third field.
AGEC 901, 905, 923, or 936	
STAT 706	Basic Elements of Statistical Theory

Also required is course work in two fields of specialization. Normally a field consists of 6 additional hours of course work in economics or in related departments. Students entering the Ph.D. program with a master's degree in economics may receive 30 hours of credit for that degree.

Ph.D. dissertation

In the process of completing the research and writing of a Ph.D. dissertation, the student must enroll in at least 30 hours of ECON 999, Ph.D. Research.

Ph.D. qualifying exams

Students must pass qualifying exams in macroeconomic theory and microeconomic theory. The courses preparing the students for these exams are:

Macroeconomic theory: ECON 805 and ECON 905
Microeconomic theory: ECON 940 and ECON 945

Students are normally expected to take these exams immediately after completing the aforementioned course work.

A preliminary exam must also be passed in one other fields. This field must include at least six hours of course work at the 800-level or above. The

field exam may not be taken until the macroeconomic theory and microeconomic theory exams are passed.

Financial assistance

Graduate research and teaching assistantships provide apprenticeship experiences for future teachers and researchers. Graduate research assistants work with faculty researchers on grant projects. There are two types of graduate teaching assistants: those who teach their own course and those who assist others by grading exams, proctoring, and carrying out other assignments. Teaching assistants may receive full waiver of tuition. In addition, the department offers a supplemental award, the Carroll B. Greene Fellowship, to the outstanding female graduate student, the M. Jarvin Emerson Memorial Scholarship to a top doctoral student, and annual departmental awards for teaching and the best research paper.

Economics courses

Graduate credit in minor field

ECON 505. South Asian Civilizations. (3) I. In even years. Interdisciplinary survey of the development of civilization in India, Pakistan, Sri Lanka, Bangladesh, and Afghanistan, including geography, history, religion, culture, language, literature, current economy, and significant social movements. Same as ANTHRO 505, GEOG 505, HIST 505, POLSC 505, SOCIO 505. Pr.: 3 hours of Social Science or junior standing.

ECON 507. The Japanese Economy. (3) II. Analyzes Japan's growth, productivity change, income distribution, government policies, agriculture, industrial structure, labor relations education and technology, and international trade and finance. Emphases will be on U.S.-Japanese competition and comparisons. Pr.: ECON 110.

ECON 510. Intermediate Macroeconomics. (3) I, II, S. An examination of the behavior of the economy as a whole, including an analysis of the national income account, consumption, investment, money, interest, the price, level, the level of employment, monetary and fiscal policy, and economic growth. Pr.: ECON 110; ECON 120 or AGEC 100.

ECON 520. Intermediate Microeconomics. (3) I, II, S. An examination of the theories of consumer behavior and demand, and the theories of production, cost, and supply. The determination of product prices and output in various market structures, and an analysis of factor pricing. Introduction to welfare economics. (Students cannot receive credit for both ECON 520 and ECON 521.) Pr.: ECON 120.

ECON 521. Intermediate Microeconomic Theory. (3) A mathematical approach to intermediate microeconomics. Emphasis is placed on the use of optimization techniques to examine consumer demand, production and cost, behavior of the firm, market structure and welfare. Pr.: ECON 120; MATH 205 or 220.

ECON 523. Human Resource Economics. (3) II. An introduction to the economic forces influencing wage and employment determination, income differentials, unemployment, and the production and acquisition of human capital. Emphasis on public policy, labor unions, and other relevant institutions. Pr.: ECON 120. May not be counted toward economics major.

ECON 524. Sports Economics. (3) An economic analysis of professional and amateur sports. Pay determination of professional athletes, monopsony power of owners, discrimination, the importance of leagues, competitive balance, antitrust issues, collective bargaining, the financing of sports stadiums, and current economic issues in sports. Pr.: ECON 120.

ECON 527. Environmental Economics. (3) II. Economics of environmental market failure and the efficient use of exhaustible and renewable resources. Topics include the application of markets and government policies to greenhouse warming, air and water pollution, and recycling. Pr.: ECON 120.

ECON 530. Money and Banking. (3) I, II, S. Nature, principles, and functions of money; development and operation of financial institutions in the American monetary system, with emphasis on processes, problems, and policies of commercial banks in the United States. Pr.: ECON 110.

ECON 532. Fiscal Operation of State and Local Government. (3) Designed for students who plan careers related to state or local government. Selected topics in state and local taxation and expenditure. Pr.: ECON 110 and permission of instructor.

ECON 536. Comparative Economics. (3) II. The transition by Russia, Ukraine, Eastern and Central Europe, and Central Asia to market economics; economic reform in China, India, and other countries; and Marxian critiques of capitalism. Pr.: ECON 110 or 120.

ECON 540. Managerial Economics. (3) I, II, some S. Microeconomic topics applicable to understanding and analyzing firm behavior: optimization, demand, estimation, production, and cost theory. Applications to business problems. Pr.: ECON 120, an introductory-level statistics course, and MATH 205.

ECON 555. Urban and Regional Economics. (3) I. An examination of the determinants of the economic performance of urban and regional economies, including theory, problems, and policy. Pr.: ECON 120.

ECON 580. Senior Seminar in Economics. (3) I. Topics for class discussion include history of economic thought, research methods in economics, and current economic issues. Students will prepare and present papers written with faculty guidance. Required of all economics majors; open to others with permission of instructor. Pr.: ECON 510 and ECON 520; STAT 351, 511 or 705 or concurrent enrollment in one of the three.

ECON 595. Problems in Economics. (Var.) I, II, S. Individual study is offered in international trade, labor relations, money and banking, public finance, transportation, general economics.

ECON 599. Topics in Economics. (1-3) On sufficient demand. Courses on special topics to be taught on demand. Pr.: To be set for each topics course.

Undergraduate and graduate credit

ECON 620. Labor Economics. (3) I, some S. Economics of the labor market--theory and empirical evidence. Labor force composition and trends, labor supply, labor demand, human capital, wage differentials, migration, trade unions, and current issues. Pr.: ECON 520.

ECON 627. Contemporary Labor Problems. (3) Some II. Emphasis on current research and public policies dealing with such matters as full employment, poverty, discrimination, social security, unemployment insurance, health care, minimum wages, training, and education. Pr.: ECON 620 or consent of instructor.

ECON 630. Introduction to Econometrics. (3) I. An introduction to the analytical and quantitative methods used in economics. Applications to specific problems with an emphasis on computer analyses. Pr.: ECON 120; MATH 205 or 220; STAT 351, 511, or 705.

ECON 631. Principles of Transportation. (3) I, II. Examines the transportation market from the shippers' point of view by examining the impact of transportation on business firm decisions such as location, markets, and prices. Also covers the costs, prices, and service characteristics of railroads, motor carriers, water carriers, oil pipelines and airlines. The role and impact of government in the transportation market is examined from both a promotion and regulation perspective. Pr.: ECON 120 or AGEC 120.

ECON 633. Public Finance. (3) II. Course seeks answers to questions such as: Which goods should be provided by the private sector and which by the public sector (government)? With what criteria are public expenditures evaluated? What is an equitable and efficient tax system? Who bears the tax burden? What aspects of existing taxes need reform? Pr.: ECON 110; ECON 120 or AGEC 120.

ECON 640. Industrial Organization and Public Policy. (3) Some II. An examination of measures and determinants of industrial concentration, and an analysis of market structure, conduct, and performance, and policies related to performance. Pr.: ECON 120.

ECON 681. International Economics. (3) I, II, some S. Principles of international trade and finance, including production, exchange, commercial policy, resource movements, balance of payments, foreign currency markets, and policies for internal and external balance. Pr.: ECON 110; ECON 120 or AGEC 120.

ECON 682. Development Economics. (3) I, II. Factors affecting the economic modernization of the less-developed countries. Emphasis on capital formation, human capital, investment allocation, technical progress, income distribution, population growth, and the international economics of development. Pr.: ECON 110.

ECON 686. Business Fluctuations and Forecasting. (3) Some I. Types of business fluctuations; measurement of business cycles; theories of the causes of business cycles; proposals for stabilizing business activity; techniques of forecasting business activity. Pr.: ECON 110; ECON 120 or AGEC 120.

ECON 688. Health Economics. (3) I, in odd years. This course applies the tools of microeconomics to the health-care sector. It analyzes the behavior of consumers and providers of medical care, the functioning of insurance markets, and the roles of government and the private sector. International comparisons are made. Pr.: ECON 120

ECON 690. Monetary, Credit, and Fiscal Policies. (3) Some II. Goals of aggregative economic policy, conflicts among goals, and measures to resolve conflicts; money markets; targets of central bank control; the relative strength of monetary and fiscal policies; rational expectations hypothesis and policy ineffectiveness debate; terms structure of interest rates. Pr.: ECON 530.

ECON 699. Seminar in Economics. (1-3) On sufficient demand. Seminars of special interest will be offered on demand. Pr.: ECON 120.

ECON 710. History of Economic Thought. (3) II, in even years. Development of economic ideas and doctrines and the relation of these to conditions existing when they were formulated. Pr.: ECON 510.

ECON 720. Microeconomic Theory. (3) I. Demand, cost, and production theories; price and output determination in different market structures; the theory of factor market pricing; an introduction to general equilibrium and welfare analysis. Pr.: ECON 520; MATH 205 or MATH 220.

ECON 735. Mathematical Economics. (3) I. Application of mathematical tools of concrete problems in micro- and macro-economics; mathematical treatment of models of consumption, production, market equilibrium, and aggregate growth. Pr.: ECON 520, MATH 205 or 220, or consent of instructor.

Graduate credit

ECON 801. Topics in Monetary Theory. (3) Emphasis on recent literature of monetary economics; Federal Reserve control of the money stock; the demand for money; money and economic activity; monetary targets and indicators. Pr.: ECON 510 and ECON 530.

ECON 805. Income and Employment Theory I. (3) II. Determination of national income, employment, and the price level. The theories of J. M. Keynes are emphasized along with selected post-Keynesian developments in theories of consumption, investment, money, the interest rate, and the price level. Pr.: ECON 120 and 510.

ECON 815. Economic Analysis for Business. (3) II. Microeconomic and macroeconomic theory with selected business applications. Theory of consumer and producer behavior and price determination in individual markets. Theory of aggregate economic behavior and the effects of fiscal and monetary policies. Pr.: ECON 110, ECON 120, and one semester of calculus. Not available for graduate credit in economics.

ECON 823. Advanced International Economics. (3) Theoretical and policy issues related to the international monetary system, capital movements, exchange rate systems, the U.S. balance of payments, and trade of underdeveloped countries. Pr.: ECON 681 or consent of instructor.

ECON 830. Econometrics I. (3) II. Fundamentals of econometric analysis. The classical linear model, multi-collinearity, specification error, distributed lags, non-normal disturbances, dummy variables, generalized least squares, autocorrelation, heteroscedasticity. Applications to specific problems. Pr.: ECON 520; MATH 205 or 220; STAT 550.

ECON 832. Public Sector Analysis. (3) Conditions for economic efficiency in the public sector; public good production functions; nonmarket decision making; rationale for public sector growth; systems analysis, cost-benefit and related techniques of allocating public goods. Pr.: ECON 633.

ECON 840. Managerial Economics. (3) I. Economic analysis of production, cost, and demand functions. Application of economic models to managerial decision making. Pr.: ECON 520, MATH 205, and one course in statistics with a prerequisite in the same department.

ECON 860. Growth and Development Theories. (3) Advanced theories of economic growth and development models. Topics include optimum savings, allocations of investment, investment criteria, technical change, programming models, and alternative designs for development policies. Pr.: ECON 682 or consent of instructor.

ECON 890. Seminar in Economics. Course will provide seminars on specific topics in economics. May be repeated for no more than 6 credit hours total. Prerequisites vary with announced subject matter.

ECON 895. Problems in Economics. (Var.) I, II, S. Advanced individual study is offered in selected subject matter. Pr.: Background of courses needed for problems being studied.

ECON 898. Master's Report in Economics.

ECON 899. Master's Research in Economics.

ECON 905. Income and Employment Theory II. (3) I. Aggregative econometric models; dynamic analysis-growth models, the stability of macroeconomic systems. Other current developments in macroeconomic theory. Pr.: ECON 805 and ECON 735 or consent of instructor.

ECON 915. Macroeconomic Modelling. Examines current topics in macroeconomics with an emphasis on empirical modelling. The course will be structured to allow the student an in-depth look at influential articles in the literature through presentations and required summary papers, and apply similar skills in an assigned original research paper. Pr.: ECON 730 and ECON 805.

ECON 920. Labor Economics Seminar. (3) A critical analysis of wage theories, collective bargaining, and unemployment problems. Pr.: ECON 620 or consent or instructor.

ECON 925. Location of Economic Activities. (3) An examination of the theory of location including central place theory, location of the individual producer, industrial location patterns, and urban land-use models. Also includes application of theoretical models to current urban problems.

ECON 927. Advanced Labor Economics. (3) An examination of studies in labor supply, labor demand, immigration, and current topics in labor economics. Pr.: ECON 730 (or conc.); ECON 720.

ECON 930. Econometrics II. (3) I. Continuation of Econometrics I. Stochastic regressors, asymptotic results, instrumental variable estimation, systems of equations, dynamic models, maximum likelihood estimation, GARCH models, Cointegration, and other miscellaneous topics in econometrics. Applications to specific problems. Pr.: ECON 830.

ECON 940. Advanced Microeconomic Theory I. (3) II. An examination of demand, production, and cost theories; a discussion of duality theory and the application of the Le Chatelier principle; an analysis of price and output determination in different market structures. Pr.: ECON 520; ECON 735.

ECON 945. Advanced Microeconomic Theory II. (3) I. A study of advanced topics in economic theory, including general equilibrium theory, welfare economics, and risk and uncertainty. Pr.: ECON 940.

ECON 947. Industrial Organization. (3). Theory of industrial organization and its analytical techniques. Game theory; monopoly pricing; product and quality selection; vertical control; static and dynamic theories of oligopoly; product differentiation, price dispersion, and advertising; asymmetric information and strategic behavior. Pr.: ECON 735.

ECON 948. Economics of Regulation. (3). Theory of regulatory economics and its analytical techniques. Principal-agent theory, theories of economic regulation, Ramsey pricing, peak-load pricing, non-uniform pricing, cross-subsidization, rate-of-return regulation, incentive regulation, and regulation in the presence of asymmetric and incomplete information. Pr.: ECON 735.

ECON 955. Theory and Methods of Regional Economic Analysis. (3) A consideration of differences in regional and urban growth; comparison of alternative growth theories; methods of analyzing regional economics such as input-output analysis, linear programming, industrial complex, and spatial interaction models. Pr.: ECON 925 or consent of instructor.

ECON 981. International Trade Theory and Policy. (3). Discussion of recent literature in trade theory and policy under imperfect competition. International trade in imperfectly competitive international markets, strategic trade policies, political economy of trade protectionism, welfare effects of trade liberalization and economic integration, and other issues. Pr.: ECON 735.

ECON 999. Ph.D. Research in Economics.

For more information

For additional information and application materials please contact:
Director of Graduate Studies
Kansas State University
Department of Economics
327 Waters Hall
Manhattan, KS 66506-4001

785-532-7357
Fax: 785-532-6919
E-mail: econ@ksu.edu
Home Page: http://www.ksu.edu/economics/

Educational Leadership

Admission requirements | Program description
M.S. in educational administration and leadership
Ed.D. in educational administration and leadership
M.S. in adult and continuing education | Ph.D. in adult and continuing education
Ed.D. in adult and continuing education | Adult and continuing education courses
Educational administration and leadership courses | Leadership studies courses
More information

Chair:
David C. Thompson

Director of graduate studies:
Marjorie Hancock

Graduate faculty:

Gerald D. Bailey, Ed.D., University of Nebraska.

Royce Ann Collins, Ph.D., Kansas State University.

Mary Devin, Ph.D., Kansas State University.

Sarah Jane Fishback, Ph.D., Kansas State University.

Charles E. Litz, (Emeritus), Ph.D., University of Michigan.

Teresa Northern Miller, Ed.D., Kansas State University.

Charles R. Oaklief, Ph.D., Wisconsin State University and Ohio State University.

Cheryl J. Polson, Ph.D., Kansas State University.

Charles I. Rankin, Ph.D., Kansas State University.

Tweed Ross, Ed.D., Kansas State University.

Trudy Salsberry, Ph.D., University of Illinois.

Robert J. Shoop, Ph.D., University of Michigan.

W. Franklin Spikes, Ed.D., Northern Illinois University.

G. Kent Stewart, (Emeritus), Ed.D., Indiana University.

David C. Thompson, Ed.D., Oklahoma State University.

Alfred P. Wilson, (Emeritus), Ed.D., Utah State University.

Jeffrey T. Zacharakis, Ed.D., Northern Illinois University.

Admission

For admission requirements, please see the Education catalog page.

Program description

The Department of Educational Leadership offers several degrees within two programs: educational administration and leadership, and adult and continuing education. Courses leading to the master's degree and Ed.D. degree in educational administration and leadership may also lead to licensure as a building administrator (principal) or a district school administrator (superintendent). Cooperation with other departments in the College of Education allows the department to offer additional licensure, such as special education directorships. Other leadership positions in educational organization are also enhanced by masters and/or doctoral degrees in educational administration and leadership.

Three degrees are offered within the adult and continuing education program, including: (1) the master of science in adult and continuing education, designed to prepare practitioners for careers in a variety of adult education settings; (2) the Ph.D. in adult and continuing education, designed to prepare scholars for careers in college and university settings; and (3) the Ed.D. in adult and continuing education, designed to provide advanced education and experience by preparing people for work in business, industry, government, health services, community agencies, and careers in

two- and four-year colleges and universities. Courses focus on issues related to planning, developing, delivering, or facilitating instruction for adult learners. Courses in the adult education program also support the master's degree, Ph.D. and Ed.D. in curriculum and instruction. The graduate programs are compatible with a variety of delivery settings where the following specializations and support areas are required or desired: adult and continuing education, extension education, human resource development, community education and development, and institutions, agencies, and organizations that deal primarily with adult needs and education.

Degree requirements for M.S. in educational administration and leadership

The master of science degree in educational administration and leadership is a professional degree program principally for preparing skilled practitioners. Students who desire a building-level (principal) endorsement should select this degree/program to meet the requirements of the state of Kansas for professional licensure. Additionally, students who intend to assume other significant leadership roles in public schools, apart from professional licensure, should consider this degree.

The student's MS program is, in most cases, comprised of the following course sequence:

Core leadership (12 hours)

EDADL 825	Strategic Leadership in Education (3)
EDADL 827	Political-Community Leadership in Education (3)
EDADL 841	District, Building, and Program Leadership in Education (3)
EDADL 928	Organizational Leadership in Education (3)

Support areas (6 hours)

EDSP 710	Education of Exceptional Individuals (3)
	or
EDSP 886	Seminar in Special Education (3)
EDCEP 715	Principles of Assessment (3) or
EDCEP 816	Research Methods (3) or
EDADL 886	Seminar in Historical/Philosophical Analysis (3)

Building leadership (21 hours)

EDADL 819	Education Finance (3)
EDADL 831	Educational Law (3)
EDADL 835	Principalship (2)
EDADL 855	Administrative Leadership in Curriculum (3)
EDADL 865	Administrative Leadership in Staff Development (3)
EDADL 885	Technology Leadership for Administrators (3)
EDADL 889	Practicum in Educational Administration (1)
EDADL 910	Educational Personnel Administration (3)

Degree requirements for Ed.D. in educational administration and leadership

The doctor of education degree is a professional degree program principally for preparing skilled practitioners. Students who do not already hold a district-level (superintendent) endorsement may tailor course work in their emphasis area to meet that license requirement. Contact the Educational Leadership program for current district license requirements.

The student's Ed.D. program is directed by a minimum of five members of the university graduate faculty, including a major professor with substantial expertise in the area of emphasis, two other faculty members with strengths in the area of emphasis, one faculty member outside the student's specialization, and one faculty member, appointed by the dean of the Graduate School, from another department within the College of Education who serves as the chair of the examination committee for the oral defense of the dissertation.

Each student's program of study is individualized with the approval of the major professor and the supervisory committee to optimize the student's interests, expertise, and goals.

Credit hour requirements

A minimum of 94 semester hours beyond the baccalaureate degree, including the following:

Foundations (12 hours)

For each category, take the course listed or its approved equivalent:

Historical and philosophical analysis of educational ideas and practice

EDADL 886	Seminar: Historical and Philosophical Analysis of Education or other approved course

Techniques and interpretation of educational research
EDCEP 816 Research Methods, or other approved course

Social science explanations of educating a diverse society
EDCI 910 Multicultural Curriculum Programming, or other approved course

Psychological bases of educational thought and practice
EDCEP 912 Psychological Bases of Educational Thought and Practice, or other approved course

Research courses (6 hours)
Research courses concerning methodology consistent with that required for the dissertation.

Clinical experience (12 hours)

Area of emphasis (48 hours)

Dissertation research (16 hours)
Completion of a dissertation which treats an important topic of professional education practice using a systematic methodology consistent with accepted research paradigms; the dissertation must be successfully defended in a public, oral defense.

Preliminary examination. Candidates for the Ed.D. degree must demonstrate satisfactory completion of all segments of a monitored, written exam of at least 12 hours over all areas of the program of study, three hours of which must be over the foundation courses.

Degree requirements for M.S. in adult and continuing education (36 hours required)

Core courses (All courses are required, 12 hours)
EDACE 780 Introduction to Adult Education
EDACE 790 Characteristics of the Adult Learner
EDACE 830 Program Planning in Adult Education
EDACE 886 Seminar: Social Foundations of Adult Education

Professional courses (12 hours from the following)
EDACE 704 Extension Organization and Programs
EDACE 706 Principles of Teaching Adults in Extension
EDACE 714 International Education
EDACE 725 Adult Basic Education Techniques
EDACE 750 Women, Education, and Work
EDACE 754 Adult Basic Education
EDACE 782 Educational Gerontology
EDACE 786 Topics: Adult and Continuing Education
EDACE 792 Hospital and Industry Adult Education
EDACE 811 Consumer Education
EDACE 815 Introduction to Community Educational Development
EDACE 820 Advanced Methods in Teaching Adults
EDACE 825 Theory and Practice of Continuing Education
EDACE 860 Nontraditional Study for Adults
EDACE 886 Seminars: Adult and Continuing Education

Research courses (3-9 hours)
Required (3 credits):
EDCEP 816 Research Methods

Additional options:
EDACE 898 Master's Report (Report Plan)
EDACE 899 Master's Research (Thesis Plan)

Experiential and individualized courses (0-6 hours)

Within this degree, students may take no more than 6 hours of individualized work such as readings, problems, or practicum. No more than 3 hours can be practicum.

EDACE 733	Practicum in Adult and Continuing Education
EDACE 775	Readings: Adult and Continuing Education
EDACE 795	Problems: Adult and Continuing Education

Human resource development (0-6 hours)

EDACE 786	Topics: Principles of Human Resource Development (HRD)
EDACE 886	Seminar: Instructional Design in HRD
EDACE 886	Seminar: Policy Development and Implementation in HRD

Ph.D. in adult and continuing education requirements

The doctor of philosophy degree in adult and continuing education is a minimum 90-credit hour, post baccalaureate program designed to prepare scholars who are committed to a career with responsibilities and requirements associated with college/university faculty membership and/or interest in the development of knowledge, theory, and research.

Prerequisite core courses (12 hours)

Students entering the Ph.D. program without prior knowledge and course work in adult and continuing education are required to take the core courses in addition to the regular program. The core courses should be completed before foundation and professional or specialized courses are taken.

EDACE 780	Introduction to Adult Education
EDACE 790	Characteristics of the Adult Learner
EDACE 830	Program Planning in Adult Education
EDACE 886	Seminar: Social Foundations of Adult Education

Degree requirements (a minimum of 90 hours)

Required courses are marked with an asterisk.(*)

Adult learning and programming (6 hours minimum)

EDACE 706	Principles of Teaching Adults in Extension
EDACE 782	Educational Gerontology
EDACE 786	Topics: Adult and Continuing Education
EDACE 815	Introduction to Community Educational Development
EDACE 820	Advanced Methods in Adult Teaching
EDACE 860	Nontraditional Studies for Adults
EDACE 886	Seminars: Adult and Continuing Education

Organization, administration, and supervision (3 hours minimum)

EDACE 704	Extension Organization and Programs
EDACE 792	Hospital and Industry Adult Education
EDACE 825	Theory and Practice of Continuing Education
EDACE 937	Organization and Administration of Adult Education*

Human resource development (0-6 hours)

EDACE 786	Topics: Principles of Human Resource Development
EDACE 886	Seminar: Instructional Design in H.R.D.
EDACE 886	Seminar: Policy Development and Implementation in H.R.D.

Supporting courses (0-6 hours)

EDACE 714	International Education
EDACE 725	Adult Basic Education Techniques
EDACE 750	Women, Education, and Work
EDACE 754	Adult Basic Education

EDACE 791 Career Education

EDACE 811 Consumer Education

Foundations (6 hours)
EDACE 916 Foundations of Adult Education*
EDACE 986 Advanced Seminars in Adult Education*

Research courses (9 hours minimum)
EDCEP 816 Research Methods & Treatment of Data*
EDCEP 817 Statistical Methods in Education*
EDCEP 917 Experimental Design in Educational Research*

Doctoral research (30 hours minimum)
EDACE 999 Doctoral Research in Adult and Continuing Education (30 hours)*

Experiential and individual courses (0-6 hours)
Students may have no more than 6 hours of individualized work such as Readings (775) and Problems (795). No more than 3 hours of which must be Practicum (including those courses from the master's program).

EDACE 733 Practicum in Adult and Continuing Education
EDACE 775 Readings in Adult and Continuing Education
EDACE 795 Problems in Adult and Continuing Education
EDACE 991 Internship in Adult and Continuing Education

Internship: Students may complete an internship of 3-6 hours in the Ph.D. program. The internship will replace part or all of the experiential and individualized course credit.

Preliminary examination. All candidates for the Ph.D. must demonstrate satisfactory completion of all segments of a monitored, written examination of at least 12 hours over all areas of the program of study.

Ed.D. in adult and continuing education requirements

The doctor of education degree in adult and continuing education is a minimum 94-credit hour post baccalaureate program designed to prepare professionals to work in a variety of delivery systems. The Ed.D. degree provides advanced education and experience to prepare people for work in education, business, industry, government, health services, community agencies, community colleges, four-year colleges and universities, as well as many professional areas.

Prerequisite core courses (12 hours)
Students entering the Ed.D. program without prior knowledge and coursework in adult and continuing education are required to take the core courses in addition to the regular program. The core courses should be completed before foundation and professional or specialized courses are taken.

EDACE 780 Introduction to Adult Education
EDACE 790 Characteristics of the Adult Learner
EDACE 830 Program Planning in Adult Education
EDACE 886 Seminar: Social Foundations of Adult Education

Degree requirements (a minimum of 94 hours)
Required courses are marked with an asterisk. (*)
Adult learning and programming (6 hours minimum)
EDACE 706 Principles of Teaching Adults in Extension
EDACE 782 Educational Gerontology
EDACE 786 Topics in Adult Education
EDACE 815 Introduction to Community Educational Development
EDACE 820 Advanced Methods in Adult Teaching
EDACE 860 Nontraditional Studies for Adults
EDACE 886 Seminar: Self-Directed Learning

EDACE 886 Seminars in ACE, HRD, Extension, others

Organization, administration, and supervision (3 hours minimum)

EDACE 704 Extension Organization and Programs
EDACE 792 Hospital and Industry Adult Education
EDACE 825 Theory and Practice of Continuing Education
EDACE 937 Organization and Administration of Adult Education*
EDACE 986 Advanced Seminars in Adult Education

Human resource development (0-6 hours)

EDACE 786 Topics: Principles of Human Resource Development
EDACE 886 Seminar: Instructional Design in Human Resource Development
EDACE 886 Seminar: Policy Development and Implementation in Human Resource Development

Supporting courses (0-6 hours)

EDACE 714 International Education
EDACE 725 Adult Basic Education Techniques
EDACE 750 Women, Education, and Work
EDACE 754 Adult Basic Education
EDACE 791 Career Education
EDACE 811 Consumer Education

Foundations of education (12 hours) *

Ed.D. students are required to take 12 hours of the following foundations courses or their equivalent. Courses must be approved by the Ed.D. supervisory committee.

EDADL 811 Philosophy of Education
EDCEP 816 Research Methods
or
EDADL 886 Seminar: Historical and Philosophical Analysis of Education
EDCI 910 Multicultural Curriculum Programming
EDCEP 912 Psychological Bases of Educational Thought and Practice, or
EDACE 916 Foundations of Adult Education

Research courses (6 hours minimum) *

EDCEP 817 Statistical Methods in Education
EDCEP 819 Survey Research
EDCEP 917 Experimental Design in Educational Research
SOCIO 724 Qualitative Methodology

Doctoral research (16 hours)

EDACE 999 Doctoral Research (16 hours)*

Preliminary examination. The requirement for the preliminary examination is satisfactory completion of all segments of a monitored, written examination of at least 12 hours over all areas of the program of study.

Adult and continuing education courses (EDACE)

Undergraduate and graduate credit in minor field

EDACE 502. Independent Study in Foundations and Adult Education. (1-3) I, II. Selected topics in professional education. Maximum of 3 hours applicable toward degree requirements. Pr.: Consent of department chair.

Undergraduate and graduate credit

EDACE 714. International Education. (3) Contemporary overview of the field of international education and an introduction to three of its parts. Comparative education, intercultural education, and development education.

EDACE 725. Adult Basic Education Techniques. (3) On sufficient demand. Emphasis on providing students with an understanding of the selection, utilization, and development of adult basic education reference, resources, and other materials.

EDACE 733. Practicum in Adult Education. (1-6) On sufficient demand. Related occupational or professional experiences in approved industry, school, Cooperative Extension Service, or similar agency setting under faculty supervision. Pr.: Consent of instructor.

EDACE 738. Occupations in Business Industry. (1-6) On sufficient demand. Related occupational or professional experience in approved industry, school, Cooperative Extension Service, or similar agency setting under faculty supervision. Pr.: Consent of instructor.

EDACE 739. Coordination of Cooperative Vocational Education. (2-3) Emphasis on the legal aspects and other minimum requirements essential to conducting cooperative vocational education programs at the secondary and postsecondary levels. Pr. or conc.: EDSEC 620.

EDACE 750. Women, Education, and Work. (2-3) Emphasizes the collective and individual educational needs of women in and out of the work force and the part that occupational/educational preparation contributes to their participation in the work force.

EDACE 753. Introduction to Occupational Education. (3) Overview of occupational education at all levels and its role in society. Designed for administrators, counselors, and vocational educators who perform a leadership function involving occupational education programs. Pr.: Teaching experience or consent of instructor.

EDACE 754. Adult Basic Education. (3) Evolving adult basic and high school equivalency education concepts will be examined. Program implementation, supervision, methods, and materials are emphasized. Pr.: Adult teaching experience or consent of instructor.

EDACE 775. Readings in Foundations and Adult Education. (1-3) Readings in research and application in specialized areas in education. May be taken more than once. Pr.: Consent of Instructor.

EDACE 780. Introduction to Adult Education. (3) A survey of adult education. Consideration given to articulation with other levels of education. Identification of changing needs within the field are reviewed. Pr.: Consent of instructor.

EDACE 782. Educational Gerontology. (3) For both the practitioner and those interested in educational gerontology as a field of inquiry. It will examine education for and about aging, with particular reference to the role, needs, and ability of persons in the later years as learners. Pr.: EDACE 780.

EDACE 786. Topics in Adult Education. (1-3) Examination of current topic in area of specialization of faculty Varied topics offered each semester so course may be repeated.

EDACE 790. Characteristics of the Adult Learner. (3) For teachers and administrators in adult and occupational programs who need a familiarity with the major characteristics of adulthood which affect the adult as a learner. Pr.: EDACE 780.

EDACE 792. Hospital and Industry Adult Education. (3) On sufficient demand. An introduction to principles, roles, organization, procedures, and problems of adult education in hospitals, industry, and related agencies.

EDACE 795. Problems in Adult Education. (Var.) Independent study of specific problems in the areas of adult or occupational education. Pr.: Consent of Instructor.

Graduate credit

EDACE 815. Introduction to Community Educational Development. (3) A comprehensive review of factors related to community change and the role of educational programs in dealing with them. Emphasis is on educational and economic problem-solving approaches and change-implementing programs.

EDACE 820. Advanced Methods in Adult Teaching. (3) On sufficient demand. Emphasis on teaching strategies, techniques, and media appropriate to various adult education programs. Pr.: Teaching experience or consent of instructor. EDACE 780 and 790.

EDACE 825. Theory and Practice of Continuing Education. (3) Specific instruction on facilitating continuing education programs; emphasis on serving the institution, part-time students, community, and other interests. Pr.: EDACE 780 and 790.

EDACE 830. Program Planning in Adult Education. (3) An examination of the basic situations in which adult education occurs and fundamental steps by which learning is made more effective in those situations. Pr.: EDACE 790.

EDACE 860. Nontraditional Study for Adults. (3) Designed to provide a conceptual understanding of current forms of nontraditional study and accreditation with emphasis on organizing studies to serve adult needs. Pr.: EDACE 780.

EDACE 886. Seminars in Adult Education. (Var.) On sufficient demand. These seminars will consider research and professional

development on the special interests of the students in the several fields of education represented. Pr.: Consent of instructor.

EDACE 898. Master's Report. (Var.) Pr.: Consent of instructor.

EDACE 899. Master's Research. (Var.) Pr.: Consent of instructor.

EDACE 916. Foundations of Adult Education. (3) On sufficient demand. A study of adult education historical perspectives, contemporary institutions and programs, teaching-learning process, administrative practices, and conceptual roles. Pr.: Consent of instructor.

EDACE 937. Organization and Administration of Adult Education. (3) A critical study of organizational procedures and administrative practices as related to the implementation and maintenance of an effective program in adult education.

EDACE 986. Advanced Seminars in Adult Education. (Var.) On sufficient demand. These seminars will critically consider recent research in the designated fields. The emphasis will be upon individual studies and small group interaction. Enrollment is restricted to those students who have been admitted to the doctoral program in education and who have completed substantial amounts of graduate study in the designated fields. Pr.: Consent of instructor.

EDACE 991. Internship in Adult Education. (Var.) On sufficient demand. Field experiences in the development of programs in cooperating schools and educational or related agencies under the supervision of College of Education graduate faculty member. A maximum of 6 credit hours. Pr.: Consent of instructor.

EDACE 999. Doctoral Research. (Var.) Pr.: Sufficient training to carry on the line of research undertaken and consent of instructor. Pr.: Consent of Instructor.

Educational administration and leadership courses (EDLEA)

Undergraduate and graduate credit in minor field

EDADL 502. Independent Study in Educational Administration and Leadership. (1-3) I, II, S. Selected topics in professional education. Maximum of 3 hours applicable toward degree requirements. Pr.: Consent of department chair.

Undergraduate and graduate credit

EDADL 770. Educational Change and Technology. (2) II. This course deals with educational change, teaming, and information literacy. Three thrusts are considered: the emerging technologies and educational change, shaping change with technology, and the use of technology/information literacy to transform teaching and learning. Pr.: Teaching experience.

EDADL 775. Readings in Educational Administration and Leadership. (1-3) I. II. S. Readings in research and application in specialized areas in education. May be taken more than once. Pr.: Consent of department chair..

EDADL 786. Topics in Educational Administration and Leadership. (1-3) I, II, S. Examination of current topic in area of specialization of faculty. Varied topics offered each semester so course may be repeated. Pr.: Consent of department chair.

EDADL 795. Problems in Educational Administration and Leadership. Credit arranged. I, II, S. Selected students are permitted to secure specialized training appropriate to the needs of the individual. The student's project may involve intensive library investigation in a special field or the collection and analysis of data pertinent to a given problem. All work is done independently under the direction of a faculty member. As many conferences are held as necessary to assure successful completion of a project. Pr.: Background of courses necessary for the problem undertaken and consent of instructor.

Graduate credit

EDADL 819. Educational Finance. (3) S. An examination of issues relating to the financing of education, including local, state, and federal fiscal support, tax structures, distributional formulas, school finance reform strategies, and budget preparation and administration.

EDADL 825. Strategic Leadership in Education. (3) I, S. This course deals with an overview of educators becoming strategic leaders at the program, building, and district levels. Two central thrusts are considered: (1) professional and ethical leadership, and (2) information management and evaluation leadership. Emphasis is placed on knowledge, skills and attributes to identify contexts, developing with others vision and purpose, utilizing information, framing problems exercising leadership processes to achieve common goals, and acting ethically for educational communities.

EDADL 827. Political and Community Leadership in Education. (3) II, S. A study of the relationship between the school and the community, with special emphasis on the development of a comprehensive community education program. Organizational patterns, financing, program development, and interaction with other community agencies are analyzed.

EDADL 830. Educational Facility Planning. (3) S. Examination of issues relating to the provision of educational building and other facility needs, including planning, financing, construction, maintenance, and utilization.

EDADL 831. Educational Law. (3) I, S. An examination of the legal status of educational institutions in the United States; the legal rights and responsibilities of educators including due process, tort liability, and contracts; student rights; landmark court decisions; federal and state legislation impacting on education, and resources available to assist in developing solutions to legal problems.

EDADL 834. Strategies for Educational Change. (3) I, S. This course provides educators with conceptual knowledge concerning the problems and processes of educational change. Case studies of change are analyzed in the attempt to develop models of educational change.

EDADL 835. The Principalship. (2) I, alternate S. Analysis of the principal's role as he or she interacts with various referent groups. Applicable to both elementary and secondary administration. Pr.: One year of teaching experience.

EDADL 836. School-Community Relations. (2-3) I, S. Interrelationships that exist between the school and the community and the role of the teacher and administrator in such relationships. Pr.: One year of teaching experience.

EDADL 838. Qualitative Research in Education. (3) On sufficient demand. An overview of theoretical and philosophical perspectives informing qualitative research is presented. In addition, methods (design, data collection, data analysis, and reporting) used in qualitative research for educational settings are examined and applied. Pr.: EDCEP 816 or consent of instructor.

EDADL 841. District, Building, and Program Leadership in Education. (3) II, S. This course deals with an overview of educators becoming leaders of instruction at the district, building, and program level. Four thrusts are being considered (1) instruction, (2) curriculum, (3) staff development, and (4) supervisory leadership. Considerable emphasis is placed on knowledge, skills, and attributes of learning leadership. Themes of planning, conducting, and assessing performance are covered in depth.

EDADL 845. Leadership for Diverse Populations. (3) On sufficient demand. Designed for educators to increase their knowledge of self and others regarding issues of diversity. An emphasis is placed on understanding the role of educators in promoting practices and policies supportive of all stakeholders in the educational organization. Pr. Graduate standing.

EDADL 855. Administrative Leadership in Curriculum. (3) This course identifies the major roles and responsibilities of school administrators in curriculum-related activities. Administrative skills necessary for developing and evaluating the curriculum will be examined.

EDADL 865. Administrative Leadership in Staff Development. (3) I, II, S. This course focuses on the role of the administrator in developing, implementing, and evaluating staff development programs. Superintendent, building-level administrator, and staff development director leadership skills will be analyzed.

EDADL 875. Administrative Leadership in Staff Supervision. (3) This course identifies the major roles and responsibilities of superintendents and building-level administrators as supervisors of staff in a K-12 school district.

EDADL 885. Technology Leadership for Administrators. (3) I, S. A course designed to provide an in-depth analysis of administrator technology leadership skills necessary for integrating technology in education. The roles and technologies of technology leadership will be studied in the context of staff development, supervision, and curriculum articulation. Considerable attention will be given to strategies necessary for creating district and building technology plans.

EDADL 886. Seminar in Educational Administration and Leadership. (Var.) On sufficient demand. Intensive discussion of a problem of current professional interest based on study of pertinent original literature. May be repeated with consent of supervisory committee. Pr.: Consent of instructor.

EDADL 889. Practicum in Educational Administration. (1-3) I, II, S. Supervised on-the-job experience in school administration. Pr.: Consent of instructor.

EDADL 898. Master's Report. (Var.) I, II, S. Pr.: Consent of instructor.

EDADL 899. Master's Research. (Var.) I, II, S. Pr.: Consent of instructor.

EDADL 910. Educational Personnel Administration. (3) II, S. Personnel practices in education are considered along with the implications of collective negotiations and professional accountability for personnel policies.

EDADL 928. Organizational Leadership in Education. (3) I, II, S. This course is an examination of the knowledge, skills, and attributes necessary to understand and improve organizations. It includes implementing plans, managing resources, and applying appropriate processes and procedures in varied educational settings.

EDADL 986. Advanced Seminars in Educational Administration and Leadership. (Var.) On sufficient demand. These seminars will critically consider recent research in the designated fields. The emphasis will be upon individual studies and small group interaction. Enrollment is restricted to those students who have been admitted to the doctoral program in education and who have completed substantial amounts of graduate study in the designated fields. Pr.: Consent of instructor.

EDADL 991. Internship in Educational Administration and Leadership. (Var.) On sufficient demand. Studies of and field experiences in the development of programs in cooperating schools and educational or related agencies under the supervision of College of Education graduate faculty members. A maximum of 6 credit hours may be chosen from the areas listed. Pr.: Consent of instructor.

EDADL 999. Research in Educational Administration and Leadership. (Var.) I, II, S. Individual investigation in the field of a student's specialization. Pr.: Sufficient training to conduct the line of research undertaken.

Leadership studies courses (EDLST)

Undergraduate and graduate credit in minor field

EDLST 502. Independent Study in Leadership Studies. (1-3) I, II, S. Selected topics in leadership studies. Maximum of three hours applicable toward degree requirements. Pr.: Consent of department chair.

For additional information on graduate programs and application materials please contact:
College of Education
18 Bluemont Hall
1100 Mid-Campus Drive
Manhattan, KS 66506-5315
785-532-5595

Education

Degree Programs | Assistantships and financial aid | Admission
Endorsement for certification or licensure

Michael C. Holen, Dean

Janice R. Wissman, Associate Dean

Paul R. Burden, Assistant Dean

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Degree programs

Graduate programs in the College of Education are designed for students who require advanced levels of education and advanced degrees for their desired roles in the field of education. Graduate programs are offered through the various departments in the College of Education. All students in these programs must be admitted to the Graduate School of Kansas State University.

Graduate programs are offered in curriculum and instruction; educational leadership; and special education, counseling, and student affairs. Programs leading to the master of science (M.S.), doctor of philosophy (Ph.D.), and doctor of education (Ed.D.) are available. These programs prepare individuals for the broad spectrum of educational positions. Primary consideration is given to preparing education students for the various positions in elementary, secondary, post-secondary, occupational, and vocational programs.

Assistantships and financial aid

Graduate assistantships, with nine-month stipends that are similar to those of other Midwest universities, may be available on a competitive basis to candidates who are admitted to one of the graduate programs in the College of Education. The graduate student holding an assistantship will be expected to assist with assignments 16-20 hours per week. Students with assistantships are expected to be full-time students. Students may apply for assistantships in the department in which they are seeking their degree or the graduate studies office. Students also may apply for an assistantship in other departments for which they have the necessary knowledge and skills. Many departments in the college have graduate assistantships, and some have several openings each year. Primary consideration is given to those pursuing a doctoral degree.

The deadline for applying for an assistantship is usually April 1 with notification to the student by May 1. Applications will continue to be received until all graduate assistantship positions are filled. Faculty with external funding may have assistantships for grant work at any time during the year. The graduate studies office has information about these positions. For more information about assistantships and for an application, contact the Office of Graduate Studies in 18 Bluemont Hall at 785-532-5595.

Information about scholarships, loans, grants, and employment can be obtained in the Office of Student Financial Assistance, 104 Fairchild Hall, 785-532-6420, e-mail: ksufa@ksu.edu.

Admission to graduate programs in education

Information about application forms, general admission requirements, and specific admission requirements for the master's and doctoral degrees is provided here. Information about graduate programs in education and application forms can be obtained from the College of Education Office of Graduate Studies, 18 Bluemont Hall, (785)532-5595, coegrads@ksu.edu.

General admission requirements

Candidates for graduate work shall meet the following admission requirements:

- Graduation from an accredited institution whose requirements for the bachelor's degree are substantially equivalent to those of Kansas State University.
- Undergraduate grade average of 3.0 or better in the junior and senior years. Undergraduate preparation substantially equivalent to that given by K-State in the specific field in which the applicant expects to do graduate work.
- Undergraduate preparation in closely related or supporting subjects adequate to support advanced work in the field of the applicant's choice.

Students lacking preparation in certain areas may be required to do additional work. International students whose native language is not English must make available the results of the Test of English as a Foreign Language (TOEFL). A minimum score of 550 is required on the paper and pencil version of the TOEFL examination or a score of 213 on the computer version of the TOEFL.

Master's degree admission requirements
All students expecting to work for master's degrees shall make available to the Office of Graduate Studies, College of Education, two copies of the graduate school application, two official transcripts from each institution attended, and a statement of academic objectives for graduate study. International students must make available three letters of recommendation. Advisors and/or departments may require additional information. Some departments may require an official record of the test scores on the Miller Analogies Test or the verbal , quantitative, and analytical writing sections of the Graduate Record Examination. Graduate programs within the College of Education may have additional requirements.

Ph.D. and Ed.D. Admission requirements
In addition to the general admission requirements, applicants to the Ph.D. or the Ed.D. program in education shall provide to the Office of Graduate Studies, College of Education, two copies of the graduate school application, two official transcripts for undergraduate and graduate courses, and an official record of test scores at least at the national mean for education students on the Miller Analogies Test or the verbal, quantitative, and analytical writing sections of the Graduate Record Examination. Graduate programs within the College of Education may have additional requirements.

Ph.D. applicants also need to submit a statement of objectives indicating educational experience and professional goals showing a commitment to a career with responsibilities congruent with those associated with college faculty membership, and three letters of recommendation from higher education faculty members.

Ed.D. applicants also need to submit a statement of objectives indicating educational experience and goals showing a commitment to a career in leadership positions in professional practice, and three letters of reference verifying at least two years of successful, relevant professional experience.

For additional information on graduate programs and application materials please contact:
Marjorie Hancock
Director of Graduate Studies
College of Education
18 Bluemont Hall
1100 Mid-Campus Drive
Manhattan, KS 66506-5315

785-532-5595
Fax: 785-532-7304
E-mail: coegrads@ksu.edu
Home Page: http://www.coe.ksu.edu

Endorsement for licensure requiring work beyond the bachelor's degree

The College of Education will recommend for licensure individuals satisfying program requirements for the following: building administrator, district school administrator, school counselor, vocational education counselor, reading specialist, supervisor/coordinator of special education programs, director of special education, early childhood special education, mild/moderate disabilities education, gifted education, and English as a second language (ESL), classroom technology. Licensure recommendations are initiated through the Office of Certification, 13 Bluemont Hall.

Administrative leadership endorsements
A graduate degree is required for any professional administrative leadership license granted by the state of Kansas. The program required by the College of Education must be completed. A minimum of eight hours from courses required for the administrator license must be earned at K-State before the College of Education may recommend administrative licensure. The educational leadership faculty should be contacted regarding advisement for specific administrative leadership licensure.

There are two Kansas administrator endorsements: the building administrator endorsement for the principalship and the district school administration endorsement for the superintendency, which also covers other positions such as special education director (see special education, below).

Building administrator endorsement
This endorsement is for licensure for the principalship. It includes 36 hours of course work. Courses required for this endorsement are the same as those required in the M.S. in educational leadership. Students who already have applicable course work from another graduate degree do not need a second degree in order to qualify for the license. Endorsement requirements are listed here.

Conditional Building Leadership License*

EDADL 786	Orientation to Leadership	1
EDADL 886	Ethical Dimensions of Leadership	2
EDADL 886	Historical/Philosophical Analysis	3
EDADL 836	School-Community Relations	3

EDSP 710	Education of Exceptional Individuals	3
	or	
EDSP 886	Seminar in Special Education	3
	and	
EDCEP 715	Principles of Measurement	3
	or	
EDCEP 816	Research Methods	3
EDADL 855	Administrative Leadership in Curriculum	3
EDADL 885	Technology Leadership for Administrators	3
EDADL 819	Introduction to Education Finance	3
EDADL 865	Administrative Leadership in Staff Development	3
EDADL 831	Educational Law	3
EDADL 835	Principalship	2
EDADL 889	Practicum in Educational Administration	1**
EDADL 910	Educational Personnel Administration	3
	Total Hours	36

Professional Building Leadership License***

EDADL 886	Conditional Building License Practicum	4

* All conditional building license candidates must complete the School Leaders Licensure Assessment through ETS (www.ets.org) and meet a minimum score of 165.

** Students are required to document a minimum of 150 clock hours guided field experience through the formal practicum and other coursework (i.e. additional practicum requirements are imbedded in many courses in the licensure sequence to assist in reaching th 150 clock hour requirement). A written log of practicum activities must be included with the student's final portfolio assessment. Further, see policy on acceptable internship settings.

*** After receiving a conditional license, students must complete a one-year supervised internship in an administrative position to earn the professional license and successfully complete EDADL 886 Post-practicum (4 semester hours).

District school administrator endorsement
This endorsement is for licensure for the superintendency. It includes 60 total hours of graduate course work. Much of this same work is also required for building-level licensure. Accordingly, students who already hold a master's degree in educational leadership may apply those degree hours toward this license. The course work for this endorsement is listed below:

Conditional District Leadership License

Prerequisite to Pursuit of District License **36***

- Candidates for the conditional district license must have a masters degree from an accredited university.
- Candidates must hold a current Kansas building administrator license OR have satisfied the requirements for the Conditional Building Leadership License.
- Candidates must have completed the School Superintendent Assessment (through ETS www.ets.org) with a score of 157 or above.

	District Leadership	**24**
EDADL 986	Advanced Seminar: Superintendency	3
EDADL 886	Ethical Dimensions of Leadership	2**
EDADL 834	Strategies for Change	3
EDADL 845	Leadership for Diverse Poplulations	3
EDADL 827	Political-Community Leadership	3
EDADL 986	Advanced Seminar: School Business Management	3
EDADL 830	Educational Facility Planning	3
EDADL 986	Advanced Seminar: District Technology Leadership	3
EDADL 986	Advanced Seminar: District Internship	1***
	Total Required Hours	**60**

Professional District Leadership License****

EDADL 986	Conditional District License Internship	4

* Candidates holding degrees from other univerisites may be required to take additional coursework to total 60 hours beyond the bachelor degree.

** If the candidate obtained building licensure through Kansas State University and his/her transcript shows completion of EDADL 886 Ethical Dimensions of Leadership during the building license program, this requirement has been satisfied. Otherwise, the requirement applies.

*** Students are required to document a minimum 150 clock hours guided field experience through the formal intership and other coursework (i.e.

additional internship requirements are imbedded in many courses in the licensure sequence to assist in reaching the 150 clock hour requirement). Further, see policy on acceptable internship settings.

**** After receiving a conditional license, students must complete a one-year supervised internship in an administrative position to earn the professional license and successfully complete EDADL 986 Conditional District License Internship (4 semester hours).

School counseling endorsements

(The official title of this degree approved by the Board of Regents is M.S. in Counseling and Student Development.)

The Master of Science Degree in School Counseling is accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP). Students who complete the 48-hour program are eligible for school counseling licensure. Licensure as a school counselor in the State of Kansas requires the applicant to hold a professional teaching license.

The CACREP-approved M.S. program in school counseling satisfies the state of Kansas licensure requirements. Licensure as a school counselor in the State of Kansas requires the applicant to hold a professional teaching license.

Core requirements (27 hours)

EDCEP 721	Mental Health in Schools
EDCEP 822	Principles of Guidance
EDCEP 823	Counseling Theory
EDCEP 852	Career Development for School Counselors
EDCEP 856	Guidance in the Elementary School
EDCEP 857	Guidance Program Management
EDCEP 871	Consultation for Counselors
EDCEP 921	Advanced Edu Psy Development
EDCEP 951	Multicultural Counseling

Research and appraisal requirements (9 hours)

EDCEP 715	Principles of Assessment
EDCEP 815	Using Tests in Counseling
EDCEP 816	Research Methods

Clinical Requirements (12 hours)

EDCEP 858	Group Processes
EDCEP 877	Practicum in Counseling
EDCEP 887	Counseling Internship-elementary and secondary levels (6 hours)

Reading Specialist Endorsement (15 hours)
Special licensure requirements exist for K-12 school teachers of special reading classes in Kansas. In addition to degree certification and teaching experience, a planned sequence of graduate reading courses are required for licensure endorsement. Students seeking this endorsement must hold a valid Kansas Professional teaching license.

Required courses (15 hours):

EDCI 816	Approaches to Reading Instruction
EDCI 818	Theoretical Models of Reading
EDCI 840	Literacy Assessment
EDCI 841	Supporting Struggling Readers
EDCI 930	Leadership in Literacy

Required Practicum (3 hours):
EDCI 945 Clinical Practicum in Reading

Additional Requirements:
After completing the required courses and practicum, the applicant must fulfill these additional requirements to obtain a conditional reading specialist license:

1. Hold a valid professional teaching license.
2. Present a score of 560 or above on the Praxis II exam for the Reading Specialist (test number 0300).
3. Hold a masters degree. (It is permitted but not necessary to include the required courses as part of the masters degree.)

Required Internship (4 hours)
To be eligible to take the internship, the applicant must first complete the required courses and practicum and complete the additional requirements to obtain a conditional reading specialist license. Once the conditional reading specialist license is obtained, the applicant must enroll in 2 hours of internship per semester for one year as a full-time employee.
EDCI 975 Internship in Reading

Special education endorsements
Endorsements can be in one or more of the following areas: adaptive or functional special education. The endorsement programs for adaptive or functional special education lead to a master's degree. Specific requirements for these endorsement areas are included in the description for the M.S. in special education. At least half of the credits required for special education endorsement must be earned at K-State, including at least one major course and one practicum, before the College of Education may recommend for special education endorsement.

The special education endorsement can be granted to a person who holds a valid Kansas teaching certificate for the level (i.e., elementary, or secondary) of special education preparation. Contact the department of special education, counseling and student affairs for information about provisional endorsement.

Teaching endorsement for adaptive special education elementary and/or secondary

Prerequisites:
Eligible for certification in elementary or secondary education, and one of the following courses:

EDSP 323	Exceptional Student in the Secondary School
EDSP 324	Exceptional Child in the Regular Classroom
EDSP 500	Introduction to Human Exceptionality

Required courses (35-38 hours)

EDCEP 715	Principles of Assessment
EDSP 710	Education of Exceptional Individuals
EDSP 723	Characteristics of Cognitive Disabilities
EDSP 728	Characteristics of Emotional and Behavioral
EDSP 742	Interventions: Emotional and Behavioral Disorders
EDSP 743	Interventions: Academic Disabilities
EDSP 777	Behavior Managment of Special Education
EDSP 778	Technology for Special Education
EDSP 785	Practicum: Adaptive Disabilities
EDSP 830	Assessment in Special Education
EDSP 848	Transitions in Special Education
EDSP 850	Consulting Process in Special Education

Electives:

EDSP 844	Special Education in Secondary Schools (required for ALL secondary level endorsement and elementary level adding secondary certification)

Teaching endorsement for functional special education elementary and/or secondary

Prerequisites:

Eligible for certification in elementary or secondary education, and one of the following courses:

EDSP 323	Exceptional Student in the Secondary School
EDSP 324	Exceptional Child in the Regular Classroom
EDSP 500	Introduction to Human Exceptionality

Required courses (35-38 hours)

EDCEP 715	Principles of Assessment
EDSP 710	Education of Exceptional Individuals
EDSP 723	Characteristics of Cognitive Disabilities
EDSP 728	Characteristics of Emotional and Behavioral
EDSP 742	Interventions: Emotional and Behavioral Disorders
EDSP 743	Interventions: Academic Disabilities
EDSP 777	Behavior Managment of Special Education
EDSP 778	Technology for Special Education
EDSP 785	Practicum: Adaptive Disabilities
EDSP 830	Assessment in Special Education
EDSP 841	Interventions: Functional Disabilities
EDSP 848	Transitions in Special Education
EDSP 849	Interventions: Autistic Spectrum Disorders
EDSP 850	Consulting Process in Special Education
EDSP 885	Practicum: Functional Disabilities

English as second language (ESL) endorsement

Completion of the following five courses meets requirements for ESL endorsement through Kansas State University. Students enroll in one course per semester; each is offered for three hours of graduate or undergraduate credit. All of the courses are dual listed in the curriculum and instruction graduate program so that participants can enroll in the level in which they each. The courses in the endorsement are:

EDSEC 730	ESL/Dual Language Methods (Fall semester)
EDSEC 742	ESL/Dual Language Assessment (Spring semester)
EDSEC 731	ESL/Dual Language Linguistics (Fall semester)
EDCI 733	Curriculum Materials for Ethnic Diversity (Spring semester)
EDSEC 745	ESL/Dual Language Practicum (Fall semester)

Education

Degree Programs | Assistantships and financial aid | Admission
Endorsement for certification or licensure

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Endorsement for licensure requiring work beyond the bachelor's degree

The College of Education will recommend for licensure individuals satisfying program requirements for the following: building administrator, district school administrator, school counselor, vocational education counselor, reading specialist, supervisor/coordinator of special education programs, director of special education, early childhood special education, mild/moderate disabilities education, gifted education, and English as a second language (ESL), classroom technology. Licensure recommendations are initiated through the Office of Certification, 13 Bluemont Hall.

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EDADL 786 Orientation to Leadership	1	F.S
EDADL 886 Ethical Dimensions of Leadership	2	S
EDADL 886 Historical/Philosophical Analysis	3	FU
EDADL 836 School-Community Relations	3	U (odd) F (even)

EDSP 710 Education of Exceptional Individuals	3	
or		
EDSP 886 Seminar in Special Education	3	
and		
EDCEP 715 Principles of Measurement	3	
or		
EDCEP 816 Research Methods	3	
EDADL 855 Administrative Leadership in Curriculum	3	F (even)
EDADL 885 Technology Leadership for Administrators	3	S (odd) F (even)
EDADL 819 Introduction to Education Finance	3	U
EDADL 865 Administrative Leadership in Staff Development	3	F (odd)
EDADL 831 Educational Law	3	F
EDADL 835 Principalship	2	F
EDADL 889 Practicum in Educational Administration	1**	F,S,U
EDADL 910 Educational Personnel Administration	3	S
	36	

PROFESSIONAL BUILDING LEADERSHIP LICENSE***

EDADL 886 Conditional Building License Practicum	4	F,S

* All conditional building license candidates must complete the School Leaders Licensure Assessment through ETS (www.ets.org) and meet a minimum score of 165.

** Students are required to document a minimum 150 clock hours guided field experience through the formal practicum and other coursework (i.e., additional practicum requirements are imbedded in many courses in the licensure sequence to assist in reaching the 150 clock hour requirement). A written log of practicum activities must be included with the student's final portfolio assessment. Further, see policy on acceptable internship settings.

*** After receiving a conditional license, students must complete a one-year supervised internship in an administrative position to earn the professional license and successfully complete EDADL 886 Post-practicum (4 semester hours).
Building license requirements will be reviewed every two years…next scheduled review 2007.

District school administrator endorsement
This endorsement is for licensure for the superintendency. It includes 60 total hours of graduate course work. Much of this same work is also required for building-level licensure. Accordingly, students who already hold a master's degree in educational leadership may apply those degree hours toward this license. The course work for this endorsement is listed below:

School counseling endorsements
The CACREP-approved M.S. program in school counseling satisfies the state of Kansas licensure requirements. Licensure as a school counselor in the State of Kansas requires the applicant to hold a professional teaching license.

Reading Specialist Endorsement (15 hours)
Special licensure requirements exist for K-12 school teachers of special reading classes in Kansas. In addition to degree certification and teaching experience, a planned sequence of graduate reading courses are required for licensure endorsement. Students seeking this endorsement must hold a valid Kansas Professional teaching license.

Required courses (15 hours):

EDCI 816	Approaches to Reading Instruction
EDCI 818	Theoretical Models of Reading
EDCI 840	Literacy Assessment
EDCI 841	Supporting Struggling Readers
EDCI 930	Leadership in Literacy

Required Practicum (3 hours):

EDCI 945 Clinical Practicum in Reading

Additional Requirements:
After completing the required courses and practicum, the applicant must fulfill these additional requirements to obtain a conditional reading specialist license:

1. Hold a valid professional teaching license.
2. Present a score of 560 or above on the Praxis II exam for the Reading Specialist (test number 0300).
3. Hold a masters degree. (It is permitted but not necessary to include the required courses as part of the masters degree.)

Required Internship (4 hours)
To be eligible to take the internship, the applicant must first complete the required courses and practicum and complete the additional requirements to obtain a conditional reading specialist license. Once the conditional reading specialist license is obtained, the applicant must enroll in 2 hours of internship per semester for one year as a full-time employee.
EDCI 975 Internship in Reading

Special education endorsements
Endorsements can be in one or more of the following areas: adaptive or functional special education. The endorsement programs for adaptive or functional special education lead to a master's degree. Specific requirements for these endorsement areas are included in the description for the M.S. in special education. At least half of the credits required for special education endorsement must be earned at K-State, including at least one major course and one practicum, before the College of Education may recommend for special education endorsement.

The special education endorsement can be granted to a person who holds a valid Kansas teaching certificate for the level (i.e., elementary, or secondary) of special education preparation. Contact the department of special education, counseling and student affairs for information about provisional endorsement.

Teaching endorsement for adaptive special education elementary and/or secondary

Prerequisites:
Eligible for certification in elementary or secondary education, and one of the following courses:

EDSP 323	Exceptional Student in the Secondary School
EDSP 324	Exceptional Child in the Regular Classroom
EDSP 500	Introduction to Human Exceptionality

Required courses (35-38 hours)

EDCEP 715	Principles of Assessment
EDSP 710	Education of Exceptional Individuals
EDSP 723	Characteristics of Cognitive Disabilities
EDSP 728	Characteristics of Emotional and Behavioral
EDSP 742	Interventions: Emotional and Behavioral Disorders
EDSP 743	Interventions: Academic Disabilities
EDSP 777	Behavior Managment of Special Education
EDSP 778	Technology for Special Education
EDSP 785	Practicum: Adaptive Disabilities
EDSP 830	Assessment in Special Education
EDSP 848	Transitions in Special Education
EDSP 850	Consulting Process in Special Education

Electives:

EDSP 844	Special Education in Secondary Schools (required for ALL secondary level endorsement and elementary level adding secondary certification)

Teaching endorsement for functional special education elementary and/or secondary

Prerequisites:

Eligible for certification in elementary or secondary education, and one of the following courses:

EDSP 323	Exceptional Student in the Secondary School
EDSP 324	Exceptional Child in the Regular Classroom
EDSP 500	Introduction to Human Exceptionality

Required courses (35-38 hours)

EDCEP 715	Principles of Assessment
EDSP 710	Education of Exceptional Individuals
EDSP 723	Characteristics of Cognitive Disabilities
EDSP 728	Characteristics of Emotional and Behavioral
EDSP 742	Interventions: Emotional and Behavioral Disorders
EDSP 743	Interventions: Academic Disabilities
EDSP 777	Behavior Managment of Special Education
EDSP 778	Technology for Special Education
EDSP 785	Practicum: Adaptive Disabilities
EDSP 830	Assessment in Special Education
EDSP 841	Interventions: Functional Disabilities
EDSP 848	Transitions in Special Education
EDSP 849	Interventions: Autistic Spectrum Disorders
EDSP 850	Consulting Process in Special Education
EDSP 885	Practicum: Functional Disabilities

English as second language (ESL) endorsement

Completion of the following five courses meets requirements for ESL endorsement through Kansas State University. Students enroll in one course per semester; each is offered for three hours of graduate or undergraduate credit. All of the courses are dual listed in the curriculum and instruction graduate program so that participants can enroll in the level in which they each. The courses in the endorsement are:

EDSEC 730	ESL/Dual Language Methods (Fall semester)
EDSEC 742	ESL/Dual Language Assessment (Spring semester)
EDSEC 731	ESL/Dual Language Linguistics (Fall semester)
EDCI 733	Curriculum Materials for Ethnic Diversity (Spring semester)
EDSEC 745	ESL/Dual Language Practicum (Fall semester)

Electrical and Computer Engineering

Program description | Program requirements | Research facilities | Financial support |
Career opportunities | Electrical and computer engineering courses | More information

Head:
Don Gruenbacher

Director of graduate studies:
Andrew Rys

Graduate faculty:

Kenneth H. Carpenter, Ph.D., Texas Christian University.

D. V. Satish Chandra, Ph.D., Auburn University.

Sanjoy Das, Ph.D., Louisiana State University.

Dwight D. Day, Ph.D., Oklahoma State University.

James E. DeVault, M.S., University of Michigan.

John J. Devore, Ph.D., Kansas State University.

Ruth A. Dyer, Ph.D., University of Kentucky.

Stephen A. Dyer, Ph.D., Kansas State University.

Richard R. Gallagher, Ph.D., Iowa State University.

Don M. Gruenbacher, Ph.D., Kansas State University.

William B. Kuhn, Ph.D., Virginia Polytechnic and State University.

Donald H. Lenhert, Ph.D., University of New Mexico.

Christopher L. Lewis, Ph.D., Purdue University.

Ruth Douglas Miller, Ph.D., University of Rochester.

Medhat M. Morcos, Ph.D., University of Waterloo.

Balasubramaniam Natarajan, Ph.D., Colorado State University.

Anil Pahwa, Ph.D., Texas A & M University.

Andrew Rys, Ph.D., Texas Tech University.

Caterina Scoglio, Ph.D., University of Rome.

David L. Soldan, Ph.D., Kansas State University.

Shelli K. Starrett, Ph.D., Iowa State University.

Steve Warren, Ph.D., University of Texas at Austin.

Stanley Young, Adjunct, Ph.D., Kansas State University.

Program description

The Department of Electrical and Computer Engineering offers courses and programs leading to master of science and doctor of philosophy degrees. Several areas of specialization are available at the graduate level. Major areas are bioengineering, communications systems, computer engineering, control systems, electromagnetics, instrumentation, power systems, signal processing, and solid-state electronics.

At the master's level there are three options: thesis, report, and course work only. All require a minimum of 30 hours of credit. The Ph.D. program requires 60 hours beyond the master's, including original research of sufficient quality and importance to merit publication in a refereed journal.

For information about the Ph.D. program, see the Engineering section of this catalog. (Click here)

Program requirements

Most incoming students have undergraduate degrees in electrical engineering or computer engineering. Students with backgrounds in physics, mathematics, computer science, and other areas are also accepted into the program. These students may be required to complete undergraduate electrical and computer engineering courses prior to full graduate admission. GRE scores are required for all students who do not have an electrical or computer engineering degree from an ABET-accredited program. Minimum required scores on the GRE are: Verbal - 400; Quantitative - 600; Analytical Writing - 4.5. A TOEFL score of 600 is required for each applicant whose primary language is not English.

Applications for international students must be received by February 1 for fall admission and August 1 for spring admission.

Research facilities

The department is located in the engineering complex. This facility has been designed to provide an excellent academic environment. There are numerous well-equipped instructional and research laboratories including the computer laboratories, signal and image processing laboratory, instrumentation lab, test and measurements laboratory, bioengineering laboratory, energy systems laboratory, and solid-state electronics laboratory.

Extensive computing resources are available to the department. These cover a wide range including: PCs, workstations, and special purpose computers. Most of these are connected to networks. K-State's computer center provides service with internet access. Access to supercomputers is also available.

Financial support

Research and teaching assistantships are available on a competitive basis. Students on half-time assistantships pay in-state fees. Graduate students have either teaching, research, or both responsibilities.

Career opportunities

Graduate study in electrical engineering will prepare engineers to pursue careers in many diverse, high-technology areas. These careers can be in government, industry, or academia. Possible areas of employment are communications systems, medical equipment design, computer design and applications, power generation and distribution, automotive systems, manufacturing systems, and so on. Electricity and electronics are so necessary for our quality of life that it is difficult to find an area in which electrical engineers and computer engineers are not employed.

Electrical and computer engineering courses

Undergraduate and graduate credit in minor field

EECE 502. Electronics Laboratory. (2) I, II. Design, simulation, construction and testing of electronic circuits. One hour lec. and three hours lab a week. Pr.: EECE 511 and 525. Pr. or conc.: EECE 526.

EECE 510. Circuit Theory I. (3) I, II. An introduction to linear circuit theory; analysis of linear circuits containing resistance, inductance, and capacitance. Mutual inductance and transformers. Three hours rec. a week. Pr.: MATH 222, PHYS 214, and EECE 210.

EECE 511. Circuit Theory II. (3) I, II. Analysis of electric circuits using differential equations, transform techniques, and linear algebra. Transmission lines and applications. Three hours rec. a week. Pr.: MATH 240, STAT 510, and EECE 510.

EECE 512. Linear Systems. (3) I, II. An introduction to linear system fundamental concepts and analytical methods. Analytical concepts presented are signal representation and classification, convolution, Fourier analysis signal sampling, and discrete transforms. Three hours rec. a week. Pr.: EECE 511, and CIS 208 or 209.

EECE 519. Electric Circuits and Control. (4) I, II. Principles of direct-current circuits and machines, alternating-current circuits and machines, electronics, and application to instrumentation and control. Four hours rec. a week. Not open to EECE students. Pr.: PHYS 214.

EECE 525. Electronics I. (3) I, II. Fundamentals of electronic components, devices, and circuits. Three hours rec. a week. Pr.: STAT 510, and EECE 510 or 519.

EECE 526. Electronics II. (3) I, II. Continuation of Electronics I. Three hours rec. a week. Pr.: EECE 511 and 525.

EECE 530. Control Systems Design. (3) I, II. Modeling, analysis, and design of control systems. Three hours rec. a week. Pr.: EECE 512.

EECE 533. Basic Real-Time Electronics. (1) II. Introduction to number systems, Boolean algebra, logic gates, logic family characteristics, and Programmable Logic Devices. Introduction to finite state machines, memories, analog-to-digital converters and basic electrical circuit elements. This course is not available to students with credit in EECE 241. Two hours rec. and three hours lab a week. Course meets in one contiguous block of five weeks. Pr.: PHYS 113 or PHYS 213.

EECE 535. Control Systems Laboratory. (3) I, II. The design and testing of feedback control systems. Two hours rec. and three hours lab a

week. Pr.: EECE 431 and 502. Pr. or conc.: EECE 530.

EECE 541. Design of Digital Systems I. (3) I, II. Design of combinational and sequential systems and peripheral interfaces. Emphasis is placed on hardware description languages, computer-aided design tools, and simulations. Three hours rec. a week. Pr.: EECE 431 and 510, or EECE 431 and PHYS 214.

EECE 542. Local Area Networking. (3) I, II. An introduction to data communication concepts used in the network, data link, and physical layers of the Open Systems Interconnection (OSI) model. Hardware and software aspects of data communications as well as modern Local Area Network (LAN) standards will be emphasized. Two hours rec. and three hours lab a week. Pr.: EECE 241, high-level programming language.

EECE 557. Electromagnetic Theory I. (3) I, II. Vector analysis, electrostatics, magnetostatics, Faraday's Law, Maxwell's Equations, and applications. Three hours rec. a week. Pr.: PHYS 214 and EECE 510.

EECE 571. Introduction to Biomedical Engineering. (1) I. Introduction to quantitative analysis techniques as applied to the study of physiological systems and their associated biological signals. One hour rec. a week. Pr.: MATH 222.

EECE 581. Energy Conversion I. (3) I, II. Energy conversion principles and their application to electric energy converters operating in the static and the dynamic mode. Three hours rec. a week. Pr.: EECE 510 or 519.

EECE 589. Circuits and Machines Lab. (2) I, II. Practical aspects of electrical circuits, transformers, and electrical motors and generators. One hour lec. and two hours lab a week. Not open to EECE students. Pr.: EECE 519.

EECE 590. Seminar. (1) I, II. Preparation and oral presentation of a written technical report. One hour rec. a week. Pr.: ENGL 415 and DEN 275.

Undergraduate and graduate credit

EECE 603. Advanced Electrical Engineering Laboratory. (2) I, II. A project-oriented laboratory in which a small group of students works with a faculty member in a special area of interest. Projects usually involve design, measurement methods, or experimental work. May be repeated once. Pr.: EECE 502.

EECE 624. Power Electronics. (3) I. Theory and application of semiconductor devices to the control and conversion of electric power, control of DC and AC machines, design of electronic power circuits such as controlled rectifiers, converters and inverters using diodes, thyristors, triacs, and power transistors. Three hours rec. a week. Pr.: EECE 581, 511, and 525.

EECE 628. Electronic Instrumentation. (3) I, II. Applications of electronics in the design of analog and digital systems for the measurement of physical variables and in the transduction of these variables into a useful form for both recording and control. Two hours rec. and three hours lab a week. Pr.: EECE 502 and 526.

EECE 631. Microcomputer Systems Design. (3) II. Design and engineering application of 16 and 32 bit microcomputers to instrumentation and control. Investigate the relationship of the C language and assembly language. Timing and other interfacing problems will be covered. Two hours rec. and three hours lab a week. Pr.: CIS 208 or 209; either EECE 431/525 or ME 535.

EECE 633. Real-Time Embedded Systems. (1) I. Interconnection of peripherals, such as CAN networks, DA/AD converters, and Timers. Implementation of device drivers on top of micro-kernels. Build a simple real time distributed embedded system. Two hours rec., and three hours lab a week. Course meets in one contiguous block of five weeks. Pr.: CIS 621 and CIS 622.

EECE 636. Introduction to Computer Graphics. (3) I, II. An introduction to the hardware and software aspects of graphics generation. Programming assignments will provide practical experience in implementing and using standard graphics primitives and user interfaces. Three hours rec. a week. Pr.: CIS 208 or 209 and CIS 300 and MATH 222 or 551.

EECE 641. Advanced Digital Design using Logic Synthesis. (3) II. Applications of hardware description languages (HDLs) for the design of complex digital systems. Topics include designing and simulating using HDLs, logic synthesis into FPGAs and ASICs, optimization techniques, timing issues, hardware verification, and design for testability. Two hours rec. and three hours lab a week. Pr.: EECE 541.

EECE 643. Computer Engineering Design Lab. (2) I, II. The design and construction of a small computer system using simple programmable devices. The design and construction of computer interfacing systems for PCs based on simple microcontroller chips. Implementations of interrupt device drivers will also be covered. One hour rec. and six hours lab a week. Pr.: CIS 208 pr 209 and EECE 541. Pr. or conc.: EECE 649.

EECE 644. Parallel Computing Fundamentals. (3) I. Parallel processing models, multistage inerconnection networks, basic communication operations, performance metrics, parallel algorithms for applications such as sorting, dense matrix manipulation, fast Fourier transforms and graph theory, distributed computing, quantum computing. Three hours rec. a week. Pr.: CIS 450 or EECE 541, CIS 300.

EECE 645. Digital Electronics. (3) I, II. Design of high-performance digital electronics and systems. Topics include design metrics, device modeling, transmission-line models for wiring, signaling conventions, transmitter and receiver circuits, noise analysis and management, power distribution, timing and synchronization techniques. Three hours rec. a week. Pr.: EECE 511, 525, and 541.

EECE 647. Digital Filtering. (3) I. Difference equation characterization of digital filters, transient and steady-state analysis of digital filters using

the Z-transform, spectral analysis of digital signals, design and implementation of digital filters. Three hours rec. a week. Pr.: EECE 512.

EECE 648. Multimedia Compression. (3) I. Introduction to multimedia creation nad representation. Design of multimedia systems, which incorporate audio, image and video. Topics will include the analysis and design of multimedia compression, streaming, delivery, security and authoring. Emphasis will be placed on current multimedia standards and applications. Three hours rec. a week. Pr.: EECE 512 or MATH 551 and CIS 208 or CIS 209.

EECE 649. Computer Design I. (3) I, II. Concepts of computer design. Information representation, instruction sets and addressing modes. Arithmetic and logic unit design for fixed and floating point operations. Hardwired and microprogrammed control design. Concepts of pipelining, CICS and RISC architecture. Memory system design including virtual memory, caches and interleaved memories. I/O design methods, interrupt mechanisms, DMA and system integration. Three hours rec. a week. Pr.: EECE 541.

EECE 659. Wave Guides, Antennas, and Propagation. (3) On sufficient demand. Applications of Maxwell's equations to boundary value problems, guided transmission, cavities, radiation, and propagation. Three hours rec. a week. Pr.: EECE 557.

EECE 660. Communication Systems I. (3) I. Introduction to the analysis and design of analog and digital communication systems. Topics include analog and digital modulation schemes, digital encoding of messages, mathematical modeling of communications systems, noise in communication links and calculation of performance measures for practical links. Three hours rec. a week. Pr. or conc.: EECE 512.

EECE 661. Communication Systems II. (3) II. Analysis and design of digital communication systems. Topics include signal spaces, the derivation of optimum receivers for the white noise channel, modeling of bandpass systems, determination of the power spectrum of a random digital signal, multiple access methods, fading channels, error correction codes, and simulation of practical digital transmission systems. Three hours rec. a week. Pr.: EECE 660.

EECE 662. Design of Communication Circuits. (3) II. The design of communication circuits and systems operating from baseband to UHF frequencies. Topics include tuned-RF amplifiers, RF oscillators, frequency mixers, LC and ceramic bandpass filters, and demodulator circuits. Projects involve the design and performance testing of a complete radio receiver using surface mount discretes and IC components. Two hours rec. and three hours lab a week. Pr.: EECE 502 and 526.

EECE 663. Digital Error Control Coding. (3) II in odd years. An introduction to the subject of error-correcting and error-detecting codes, both block and convolutional. Emphasis is placed on practical means of encoding and decoding the most commonly used codes such as Hamming, BCH, and Reed-Solomon codes. Three hours rec. a week. Pr.: EECE 241, STAT 510, and CIS 208 or 209.

EECE 670. Engineering Applications of Machine Intelligence. (3) II. Study of machine intelligence and fuzzy logic concepts and applications in engineering problem domains. As a term project, develop a fuzzy expert system for a specific problem domain that runs on a personal computer and develop the supporting documentation. Three hours rec. a week. Pr.: CIS 200 or 209, and PHYS 214.

EECE 681. Wind Engineering. (3) I. Wind characteristics, turbine performance, synchronous and asynchronous electrical loads, siting, economics, and wind farm design. Three hours rec. a week. Pr.: ME 512 or CE 530; and EECE 525 or 519.

EECE 684. Power Laboratory. (3) II. Introduction to power systems and device analysis. Course includes lecture and laboratory experience in aspects of power flow, system operation, power quality, power electronics, and economic analysis. Two hours rec. and three hours lab a week. Pr.: EECE 525 and 581.

EECE 685. Power Systems Design. (3) I. A comprehensive study of modeling of the electric power system components and computer simulation of interconnected power systems in steady state. Vector-matrix descriptions are emphasized. Three hours of recitation a week. Pr.: EECE 581.

EECE 686. Power Systems Protection. (3) II. Analysis of symmetrical and unsymmetrical faults on power systems using symmetrical components technique. Study of protective relaying for protection of power systems against faults. Vector-matrix descriptions and computer solutions are emphasized. Three hours of recitation a week. Pr.: EECE 581.

EECE 690. Problems in Electrical and Computer Engineering. (Var.) I, II, S.

EECE 694. Optoelectronics. (3) I. Applied geometric and physical optics, optical radiation, and the interaction of light and matter. The theory and application of photodetectors, lasers, and other photoemitters. Introduction to fiber optical waveguides, sensors, and systems. Three hours rec. a week. Pr.: EECE 525, 557, and CHE 350.

EECE 696. Integrated Circuit Design. (3) I. Study of silicon integrated circuits with emphasis on CMOS analog and digital applications. The course covers basic device structure and modeling, circuit analysis, system design, IC design methodology and economics plus IC fabrication processes. Computer-aided tools are used to simulate and layout circuits designed by student groups. The circuits are fabricated by an external service (MOSIS). Three hours rec. a week. Pr.: EECE 241 and 525.

EECE 725. Integrated Circuit Devices and Processes. (3) II. Integrated circuit fabrication processes including oxidation, diffusion, ion implantation, lithography, etching, crystal growth, process monitoring, and device characterization. Design of discrete and IC devices through laboratory experiments and computer simulations. Two hours rec. and three hours lab a week. Pr.: EECE 525 and CHE 350.

EECE 728. Mixed Signal Measurements. (3) On sufficient demand. Signal classification, noise and uncertainty, TRMS conversion,

quantization and ADCs, repetitive sampling and signal recovery techniques, vector voltmeters, basic network analyzers. Three hours rec. a week. Pr.: EECE 512 or graduate standing.

EECE 730. Control Systems Analysis and Design. (3) II. Use of classical analysis techniques for control system compensation. State space control theory fundamentals are presented in addition to an introductory treatment of several major systems areas. Three hours rec. a week. Pr.: EECE 530 or ME 640. Same as ME 730.

EECE 731. Advanced Microcomputer System Design. (3) II. Design and engineering applications of 16 and 32 bit microprocessors. Utilization of peripheral and co-processor chips. Two hours rec. and three hours lab a week. Pr.: EECE 631.

EECE 733. Real-Time Embedded Systems Design. (3) II. Design and implementation of a comprehensive team project of a complete embedded real-time system. Two hours rec. and three hours lab a week. Pr. or conc.: CIS 721.

EECE 736. Discrete-Time and Computer-Control Systems. (3) II. Analysis and design of discrete-time, sampled-data, and computer-control systems using discrete-state equations and Z-transforms. Three hours rec. a week. Pr.: EECE 530 or ME 640.

EECE 746. Fault Diagnosis in Digital Systems. (3) II, in even years. Hazards, fault detection in combinational circuits, and sequential machines using path sensitizing and fault-matrix methods, state table analysis, etc.; system reliability through logical redundance. Three hours rec. a week. Pr. or conc.: EECE 541 or 631.

EECE 747. Digital Signal Processing Laboratory. (3) II. Digitization of analog signals; demonstration of aliasing problems; spectral analysis of digital signals using Fourier and other signal representation techniques; digital filtering problems; applications related to biomedical and speech data. Two hours lec. and three hours lab a week. Pr.: EECE 512. Pr. or conc.: EECE 647.

EECE 749. Computer Design II. (3) I. Study of alternate computer hardware structures. Investigation of engineering tradeoffs in implementation of alternative instruction sets and computing structures. Emphasis will be placed on a quantitative approach to cost/performance evaluations including simulation of hardware structures. Three hours rec. a week. Pr.: EECE 649.

EECE 758. Electromagnetic Theory II. (3) On sufficient demand. Continuation of EECE 557. Three hours rec. a week. Pr.: EECE 557.

EECE 764. Design of Microwave Circuits. (3) I. The design of communication circuits and systems operating at microwave frequencies. Topics include antennas, transmission lines, microstrip matching networks, S-parameters, frequency synthesizers, and downconverter components such as LNAs, mixers, and microstrip bandpass filters. Projects involve design, simulation with electronic design automation tools, and laboratory measurements. Two hour lecture and three hour lab a week. Pr.: EECE 502, 512, 526, and 557.

EECE 765. Digital Radio Hardware Design. (3) On sufficient demand. Advanced topis in digital radio communication systems. Topics include the design and application of state-of-the-art RF and baseband circuits found in products ranging from cordless and cellular phones to wireless local area networks. System-level issues including coding, duplexing, and multiple access techniques are also covered, and a team-based project provides experience with RF hardware research and development activities. Three hours a week. Pr.: EECE 622, or EECE 664, or EECE 696, or consent of instructor.

EECE 771. Control Theory Applied to Bioengineering. (3) II. Development of mathematical models used in the study and analysis of physiological control systems providing techniques for varying pertinent biological parameters. Three hours rec. a week. Pr. or conc.: EECE 530 or ME 640, and a basic physiology course.

EECE 772. Theory and Techniques of Bioinstrumentation. (2) I. Theoretical aspects of biological signals, electrodes, transducers, digital imaging and computer-based data acquisition directed toward EECE and other science department majors. Two hours rec. per week. Pr.: Conc. enrollment in EECE 773 (EECE majors only) and AP 773.

EECE 773. Bioinstrumentation Design Laboratory. (1) I. Design and testing of hardware and software for acquiring and analyzing biological signals. Three hours lab per week. Pr.: EECE 502 and conc. enrollment in EECE 772 and AP 773.

EECE 780. Power Seminar. (1) I, II. Speakers from industry, academia, and government present topics related to power systems engineering. May be repeated with instructor permission. One hour lecture a week. Pr.: Junior standing.

Graduate credit

EECE 824. Advanced Power Electronics. (3) High-frequency switching dc/dc converters, resonant converters, analysis and control of power electronic systems, and thermal management. Three hours rec. a week. Pr.: EECE 624.

EECE 828. Topics in Instrumentation. (3) On sufficient demand. Selected topics related to the general field of electronic instrumentation. May be repeated. Three hours rec. a week. Pr.: EECE 628.

EECE 830. Advanced Systems Theory. (3) I. State space description and analysis of continuous and discrete time dynamic systems including optimal control solutions. Both linear and nonlinear systems are considered. Three hours rec. a week. Pr.: EECE 530 or ME 640.

EECE 840. Computer Engineering Methods for Analysis, Simulation, and Design. (3) II. Computer-aided and numerical techniques applicable to problems in electrical and computer engineering. Emphasis is on implementation of these techniques on the computer. Three hours

rec. a week. Pr.: EECE 512.

EECE 841. Wide Area Networking. (3) II. Design and analysis of networks that span large distances or multiple local area networks (LANs). Topics include queuing theory, LAN standards, routing, switching, security, and higher-level protocols. Three hours rec. a week. Pr.: STAT 410 or STAT 510, high-level programming language.

EECE 842. Parallel Processing. (3) I (in odd years). Parallel processing application in signal and image processing. Array processors, pipeline processors, systolic and wavefront arrays, interconnection networks, performance analysis. Three hours rec. a week. Pr.: EECE 512, 649.

EECE 845. Sequential Machines. (3) II. Theory and mathematical framework of digital hardware will be developed. Limitations and fault detection of these machines will be explored using the theoretical basis of sequential machines. Three hours rec. a week. Pr.: MATH 510 and EECE 649.

EECE 846. Computer Engineering Methods for Analysis, Simulation, and Design II. (3) I. Continuation of EECE 840. Pr.: EECE 840.

EECE 849. Topics in Computer Engineering. (3) On sufficient demand. Selected topics relating to current developments in computer engineering. Topics may include computer architectures, computer networking, multiprocessing, and computer interfaces. May be repeated. Three hours rec. a week. Pr.: EECE 649.

EECE 855. Advanced Topics in Electromagnetic Theory. (3) On sufficient demand. Mathematical development of electromagnetic wave theory. Three hours rec. a week. Pr.: EECE 758.

EECE 861. Noise Theory. (3) I. Study of noise phenomena and measurement; the representation of noise by statistical parameters, the noise factor of undesired noise sources, and the measurement applications of noise generators. Three hours rec. a week. Pr.: EECE 512.

EECE 866. Transform Processing of Digital Signals. (3) II. Orthogonal transforms in digital signal processing with emphasis on one- and two-dimensional signals, generalized Wiener filtering, feature selection in pattern recognition, and elements of adaptive filtering techniques. Three hours rec. a week. Pr.: EECE 861.

EECE 867. Digital Image Processing. (3) I. Basic concepts and techniques of image formation, representation, analysis, restorations, enhancement, coding, segmentation, and description. Object recognition using shape descriptors and syntactic techniques. Image processing applications in remote sensing, computer vision, and medical diagnosis. Three hours rec. a week. Pr.: EECE 512.

EECE 870. Neural Networks in Engineering. (3) I, in even years. Engineering applications of artificial neural networks and machine intelligence. Particular emphasis will be placed on determining appropriate applications of alternate computing approaches and establishing efficient hardware support to implement these computational approaches. Three hours rec. a week. Pr.: EECE 670.

EECE 881. Advanced Topics in Electric Energy Systems. (3). On sufficient demand. Subjects of current interest such as computer methods, distribution and transmission systems, systems planning and economics, extra high voltage transmission, exotic power sources. May be repeated. Three hours rec. a week. Pr.: EECE 686.

EECE 882. Power Quality. (3) I, II. Description, analysis, modeling, and solution of difficulties relating to distortion of the waveshape in alternating-current power systems. Problems of voltage regulation. Focus on harmonics, noise, filtering, and communications interference in power systems. Three hours rec. a week. Pr.: EECE 624 and 685.

EECE 885. Power Systems Operation and Control. (3) On sufficient demand. Specific topics include economic dispatch, unit commitment, control of generation, power system security, and state estimation. Several analytical and computational techniques are used to solve different problems related to above mentioned topics. Three hours rec. a week. Pr.: EECE 685.

EECE 887. Distribution System Engineering. (3) II. Analysis, design and planning of electric distribution systems. Standard terminologies related to distribution systems are covered. Three hours rec. per week. Pr.: EECE 685.

EECE 888. Power System Stability and Control. (3) Every third year. Introduction to power system stability and control. System device modeling and control issues are introduced for the purpose of studying various aspects of power system stability. Transient, small signal, and voltage stability topics are covered. Several stability analysis projects for multimachine systems are included. Three hours rec. a week. Pr.: EECE 581 and 685.

EECE 890. Advanced Electrical Theory. (Var.) I, II. For advanced study in specialized areas by M.S. students. Pr.: M.S. student.

EECE 895. Solid-State Electronic Devices (3) I, on demand. Introduction to quantum mechanics, crystal structures, and the semiconductor material properties. Diodes, bipolar transistors, and field-effect transistor structures. Analysis of second-order effects in transistors. Three hours rec. a week. Pr.: CHE 350, EECE 557, and EECE 696.

EECE 896. Graduate Seminar in Electrical and Computer Engineering. (0) I, II. Presentation and discussion of current advances and research inelectrical and computer engineering. Required of all graduate students in electrical and computer engineering.

EECE 897. Research in Electrical Engineering. (Var.) I, II, S. Special research problems in electrical engineering. Pr.: Consent of instructor.

EECE 898. Master's Report. (Var.) I, II, S. Topics selected with approval of major professor and department head.

EECE 899. Master's Thesis. (Var.) I, II, S. Topics selected with approval of major professor and department head.

EECE 931. Advanced Topics in Control Theory. (3). On sufficient demand. Study of advanced topics in optimal, time-varying, and stochastic control theory, or other recent developments in the control systems area. May be repeated. Three hours rec. a week. Pr.: EECE 830.

EECE 949. Advanced Topics in Computer Engineering. (3). On sufficient demand. Selected topics related to advanced computer hardware design, performance measurements, sequential machines, and/or advanced computer architectures. May be repeated. Three hours rec. a week. Pr.: EECE 845.

EECE 962. Advanced Topics in Communications. (3), on sufficient demand. Selected topics related to the design and performance analysis of communication systems. Topics may include advanced modulation techniques, optimum receiver design, nonlinear channels, multipath analysis, diversity systems, and others. Three hours rec. a week. Pr.: EECE 861.

EECE 963. Signal Detection Theory. (3) II. A study of optimum signal detection principles for analog and digital communication over the linear additive noise channel. Includes series representations for random signals and the derivation of minimum mean square error (MMSE) receivers for AM and FM and maximum likelihood (ML) receivers for FSK, MSK, and M-Ary PSK. Three hours rec. a week. Pr.: EECE 861.

EECE 965. Information Theory. (3) I. Information as a measure of uncertainty, zero-memory and Markov sources, coding of information sources, channels and mutual information, reliable transmission via unreliable channels, error correcting codes. Three hours rec. a week. Pr.: EECE 861.

EECE 967. Advanced Topics in Digital Signal Processing. (3). On sufficient demand. Selected topics related to adaptive digital filtering techniques; special purpose hardware for digital filtering; two-dimensional signal processing and classification. Three hours rec. a week. Pr.: EECE 866 or 968.

EECE 968. Advanced Digital Filtering. (3) II. Advanced treatment of the theory of digital filtering and digital signal processing. Emphasis is on analysis of random signals. Three hours rec. a week. Pr.: EECE 647 and 861.

EECE 971. Advanced Topics in Bioengineering. (3). On sufficient demand. Study of complex physiological system simulation and analysis techniques, modern experimental and clinical electronic bioinstrumentation systems. Topics selected according to graduate student's interests. May be repeated. Three hours rec. a week. Pr.: EECE 771 or 772.

EECE 999. Dissertation Research. (Var.) I, II, S. Topics selected with approval of major professor and department head.

For more information

For additional information and application materials please contact:
Graduate Program Coordinator
Kansas State University
Department of Electrical and Computer Engineering
2061 Rathbone Hall
Manhattan, KS 66506-5204
785-532-5600
E-mail: grad@eece.ksu.edu
Home Page: http://www.eece.ksu.edu

Engineering

The College of Engineering offers doctoral programs leading to the Ph.D. degree in engineering in the following areas: Biological and Agricultural Engineering, Chemical Engineering, Civil Engineering, Electrical Engineering, Industrial Engineering, Mechanical Engineering, and Nuclear Engineering. A doctoral program leading to the Ph.D. in Computing and Information Sciences is also offered.

Programs leading to the M.S. degree in all of the above areas are offered. In addition, programs are offered for the M.S. in Operations Reseach, M.S. in Architectural Engineering, the Master of Software Engineering, and the Master of Engineering Management degrees.

Entering graduate students must meet the entrance requirements of the Graduate School and must have completed the B.S. degree in a field of engineering, computing and information science, or a closely related area of science.

Graduate Faculty:

Richard G. Akins, Chemical Engineering, Ph.D., Northwestern University.

Mahbub ul Alam, Biological and Agricultural Engineering, Ph.D., Colorado State University.

Torben Amtoft, Computing and Information Sciences, Ph.D., University of Aarhus.

Daniel Andresen, Computing and Information Sciences, Ph.D., University of California, Santa Barbara.

Paul R. Armstrong, (Adjunct) Biological and Agricultural Engineering, Ph.D., Michigan State University.

Bruce Babin, Mechanical and Nuclear Engineering, Ph.D., University of Arizona.

Anindya Banerjee, Computing and Information Sciences, Ph.D., Kansas State University.

Philip L. Barnes, Biological and Agricultural Engineering, Ph.D., Kansas State University.

B. Terry Beck, Mechanical Engineering, Ph.D., Oakland University.

David Ben-Arieh, Industrial and Manufacturing Systems Engineering, Ph.D., Purdue University.

Alok Bhandari, Civil Engineering, Ph.D., Virginia Polytechnic Institute and State University.

Charles L. Burton, Architectural Engineering, Construction Science, MS, University of Kansas.

Liang-Wu Cai, Mechanical and Nuclear Engineering, Ph.D., Massachusetts Institute of Technology.

Myron A. Calhoun, Emeritus, Computing and Information Sciences, Ph.D., Arizona State University.

Kenneth H. Carpenter, Electrical and Computer Engineering, Ph.D., Texas Christian University.

Mark E. Casada, Biological and Agricultural Engineering, Ph.D., North Carolina State University.

D. V. Satish Chandra, Electrical and Computer Engineering, Ph.D., Auburn University.

Shing I. Chang, Industrial and Manufacturing Systems Engineering, Ph.D., Ohio State University.

Kirby S. Chapman, Mechanical Engineering, Ph.D., Purdue University.

Do Sup Chung, Biological and Agricultural Engineering, Ph.D., Kansas State University.

Gary Clark, Biological and Agricultural Engineering, Ph.D., Texas A & M University.

Sanjoy Das, Electrical and Computer Engineering, Ph.D., Louisiana State University.

Dwight D. Day, Electrical Engineering and Computer Engineering, Ph.D., Oklahoma State University.

Scott A. DeLoach, Computing and Information Sciences, Ph.D., Air Force Institute of Technology.

James E. DeVault, Electrical and Computer Engineering, M.S., University of Michigan.

John J. Devore, Electrical and Computer Engineering, Ph.D., Kansas State University.

Norman G. Dillman, Electrical and Computer Engineering, Ph.D., Iowa State University.

Sunanda Dissanayake, Civil Engineering, Ph.D., University of South Florida.

Kimberly Douglas, Industrial and Manufacturing Systems Engineering, Ph.D., Arizona State University.

William L. Dunn, Mechanical and Nuclear Engineering, Ph.D., North Carolina State University.

Ruth A. Dyer, Electrical and Computer Engineering, Ph.D., University. of Kentucky.

Stephen A. Dyer, Electrical and Computer Engineering, Ph.D., Kansas St. University.

Todd Easton, Industrial and Manufacturing Systems Engineering, Ph.D., Georgia Institute of Technology.

Steve J. Eckels, Mechanical Engineering, Ph.D., Iowa State University.

James H. Edgar, Chemical Engineering, Ph.D., University of Florida.

Larry E. Erickson, Chemical Engineering, Ph.D., Kansas State University.

Asadollah Esmaeily, Civil Engineering, Ph.D., University of Southern California.

L. T. Fan, Chemical Engineering; Dir, Ph.D., West Virginia University.

Donald L. Fenton, Mechanical Engineering, Ph.D., University of Illinois.

David R. Fritchen, Architectural Engineering, M.S., University of Washington.

Steven J. Galitzer, Industrial and Manufacturing Systems Engineering, Ph.D., Kansas State University.

Richard R. Gallagher, Electrical and Computer Engineering, Ph.D., Iowa St. University.

Larry A. Glasgow, Chemical Engineering, Ph.D., University of Missouri- Columbia.

James F. Goddard, Architectural Engineering, M.S., University of Florida.

Don M. Gruenbacher, Electrical and Computer Engineering, Ph.D., Kansas State University.

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William J. Hankley, Computing and Information Sciences, Ph.D., Ohio State University.

Joseph P. Harner, III, Biological and Agricultural Engineering; Ph.D., Virginia Polytechnical Institute and State University.

R. Michael Harnett, Industrial and Manufacturing Systems Engineering, Ph.D., University of Alabama.

John Hatcliff, Computing and Information Sciences, Ph.D., Kansas State University.

Richard B. Hayter, Engineering Extension, Ph.D., Kansas St. University.

Keith L. Hohn, Chemical Engineering, Ph.D., University of Minnesota.

Mohammad H. Hosni, Mechanical Engineering, Ph.D., Mississippi State University.

Mustaque Hossain, Civil Engineering, Ph.D., Arizona State University.

Rodney Howell, Computing and Information Sciences, Ph.D., University of Texas-Austin.

William Hsu, Computing and Information Sciences, Ph.D., University of Illinois at Urbana-Champaign.

Stacy L. Hutchinson, Biological and Agricultural Engineering, Ph.D., Kansas State University.

Byron W. Jones, Joint Appointment with Architectural Engineering and Mechanical Engineering, Ph.D., Oklahoma St. University.

Terry S. King, Chemical Engineering, Ph.D., Massachusetts Institute of Technology.

James K. Koelliker, Biological and Agricultural Engineering, Ph.D., Iowa St. University.

Bradley A. Kramer, Industrial and Manufacturing Systems Engineering, Ph.D., Kansas State University.

Kimberly W. Kramer, Architectural Engineering and Construction Science, M.S., University of Texas at Arlington.

Prakash Krishnaswami, Mechanical Engineering, Ph.D., University of Iowa.

William B. Kuhn, Electrical and Computer Engineering, Ph.D., Virginia Polytechnic Institute and State University.

Benjamin G. Kyle, Emeritus, Chemical Engineering, Ph.D., University of Florida.

Kevin B. Lease, Mechanical Engineering. Ph.D., University of Iowa.

E. Stanley Lee, Industrial and Manufacturing Systems Engineering, Ph.D., Princeton University.

Shuting Lei, Industrial and Manufacturing Systems Engineering, Ph.D., Purdue University.

Donald H. Lenhert, Electrical and Computer Engineering, Ph.D., University of New Mexico.

Thomas D. Logan, Architectural Engineering and Construction Science, M.Construction Management, University of Kansas.

Sameer I. Madanshetty, Mechanical Engineering, Ph.D., Yale University.

Ronaldo Maghirang, Biological and Agricultural Engineering, Ph.D., Pennsylvania State University.

Kyle R. Mankin, Biological and Agricultural Engineering, Ph.D., Ohio State University.

Alexander P. Mathews, Civil Engineering, Ph.D., University of Michigan, Ann Arbor.

John C. Matthews, Emeritus, Chemical Engineering, D.Sc., Washington University.

Douglas S. McGregor, Mechanical and Nuclear Engineering, Ph.D., University of Michigan.

Hani G. Melhem, Civil Engineering, Ph.D., University of Pittsburgh.

Ruth Douglas Miller, Electrical and Computer Engineering, Ph.D., University of Rochester.

Masaaki Mizuno, Computing and Information Sciences, Ph.D., Iowa State University.

Medhat M. Morcos, Electrical and Computer Engineering, Ph.D., University of Waterloo.

J. Pat Murphy, Biological and Agricultural Engineering, M.S., Kansas State University.

Yacoub Najjar, Civil Engineering, Ph.D., University of Oklahoma.

Balasubramaniam Natarajan, Electrical and Computer Engineering, Ph.D., Colorado State University.

Mitchell Neilsen, Computing and Information Sciences, Ph.D., Kansas State University.

Richard G. Nelson, Engineering Extension, Ph.D., Oklahoma State University.

David A. Pacey, Engineering Tech. Ph.D., Kansas State University.

Anil Pahwa, Electrical and Computer Engineering, Ph.D., Texas A&M University.

Thomas C. Pearson, (Adjunct) Biological and Agricultural Engineering, Ph.D., University of California at Davis.

Z. J. Pei, Industrial and Manufacturing Systems Engineering, Ph.D., University of Illinois.

Dunja Peric, Civil Engineering, Ph.D., University of Colorado, Boulder.

Robert J. Peterman, Civil Engineering, Ph.D., Purdue University.

Peter H. Pfromm, Chemical Engineering, Ph.D., University of Texas, Austin.

Hayder A. Rasheed, Civil Engineering, Ph.D., University of Texas, Austin.

Lakshmi N. Reddi, Civil Engineering. Ph.D., Ohio State University.

Mary E. Rezac, Chemical Engineering, Ph.D., University of Texas, Austin.

Carl O. Ribblett, Architectural Engineering, M.S., Texas A&M.

Danny H. Rogers, Biological and Agricultural Engineering; Ph.D., Oklahoma St. University.

Stefan Romanoschi, Civil Engineering, Ph.D., Louisiana State University.

Andrew Rys, Electrical and Computer Engineering, Ph.D., Texas Tech University.

Malgorzata J. Rys, Industrial and Manufacturing Systems Engineering, Ph.D., Kansas State University.

Nader A. Samaan, Electrical and Computer Engineering, Ph.D., Texas A&M University.

Dale E. Schinstock, Mechanical and Nuclear Engineering, Ph.D., University of Kansas.

John R. Schlup, Chemical Engineering, Ph.D., California Institute of Technology.

David A. Schmidt, Computing and Information Sciences, Ph.D., Kansas State University.

Mark D. Schrock, Biological and Agricultural Engineering, Ph.D., Kansas St. University.

J. Kenneth Shultis, Nuclear Engineering, Ph.D., University of Michigan.

Gurdip Singh, Computing and Information Sciences, Ph.D., State University of New York, Stonybrook.

John W. Slocombe, Biological and Agricultural Engineering, Ph.D., Iowa State University.

David L. Soldan, Electrical and Computer Engineering, Ph.D., Kansas State University.

Charles K. Spillman, Biological and Agricultural Engineering; Ph.D., Purdue University.

Shelli K. Starrett, Electrical and Computer Engineering, Ph.D., Iowa State University.

Steven K. Starrett, Civil Engineering, and Electrical and Computer Engineering, Ph.D., Iowa State University.

James M. Steichen, Biological and Agricultural Engineering; Ph.D., Oklahoma State University.

Sutton F. Stephens, Architectural Engineering and Construction Science, Ph.D., University of Missouri - Rolla.

David R. Steward, Civil Engineering, Ph.D., University of Minnesota.

Robert W. Stokes, Civil Engineering, Ph.D., Texas A&M University.

Allen Stoughton, Computing and Information Sciences, Ph.D., University. of Edinburgh.

Daniel V. Swenson, Mechanical Engineering, Ph.D., Cornell University.

Randal K. Taylor, Biological and Agricultural Engineering, Ph.D., University of Nebraska.

J. Garth Thompson, Mechanical Engineering, Ph.D., Purdue University.

Akira Tokuhiro, Mechanical and Nuclear Engineering, Ph.D., Purdue University.

Elizabeth A. Unger, Computing and Information Sciences, Ph.D., University of Kansas.

Maarten Van Sway, Emeritus, Computing and Information Sciences, Ph.D., Princeton.

Larry E. Wagner, (Adjunct) Biological and Agricultural Engineering, Ph.D., Kansas State University.

Walter P. Walawender Jr., Chemical Engineering, Ph.D., Syracuse University.

Virgil E. Wallentine, Computing and Information Sciences, Ph.D., Iowa State University.

Donghai Wang, Biological and Agricultural Engineering, Ph.D., Texas A&M University.

Youqi Wang, Mechanical Engineering, Ph.D., Shanghai Jiao Tong University.

Steve Warren, Electrical and Computer Engineering, Ph.D., University of Texas, Austin.

Warren N. White, Jr., Mechanical Engineering, Ph.D., Tulane University.

Robert E. Wolf, Biological and Agricultural Engineering, Ph.D., University of Illinois.

Chih-Hang (John) Wu, Industrial and Manufacturing Systems Engineering, Ph.D., Pennsylvania State University.

Xiao Jiang Xin, Mechanical Engineering, Ph.D., University of Sheffield, United Kingdom.

Raphael A. Yunk, Architectural Engineering and Construction Science, M.S., Kansas State University.

Naiqian Zhang, Biological and Agricultural Engineering, Ph.D., Virginia Polytechnic Institute and State University.

Maria Zamfir-Bleyberg, Computing and Information Sciences, Ph.D., University of California, Los Angeles.

Zhongquan Zheng, Mechanical and Nuclear Engineering, Ph.D., Old Dominion University.

See individual engineering programs for application information.

English

M.A. program | Admission procedures | Technical writing graduate certificate | Children's Literature | Financial support | English courses | Courses in linguistics | More information

Head:
Karin Westman

Director of graduate studies:
Gregory Eiselein

Graduate faculty:

Lee Behlman, Ph.D., University of Michigan.

Linda Brigham, Ph.D., University of Maryland.

Timothy Dayton, Ph.D. , Duke University.

Elizabeth Dodd, M.F.A., Ph.D., Indiana University.

M. L. Donnelly, Ph.D., Harvard University.

Gregory Eiselein, Ph.D., University of Iowa.

Carol Franko, Ph.D., University of Wisconsin.

Tanya Gonzalez, Ph.D., University of California.

Dean Hall, Ph.D., Kent State University.

Christina Hauck, Ph.D., University of California, Berkeley

Donald Hedrick, Ph.D., Cornell University.

Jonathan Holden, Ph.D., University of Colorado.

Michele Janette, Ph.D., Yale University.

George Keiser, Ph.D., Lehigh University.

Anne Longmuir, Ph.D., University of Edinburgh.

James Machor, Ph.D., University of Illinois.

Phillip Marzluf, Ph.D., University of Oklahoma.

Philip W. Nel, Ph.D., Vanderbilt University.

Bonnie Nelson, Ph.D., Pennsylvania State University.

Anne Phillips, Ph.D., University of Connecticut.

Donna L. Potts, Ph.D., University of Missouri at Columbia.

M. Imad Rahman, M.F.A., University of Florida.

Lawrence Rodgers, Ph.D., University of Wisconsin.

Susan Rodgers, M.A., Kansas State University.

David Smit, Ph.D., University of Iowa.

Donald K. Smith, Ph.D., University of Iowa.

Lisa Tatonetti, Ph.D., Florida State University.

Irene Ward, Ph.D., University of South Florida.

Leland Warren, Ph.D., University of Illinois.

Karin E. Westman, Ph.D., Vanderbilt University.

Alison Wheatley, Ph.D., University of Virginia.

Naomi Wood, Ph.D., Duke University.

M.A. program

The M.A. degree in English is awarded in one of four tracks, each of which can be completed in 30 to 33 hours. All tracks include a literature core (9 hours); courses in the chosen track (9 hours); electives (9 hours); a seminar (3 hours); foreign language certification (or equivalent research tool); a final writing project or thesis; and a final oral examination, a defense and discussion of the writing project or thesis.

British and American literature

Concentration in this track is on the study of British and American literature; a student may emphasize any time period in either national literature and will work with graduate faculty who are experts in that period.

Creative writing and literature

Concentration in this track is on the student's creative work in fiction, poetry, creative nonfiction, or drama; the student will work closely with graduate faculty well-published in the genre the student chooses to emphasize. The department's visiting writers program brings several writers of national stature to campus each year. In addition, opportunities for editorial experience are open to graduate students in this track.

Language, composition/rhetoric, and literature

Concentration in this track is on language, composition, and rhetorical theory. Like the other M.A. tracks, this one can prepare students for Ph.D. work, for teaching in community colleges, and for a career in technical writing.

Cultural studies and literature

Concentration in this track is on training in Marxist, feminist, poststructuralist, and psychoanalytic theory. A student may complement the study of literature with the study of politics, sociology, political economy, popular and mass culture, film, and other art forms.

Children's Literature

Concentration in this track is on the study of children's and young adult literature; a student may emphasize a particular period or region, such as nineteenth-century American literature, or a particular genre, such as picture books. Students will work with faculty who have expertise in the area, or in a field that complements the student's focus.

Graduate certificate in technical writing and professional communication

The Graduate Certificate in Technical Writing and Professional Communication offers students an interdisciplinary program that focuses on communication in non-academic professions, particularly business, government, high technology industries, and the non-profit sector. It centers on the competencies necessary for successful technical communication (writing, rhetorical analysis, editing, and document design) as well as on the key print and digital genres of the workplace (reports, project proposals, grant proposals, feasibility studies, web sites, presentations, correspondence and manuals). The certificate serves not only students who wish to be technical writers but also those from a range of disciplines who wish to add value to their graduate degrees by acquiring a supplementary credential.

Admission procedures

All applications are reviewed by the director of graduate studies and the graduate advisory committee within the department. Applicants are expected to have performed at a B level or better in all of their undergraduate work, but the committee bases its judgment primarily on the student's performance in English courses.

Because some persons do not mature as students until late in their undergraduate careers, the department may sometimes accept students with less than the expected grade average if the students' final semesters indicate the ability to do graduate work. Moreover, the department recognizes that students who have majored in fields other than English as undergraduates may choose English for their graduate work. Such students are usually admitted with provisional standing and are enrolled in courses for undergraduate credit until any deficiencies are made up.

Applications need to include the following:

1. Two completed copies of the standard application form.

2. Two copies of the official transcript from each college or university the applicant has attended. Only official copies are accepted by the Graduate School. (If the transcripts do not show an undergraduate major comparable to that of K-State with a minimum of 24 credit hours in English above the freshman level, the applicant may be admitted with provisional standing and enrolled in courses for undergraduate credit until the

deficiency has been removed.)

3. Three letters of recommendation from persons qualified to speak informatively of the applicant's academic performance and his or her potential for advanced study in English.

4. A statement of objectives (a succinct account of aims and interests).

5. A copy of the applicant's GRE scores (general section only).

6. A writing sample of 8-15 pages of analytical or persuasive prose.

7. An application fee of $30 for domestic students or $55 for international students.

8. For applicants who expect to enter the creative writing track, a writing sample of either 10-30 pages of fiction or 6-10 poems.

9. For international students, an official TOEFL score report and Kansas State University's financial affidavit. International students seeking a teaching assistantship should also submit a TSE (Test of Spoken English) score.

Financial support

Most M.A. students qualify to be graduate teaching assistants and are provided valuable teaching experience as well as financial support. GTAs receive a nine-month stipend and a full tuition waiver. The Department of English also offers a small number of scholarships; awarded on a competitive basis, these may be held in addition to an assistantship. Students in the creative writing track may apply for the Seaton Fellowships; students in all tracks may apply for the Glenn, Grindell, and Popkins Scholarships.

English courses

Undergraduate and graduate credit in minor field

ENGL 510. Introduction to Professional Writing. (3) I,II,S. Intensive practice in applying rhetorical principles to a number of genres common in non-academic professions and workplaces; an introduction to allied topics such as document design and editing. Pr.: ENGL 125 or 200. Limited to majors and minors in English.

ENGL 516. Written Communication for the Sciences. (3) I, II. Theory and intensive writing practice for students in the basic and applied sciences. Pr.: Junior standing and ENGL 125 or 200. Will not substitute for ENGL 415.

ENGL 525. Women in Literature. (3) I, II. Study of literary works by or about women. Repeatable once with change of topic. Pr.: ENGL 125 or 200.

ENGL 545. Literature for Adolescents. (3) I, II. Selecting, reading, and evaluating books for adolescents. Required for those seeking middle school and high school certification in English. Pr.: ENGL 125 or 200.

ENGL 562. Playwriting. (3) I, II. Theoretical study and practical application of techniques of playwriting with regard to plot, characters, and production; emphasis on the one-act form. Same as THTRE 562.

ENGL 580. Selected World Literature. (3) I, II. Addresses writing by authors whose native origins lie outside Europe or the United States. Content may vary with instructor. May examine literature from several countries or regions, concentrate on literature from one country or region, or focus on a topic which transcends national or regional boundaries. Works are written in or translated into English.

ENGL 599. Special Research in English. (Var.) I, II. Individual investigation in authors, genres, periods of literature, or language. Background of preparation needed for investigation undertaken.

Undergraduate and graduate credit

ENGL 604. Expository Writing Workshop. (3) I, II, S. Course emphasizes stylistic analysis of modern non-fiction prose in the sciences, social sciences, and humanities. Extensive writing required. Pr.: Junior standing.

Readings courses

ENGL 605-660: The following readings courses are designed primarily for advanced undergraduates although graduate students may also enroll in them. These courses constitute a sequence of period studies covering the chronological range of English and American literature. Within these historical periods, the specific course contents will vary by semester and instructor. They may emphasize literary figures and movements, historical and cultural contexts, or different genres and forms within the periods. Each semester's offerings will be specifically described before each enrollment period in university and department publications. The courses require junior standing and are repeatable with change of subject matter.

ENGL 605. Readings in Medieval Literature. (3) I, II, S.

ENGL 610. Readings in Renaissance Literature. (3) I, II, S.

ENGL 620. Readings in Seventeenth-Century British Literature. (3) I, II, S.

ENGL 625. Readings in Eighteenth-Century British Literature. (3) I, II, S.

ENGL 630. Readings in Nineteenth-Century British Literature. (3) I, II, S.

ENGL 635. Readings in Twentieth-Century British Literature. (3) I, II, S.

ENGL 640. Readings in Early American Literature. (3) I, II, S.

ENGL 645. Readings in Nineteenth-Century American Literature. (3) I, II, S.

ENGL 650. Readings in Twentieth-Century American Literature. (3) I, II, S.

ENGL 655. Readings in American Ethnic Literature. (3) I, II, S.

ENGL 660. Readings in Major Authors. (3) I, II, S.

ENGL 661. Advanced Creative Writing: Prose Fiction. (3) I, II, S. Advanced writing of prose fiction. Repeatable once. Pr.: ENGL 461 or instructor permission.

ENGL 663. Advanced Creative Writing: Poetry. (3) I, II, S. Advanced writing of poetry. Repeatable once. Pr.: ENGL 463 or instructor permission.

ENGL 665. Advanced Creative Writing: Nonfiction. (3) I. Advanced writing of prose creative nonfiction. Repeatable once. Pr.: ENGL 465 or instructor permission.

Topics courses

ENGL 670-695: The following topics courses are designed primarily for advanced undergraduates although graduate students may enroll in them. These courses address topics not confined to a single period in a national literature. Specific course content will vary by semester and instructor. It may emphasize cross-national subjects, literary criticism, the development of a theme or genre over time, new perspectives from social, intellectual, or cultural studies, or non-traditional texts and topics. Each semester's offerings will be described more specifically in university and department publications before each enrollment period. The courses require junior standing and are repeatable with change of subject matter.

ENGL 670. Topics in British Literature. (3) I, II, S.

ENGL 680. Topics in American Literature. (3) I, II, S.

ENGL 685. Topics in Rhetoric and Composition. (3) I, II, S. Content varies by semester. Junior standing required; course repeatable with change of subject matter.

ENGL 690. Topics in Literature for the Young. (3) I, II, S.

ENGL 695. Topics in Literature. (3) I, II, S.

ENGL 700. Old English. (3) I, II, S. The elements of Old English grammar, with readings in prose and poetry. Pr.: Instructor permission.

ENGL 705. Theory and Practice of Cultural Studies. (3) I, II, S. An overview of selected approaches to the study of culture and of their current application in English studies, including psychoanalytic, feminist, Marxist, and poststructuralist approaches. Pr.: Junior standing.

Studies courses

ENGL 710-759: The following studies courses are designed primarily for graduate students, although advanced undergraduate students may also enroll in them. Their specific contents will vary by semester and instructor, but the courses will reflect concerns with literary and rhetorical forms and genres; with specific authors, periods, or literary movements; with perspectives from social, intellectual, and cultural studies; with literary themes; or with language or linguistics. Each semester's offerings will be described more specifically in university and department publications before each enrollment period. The courses require junior standing and are repeatable with change of subject matter.

ENGL 710. Studies in a Literary Genre. (3) I, II, S.

ENGL 720. Studies in a Major Author. (3) I, II, S.

ENGL 730. Studies in a Literary Period. (3) I, II, S.

ENGL 740. Studies in Literary Theory. (3) I, II, S.

ENGL 755. Studies in Composition and Rhetoric. (3) I, II, S.

ENGL 757. Studies in Language and Linguistics. (3) I, II, S.

ENGL 759. Studies in Technical Communication. (3) I, II, S.

ENGL 761. Creative Writing Workshop: Short Fiction. (3) I, II, S. Advanced writing of short prose fiction. Repeatable twice for credit. Pr.: ENGL 661 or Instructor permission.

ENGL 762. Advanced Playwriting. (3) I, II, S. Further study in the writing of drama; emphasis on problems of writing the full-length play. May be repeated for a total of 9 hours credit by qualified students. Pr.: ENGL 562. Cross listed as THTRE 762.

ENGL 763. Creative Writing Workshop: Poetry. (3) I, II, S. Advanced writing of poetry. Repeatable twice for credit. Pr.: ENGL 663 or Instructor permission.

ENGL 765. Creative Writing Workshop: Creative Nonfiction. (3) I, II, S. Advanced writing of creative nonfiction. Repeatable twice. Pr: ENGL 665 or instructor permission.

ENGL 771. Creative Writing Workshop: Novel/Novella. (3) I, II, S. Repeatable twice for credit. Pr.: ENGL 661 or Instructor permission.

ENGL 795. Literary Criticism. (3) I, II, S. Major trends in American and British criticism and theory, with practice in the analysis of individual literary works. Pr.: Senior standing.

ENGL 799. Problems in English. (Var.) I, II, S. Independent study in major authors, genres, and periods of English and American literature and language. Pr.: Background of courses needed for problem undertaken.

Graduate credit

ENGL 801. Graduate Studies in English. (1) I, II, S. A survey of the methods and aims of advanced level research and scholarship in language and literature. Taken in the first year of study toward the M.A. in English as an orientation to the profession.

ENGL 805. Practicum in Teaching University Expository Writing. (1) I, II. Required of GTAs teaching Expository Writing in the English Department. Instruction in the theory and practice of teaching in a university expository writing program. Cannot count in the student's program of study. Pr.: graduate status and a GTAship in the English Department. May be repeated with different content. Cr/No Cr.

ENGL 820. Seminar in Language. (3) I, II, S. Intensive research concerned with one or more topics in the structure and history of the English language. Pr.: ENGL 600 or 790 or Instructor permission.

ENGL 825. Seminar in Literature. (3) I, II, S. Intensive research concerned with one or more literary genres, periods, authors, or issues/problems. Pr.: Graduate standing.

ENGL 830. Seminar in Cultural Studies. (3) I, II, S. Intensive research concerned with one or more topics central to the theory and practice of Cultural Studies. Pr.: Graduate standing.

ENGL 840. Seminar in Composition and Rhetoric. (3) I, II, S. Intensive research on materials germane to the history, structure, and processes central to the concerns of Composition and Rhetoric. Pr.: Graduate standing.

ENGL 862. Workshop in Playwriting. (3) Advanced writing of drama. Same as THTRE 862. Pr.: ENGL 762 (or THTRE 762) or proof of equiv. proficiency.

ENGL 890. History of the English Language. (3) I, II, S. The development of British and American English from Indo-European origins to the present. Pr.: Graduate standing or Instructor permission.

ENGL 899. Research in English. (Var.) I, II, S. Pr.: Permission, Director of Graduate Studies.

Linguistics Courses

Undergraduate and graduate credit

ENGL 600. Principles of Linguistics. (3) The scientific study of language, with examples from English, Spanish, French, German, and others. Overview of language origins, phonetics, phonology, syntax, semantics, language acquisitions, dialects, language change, and writing systems. Same as LING 600 and LG 600.

ENGL 601. General Phonetics. (3) I, in alternate years. Description and classification of speech sounds according to point and manner of articulation. Transcription in the International Phonetic Association Alphabet. Includes sounds of English, French, Spanish, German, and others.

Same as LING 601 and LG 601.

ENGL 602. Historical Linguistics. (3) I, in alternate years. Internal and comparative reconstruction of earlier forms of languages. Genetic relationships in language families, and various typological considerations. Includes French, Spanish, and others. Same as LING 602 and LG 602.

ENGL 603. Topics in Linguistics. (1-3) I, in alternate years. Seminar on a special-topic in linguistics: decipherment of ancient writing systems, linguistics applied to the teaching of English or other languages, discourse analysis (especially of spoken texts), etc. Topic to be announced for semester in which offered. Repeatable for credit on a different topic. Same as LING 603 and LG 603.

For more information

For additional information and application materials please contact:
Director of Graduate Studies
Kansas State University
Department of English
104 Denison Hall
Manhattan, KS 66506-0701
785-532-6716
Fax: 785-532-7004
E-mail: gradeng@ksu.edu
Home Page: http://www.ksu.edu/english/

Enrollment

Monty Nielsen, University Registrar
118 Anderson Hall
785-532-6254

Enrollments for fall, spring and summer semesters, and January, May, and August intersessions occur at specified times during the academic year. The specific times are outlined in the Course Schedule booklet published by the Registrar's Office.

Assignment to Courses | Faculty and Employees | Late Enrollment
Withdrawal from the University | Auditing Courses | Final Examinations

Assignment to Courses

Students are responsible for fulfilling all requirements of the curriculum in which they are enrolled. They should consult with their advisors and be familiar with the information in this catalog.

No student is officially enrolled in courses or for private lessons in music or other subjects until a formal course assignment is completed. No more than 16 credit hours, including those obtained in research, may be assigned in a single semester, nor more than 9 credit hours during a summer semester. If a part of the assignment is for undergraduate credit, a student may be assigned to 17 hours during a semester or 10 hours during a summer semester. Full-time staff members of the university may not be assigned to more than 6 hours in one semester, nor more than 3 hours in a summer semester, and may enroll only with the permission of their supervisors. (See section on assistantships and fellowships for limitations applying to students holding assistantships.) These limitations apply to courses audited as well as courses for which credit is earned.

Course schedule changes processed after deadlines dates must be accompanied by the approval of the student's advisor, the instructors, and the dean of the Graduate School.

All graduate students who have matriculated at Kansas State University and are using faculty time and/or university facilities for research or other academic pursuits must be enrolled. The enrollment should reflect, as accurately as possible, the demands made on faculty time and use made of university facilities. Further, a graduate degree candidate must be enrolled during the semester in which the requirements for a degree are completed.

A student working for the Ph.D. must enroll during the semester in which the preliminary examination is taken and subsequently in each semester (summer semesters excepted) until the degree requirements are satisfied and the dissertation is accepted by the Graduate School. Failure to enroll will result in loss of candidacy. To regain candidacy, the student will be re-examined over the areas covered in his or her preliminary examinations in a manner to be determined by the supervisory committee.

If it is necessary to interrupt progress toward the degree after the preliminary examination has been passed, the student (or the major professor) may petition for leave of absence for up to one year which subsequently may be renewed. Renewals for those who are meeting a military service requirement will be automatic. The petition must be submitted at least one month before the effective date of leave. Approval must be granted by the major professor, chair of the department or graduate program, and the dean of the Graduate School.

Upon written notification, doctoral candidates, who have passed preliminary examinations and do not live in a 30-mile radius of Manhattan, may request the Graduate School to send enrollment information prior to an enrollment period. Candidates may then enroll themselves by telephone or by computer via the World Wide Web through the K-State Access Technology System (KATS). KATS can be accessed directly from the K-State home page.

Faculty and Employees

Full-time faculty members and regular employees, with approval of the department heads or deans, may enroll in graduate or undergraduate work not to exceed 6 credit hours in fall and spring semesters or 3 credit hours during the summer semester.

Late Enrollment

Those who enroll after the regular registration period pay a special handling fee of $50. A student who seeks to enter the university later than 10 calendar days after the start of the semester may be admitted only by special permission of the dean of the Graduate School.

Withdrawal from the University

A student who withdraws from the university must obtain an official withdrawal permit from the graduate dean.

If a student withdraws during the first 25 days of the semester, no mark will be recorded on the student's transcript; thereafter, a mark of W is recorded. The deadline for withdrawing is the end of the 10th week of the fall or spring semester or end of the 5th week for a summer semeter.

If a student finds it necessary to withdraw from the university for verifiable nonacademic reasons after the 10th week (or 5th week, summer

semester), he or she should consult the dean's office.

Auditing Courses

Auditing is attending a course regularly, without participating in course work or receiving credit, and is permitted on a space-available basis. Permission to audit a course is granted by the instructor, with the approval of the dean of the college in which the course is offered. Laboratory, continuing education, and activity courses may not be audited. Students 60 years or older may audit on a space-available basis.

Final Examinations

A final examination period during which no regular courses meet is scheduled at the end of the fall and spring semesters. Final examinations are given during this period. There is no specially scheduled period for final examinations in the summer semester.

Except for honors, problems, seminars, and language and fine arts performance courses, the last examination (last unit test or comprehensive test) in a course must be given during the examination period specified by the University Committee on Academic Procedures and Policies and is published in the Course Schedule booklet. Courses may have take-home examinations, projects, papers (excluding term papers), or other media, in lieu of written final examinations as the last evaluation instrument in the course. In such instances, a deadline for submittal of the medium may not be earlier than the time of the end of the course's scheduled examination period as published in the Course Schedule booklet.

Entomology

Introduction | Degrees | Financial assistance | Entomology courses | More information

Head:
Tom Phillips

Director of graduate studies:
Tom Phillips

Graduate Faculty:

Frank H. Arthur, Adjunct, U.S. Grain Marketing and Production Research Center, Ph.D., North Carolina State University. (Stored Product Entomology)

James E. Baker, Adjunct, U.S. Grain Marketing and Production Research Center, Ph.D., University of Wisconsin. (Insect Physiology)

Robert J. Bauernfeind, Ph.D., University of Wisconsin. (Horticultural Entomology)

Richard W. Beeman, Adjunct, U.S. Grain Marketing and Production Research Center, Ph.D., University of Wisconsin. (Insect Genetics)

Elena Boyko, Ph.D., Institute of Molecular Biology of National Academy of Sciences and Vavilov's Institute of General Genetics of National Academy of Sciences. (Genetics)

Alberto B. Broce, Ph.D., University of Florida. (Livestock and Medical Entomology)

Lawrent L. Buschman, Ph.D., University of Florida. (Integrated Pest Management)

James F. Campbell, Adjunct, U.S. Grain Marketing and Production Research Center, Ph.D., University of California-Davis. (Insect Behavior)

Ralph E. Charlton, Adjunct, Ph.D., University of Massachusetts. (Insect Behavior and Chemical Ecology)

Ming-Shun Chen, Adjunct, Ph.D., Kansas State University. (Insect Genetics)

Raymond Cloyd, Ph.D., Purdue University. (Entomology)

Paul W. Flinn, Adjunct, U.S. Grain Marketing and Production Research Center, Ph.D., Pennsylvania State University. (Insect Ecology and Behavior)

Tom L. Harvey, Emeritus, Ph.D., Oklahoma State University. (Integrated Pest Management and Plant Resistance)

Randall A. Higgins, Ph.D., Iowa State University. (Integrated Pest Management)

Ralph W. Howard, Adjunct, U.S. Grain Marketing and Production Research Center, Ph.D., University of Arkansas. (Insect Behavior and Chemical Ecology)

Srinivas Kambhampati, Ph.D., Simon Fraser University. (Insect Genetics and Phylogenetics)

Jeff Lord, Adjunct, U.S. Grain Marketing and Production Research Center, Ph.D., University of Florida. (Insect Pathology)

David C. Margolies, Ph.D., North Carolina State University. (Insect Ecology and Behavior)

Paul Marsh, Adjunct, Ph.D., University of California-Davis. (Insect Systematics)

Jeremy L. Marshall, Ph.D., University of Louisiana at Lafayette. (Environmental and Evolutionary Biology)

John P. Michaud, Ph.D., Simon Fraser University. (Integrated Pest Management and Biological Control)

James R. Nechols, Ph.D., Cornell University. (Biological Control, Insect Ecology)

Brenda Oppert, Adjunct, U.S. Grain Marketing and Production Research Center, Ph.D., Kansas State University. (Insect Physiology)

Yoonseong Park, Ph.D., University of Arizona. (Insect Molecular Biology and Bioinformatics)

Sonny Ramaswamy, Ph.D., Rutgers University. (Insect Physiology and Behavior)

John C. Reese, Ph.D., University of Wisconsin. (Plant Resistance to Insects)

Phillip E. Sloderbeck, Ph.D., University of Kentucky. (Integrated Pest Management)

C. Michael Smith, Ph.D., Mississippi State University. (Plant Resistance to Insects)

James E. Throne, Adjunct, U.S. Grain Marketing and Production Research Center, Ph.D., Cornell University. (Biostatistics, Insect Ecology and Behavior)

Matt R. Whiles, Adjunct, Ph.D., University of Georgia. (Aquatic Entomology, Insect Ecology)

Gerald E. Wilde, Emeritus, Ph.D., Cornell University. (Integrated Pest Management)

Robert Jeffery Whitworth, Ph.D., Kansas State University (Entomology)

Kun Yan Zhu, Ph.D., Utah State University. (Molecular Toxicology and Toxicogenomics)

Gregory Zolnerowich, Ph.D., Texas A&M University. (Insect Systematics)

Ludek Zurek, Ph.D., University of Alberta, Canada. (Medical and Livestock Entomology)

Ancillary Graduate Faculty

Subramanyam Bhadriraju, Ph.D., University of Minnesota. (Stored Product Insects)

Susan Brown, Ph.D., University of Missouri (Developmental Genetics)

Rollie Clem, Ph.D., University of Georgia. (Insect Virology)

Michael Dryden, Ph.D., Purdue University. (Flea Biology and Management)

Roman Reddy Ganta, Ph.D., All India Institute of Medical Sciences, New Delhi, India. (Molecular Biology and Ticks and Tick-Borne Diseases)

Michael Kanost, Ph.D., Purdue University. (Insect Biochemistry)

Manuel Moro, Ph.D., Iowa State University (Tick-Borne Diseases)

Subbaratnam Muthukrishnan, Ph.D., Indian Institute of Science. (Biochemistry and Plant Resistance to Insects)

Lorena Passarelli, Ph.D., University of Georgia. (Insect Virology)

Gerald R. Reeck, Ph.D., University of Washington. (Molecular Biology of Insect-Plant Interactions)

Jyoti Shah, Ph.D., University of Notre Dame. (Insect-Plant Interactions)

Kim With, Ph.D., Colorado State University. (Landscape Ecology)

Introduction

The Department of Entomology at Kansas State University has an internationally recognized graduate program, leading to the M.S. or Ph.D. degree and a graduate certificate program. A wide variety of opportunities for graduate study are offered in several areas of research in which the faculty have established expertise. These areas include

- arthropod pest management
- agrospatial, behavioral, chemical ecology
- biocontrol
- molecular, developmental, and population genetics
- physiological, biochemical, toxicological, and molecular insect science
- plant resistance to insects
- molecular and ecosystem plant/insect interactions
- stored-product entomology
- ecology, systematics, and evolution
- public and animal health entomology

The department is housed in Waters Hall, and maintains excellent research facilities with state of the art research equipment, a student computer laboratory, a scanning electron microscope laboratory, and a research insect collection. Classrooms and teaching laboratories have been renovated and utilize multimedia-assisted instructional aids. Facilities include 22 greenhouses of various sizes, bioclimatic chambers, and rearing rooms. Field research is conducted on experimental farms at Manhattan and at branch experiment stations throughout the state. Cooperative research programs exist with the KSU Departments of Animal Sciences and Industry; Agronomy; Biochemistry; Grain Science and Industry; Plant Pathology; Horticulture, Forestry and Recreational Resources; the Wheat Genetics Resource Center; the College of Veterinary Medicine; the U.S. Grain Marketing Production and Research Center , and other U.S. and international organizations.

Extension Entomologists are broadly knowledgeable over a wide range of insect and related arthropod topics. Public support is offered through an

insect identification and diagnostic service, 4-H and Youth programs, pesticide safety training, and training for pesticide application certification. An integrated pest management approach is used in providing the public with programs and information on insects and other arthropods of importance to field and horticultural crops, livestock, stored grain, residential environs, and human health. Programming is routinely coordinated among entomologists and members of other academic departments and many governmental agencies. Each fall a one- or two-day KSU. Research/Extension Entomology Conference is held to ensure a comprehensive, in-house transfer of information and exchange of ideas.

The department offers unparalleled outreach opportunities through its award winning and internationally renowned Insect Zoo, which is located in the Kansas State University Gardens. Students, staff, and faculty volunteer to serve as tour guides and in its maintenance. The mission of the Insect Zoo is to foster a better understanding and increased awareness of our natural world and of the important roles that insects and their relatives play in it. The Insect Zoo offers an interactive experience for visitors who will experience the sights, sounds, and smells of live creepy crawlies, including giant cockroaches, centipedes, scorpions, spiders, tarantulas, beetles, walking stick, and praying mantises. Visitors also can "pet" some of the animals during show-and-tell demonstrations by the staff. The Insect Zoo, designed by Lee Manske, a former KSU architecture student, and KSU entomology professors Ralph Charlton and Sonny Ramaswamy, features a number of exciting educational exhibits including the Mick Hilleary-designed Tropical tree/flooded Amazonian Rainforest. Other major exhibits are The Desert-Scape, Tropical Nighthouse (Cave), Giant Leafcutter Ant colony, observation beehive, and a mock kitchen. Many interactive learning stations with touch-screen computers along with colorful posters offer additional information on butterflies, insects, arthropods, and plants.

The department currently has 46 permanent, residential and adjunct/ancillary faculty, four full-time office staff, about 30 postdoctoral and technical support staff, over 45 graduate students, and several other temporary personnel and student employees involved in research. The faculty have received awards for excellence in research, teaching, and extension, and serve in leadership positions with various professional societies, grants panels, blue ribbon panels, etc. Faculty receive competitive research grants from the National Institutes of Health, National Science Foundation, United States Agency for International Development, Environmental Protection Agency, and the U.S. Department of Agriculture-National Research Initiative Grants Program, Pest Management Alternatives Program, Risk Avoidance and Mitigation Program, etc., in addition to various industries and commodity commissions.

The goal of the department is to provide graduate students with opportunities for basic and practical experiences in research, teaching and extension. Students publish their research findings in leading scientific journals and participate in the preparation of extramural grant proposals. All students are afforded opportunities to present their findings at professional meetings. Our graduate students routinely win local, regional, national, and international awards for their research endeavors, and compete actively in the annual Linnaean Games, sponsored by the Entomological Society of America, winning national and regional championships several times. In addition to a seminar series that brings nationally and internationally recognized scientists to the department, faculty and students participate in journal discussion groups on a variety of entomological topics.

Degrees

Admission

All applicants for graduate study are expected to have a background in biology, chemistry, mathematics and the physical sciences. An overall 3.0 GPA (B average) is expected and results of the Graduate Record Examination are encouraged but not required. International students must present evidence of proficiency in English (TOEFL or other acceptable examination). In addition to completing the application for admission to the graduate school, applicants must submit the following information directly to the entomology department:

- Transcripts of all previous academic training.
- A letter describing career objectives fill with the statement of purpose form.
- A resume or curriculum vita.
- An abstract of the Master's thesis if applicable.
- Three letters of recommendation. Letters of recommendation should be sent directly to the department by the author, and not the applicant.

Acceptance into the department is based upon approval by the graduate affairs committee, the department head, availability of an advisor and funding, and admission by the Graduate School.

Performance standards and evaluation

Students and their major advisor are responsible for the selection of a supervisory committee, which must approve a program of study by the end of the second semester for M.S. students or third semester for Ph.D. students. The plan should consist of a curriculum vitae, a proposed course of study and a thesis or dissertation research proposal. Dissertation research proposals should be written in the format of a grant proposal and students are encouraged to submit for funding. The program of study for all Ph.D. students should prepare them for proficiency in at least five of the following areas: morphology; systematics and evolution; anatomy and physiology; behavior; genetics; ecology; and principles of pest management [to include no more than two of: integrated pest management; biological control; toxicology; host resistance and at least one area of specialization outside the department (i.e., statistics, biochemistry, plant or animal physiology)]. Proficiency is demonstrated through satisfactory completion of written and oral preliminary exams. Teaching and/or extension training opportunities may be added to these minimum requirements by the student's supervisory committee. Both M.S. and Ph.D. students must enroll in core areas of insect taxonomy, insect ecology, insect physiology, and pest management. If these courses have been taken previously at other institutions students will be tested to demonstrate proficiency. Both M.S. and Ph.D. students are required to enroll for a seminar credit to present their research proposal. In addition, Ph.D. students are required to enroll for a seminar credit during which they make an oral presentation on a topic unrelated to their research. Ph.D. students are required to have at least one semester of teaching experience.

The final oral examination at the master's level will be both comprehensive and a defense of the candidate's thesis or report. In case of failure, a second examination may be scheduled in accordance with university regulations. Ph.D. students take both written and oral preliminary examinations no later than the semester following completion of the second year of the student's program. Both examinations must be completed no later than seven months before the final Ph.D. examination. Oral examinations come after written examinations and may be taken only if written examinations are passed. No more than one additional attempt may be permitted without approval of the Graduate Council. The circumstances under which a second attempt involves the entire written portion or merely a repetition of failed sections is governed by the policy within the program. The final oral examination for the Ph.D. degree will be a defense of the candidate's dissertation.

Financial assistance

Stipends

The Department of Entomology supports graduate study and development in numerous ways. Stipends are available as graduate research and teaching assistantships. Department faculty successfully secure research grants from federal agencies, commodity commissions, agribusiness corporations, and private foundations that fund many graduate students on research assistantships. Check with the department for current rates. The stipends normally increase each year. Student fees are assessed at in-state rates for all graduate assistants.

Master's students are encouraged to seek teaching experience. Ph.D. students are required to seek teaching experience. A student can obtain teaching experience as a paid, non-credit hour teaching assistant or a graduate teaching assistant receiving variable credit for ENTOM 932 Topics in General and Systematic Entomology.

Performance requirements for continuation

In order to maintain financial assistance from assistantships or fellowships for teaching or research, graduate students are expected to maintain a B average in all course work. Failure to maintain a B average will result in academic probation for one semester before reinstatement as a regular graduate student.

Entomology courses

Graduate credit

ENTOM 612. Insect Pest Diagnosis. (2) I, in odd years. Diagnosis of plant damage by insects and mites, recognition of harmful insects and mites and beneficial insects. Emphasis on field crop pests but pests of other crops will be considered if there is sufficient interest. One hour lecture and two hours lab a week. Rec. Pr.: ENTOM 300, 312 or 710.

ENTOM 620. Insecticides: Properties and Laws. (2) II, in even years. Introduction to insecticides as arthropod control agents, including their classification, formulation, properties, mode of action, metabolism, resistance, benefits and environmental impact, and federal and state laws that regulate the development, sale, use and storage of insecticides. Two hours of lecture a week. Rec. Pr.: CHM 110.

ENTOM 635. Introduction to Plant Resistance to Pests. (2) I, in even years. To meet first half of semester. Basic concepts of the biology, ecology, genetics and breeding for pest resistance in plants. Four hours lecture and discussion a week. Pr.: ENTOM or PLPTH 500 or ENTOM 312 and ENTOM 313, and one course in plant or animal genetics. Same as PLPTH 635.

ENTOM 680. Aquatic Entomology. (3) I, in odd years. Biology and ecology of aquatic insect orders and families, their roles in aquatic ecosystems, relationships to people, and use as sensitive biomonitoring agents to detect ecological disturbances. Labs teach sampling techniques and use of keys to identify aquatic insects to family and selected genera. Two hours lec. and one two-hour lab a week. Pr.: ENTOM 312 and 313; or BIOL 201.

ENTOM 692. Insect Ecology. (3) II, in odd years. Abiotic and biotic factors underlying the distribution, abundance, and dynamics of insects. How to measure these factors, how they affect insect population processes, interactions, and community structure, especially in agricultural systems. Emphasis on basic concepts and their application, experimental methods and field techniques. One hour lecture and 2 two hour labs a week. Rec. Pr.: BIOL 303, BIOL 529, or ENTOM 312.

ENTOM 710. Insect Taxonomy. (3) I, in odd years. Laboratory study of insect Order and family-group identification. Proper preparation and maintenance of adult insect collections. Lecture stresses the principles of systematics, legal principles of nomenclature, and the phylogeny of insects and their near relatives. For beginning graduate and advanced undergraduate students. One hour lecture and six hours lab a week. Rec. Pr.: ENTOM 300 or ENTOM 312 and ENTOM 313.

ENTOM 745. Plant Resistance to Insects. (2) I, in even years, during second half of semester. Plant resistance in crop plants including transgenic plants. Insect behavior, physiology, and ecology as affected by resistance. Discussion of methods of assessing and quantifying plant resistance. Pr.: ENTOM/PLPTH 635.

ENTOM 767. Insect Pest Management. (3) I, in even years. A presentation of the items necessary to consider in order to develop a sound pest management program, from identification of a problem to recommendations made to growers for dealing with a pest. Two hours lecture and one lab a week. Rec. Pr.: ENTOM 300 or ENTOM 312.

ENTOM 799. Problems in Entomology. (Var.) I, II, S. For nonthesis or nondissertation studies. Work in various fields of entomology. Pr.: Consent of instructor.

ENTOM 805. Insects of Stored Products. (3) II, in even years. Biology, ecology, and behavior of stored-product insects and current practices involved in their control. Two hours lecture and three hours lab a week. Pr.: ENTOM 300, or 312 and 313, or consent of instructor.

ENTOM 815. Experience in Extension Entomology. (1-3) II in even years. Major emphasis is to give students a realistic view of the history, structure, philosophy, and position responsibilities assumed by entomology state and area specialists within the Cooperative Extension Service through hands-on experience. Rec. Pr.: ENTOM 612 or 767.

ENTOM 820. Biological Control. (3) II, in odd years. The theory and practice of biological control with an emphasis on natural enemies of insect pests. Relationship and importance of insect ecology and integrated pest management to biological control. Experimental approaches, evaluation, recognition and life histories of beneficial species will be covered. Two hours of lecture and two hours of lab a week. Rec. Pr.: ENTOM 300 or 312 or 320 or a college-level ecology course.

ENTOM 830. Molecular Entomology. (2) I, in even years. Introduction to use of molecular techniques to address fundamental and applies entomological problems, including systematics, marker-assisted selection of resistant genotypes of plants, mechanisms of insecticide resistance, insect transgenesis, risk assessment of genetically modified organisms, and other topics. One 2-hour lec./discussion per week.

ENTOM 840. Immature Insects. (2) S, in odd years. Identification of immature insects to the family level, with emphasis on terrestrial Holometabola and aquatic insects. Techniques for collecting and preserving immatures, with an emphasis on field collecting and identification in laboratory. Pr.: ENTOM 710.

ENTOM 850. Scanning Electron Microscopy. (2) II, in even years. Use of scanning electron miscroscopy for studying organic, inorganic or synthetic materials. Includes theory of SEM operation, techniques for specimen preparation, one-on-one sessions with a technician on a Hitachi 3500N variable pressure SEM, and post-image processing.

ENTOM 857. Toxicology of Insecticides. (3) II, in odd years. Advanced study of synthetic and naturally occurring insecticides with emphasis on distribution and elimination, metabolism, mechanism of action, resistance mechanisms, and current advances in new insecticide discovery and new approaches to insect control. The lab focuses on providing hands-on experience with techniques frequently used by toxicologists. Two hours of lecture and one 3-hour lab each week. Rec. Pr.: CHM 350, or BIOCH 521, or ENTOM 620.

ENTOM 866. Insect Morphology. (3) I, in even years. Morphology of insects with emphasis on the evolution and functional complexes of structures. Anatomy and structure of internal systems using microdissections and histol-ogical techniques. Two one-hours lec., one three-hour lab per week. Pr.: ENTOM 312 and 313 or ENTOM 710.

ENTOM 875. Insect Physiology. (4) II, in even years. Functions of insect systems for development, metamorphosis, and reproduction. Physiological and biochemical mechanisms underlying insect activities, behavior, and ecological adaptations. Three hours lecture and one hour discussion a week.

ENTOM 885. Conventional and Molecular Methods for Evaluation of Crop Plant Resistance to Pests. (2) II, in odd years. A series of laboratories illustrating different modes of plant resistance to pests, quantification of resistance effects, resistance gene flow, plant DNA isolation & quantification, and molecular marker-assisted selection of resistance genes of interest. Students develop hands-on experience using both conventional and molecular techniques to identify and quantify genetic plant resistance to pests. One hour lec. and two hours lab a week. Pr.: ENTOM/PLPTH 635 and ENTOM 745 or PLPTH 755.

ENTOM 893. Controversies in Insect Ecology. (3) I, in odd years. Alternative and conflicting approaches to, interpretations, and applications of principles of insect ecology. Examination of history, assumptions, and experiments behind these controversies. Special attention to impact of these conflicts on insect pest management. Three hours lec./discussion per week. Rec. Pr.: BIOL 529 or ENTOM 692 or a college-level ecology course.

ENTOM 898. Master's Report in Entomology. (Var.) I, II, S. Work in various fields of entomology. Pr.: Consent of instructor.

ENTOM 899. Master's Research in Entomology. (Var.) I, II, S. For student majoring in entomology. Pr.: Knowledge in special area and consent of instructor.

ENTOM 910. Insect Genetics. (3) I, in odd years. The course will initially describe the variety of genetic systems found in insects. Laboratory and statistical techniques will be discussed for studying genetic variation in insect populations. The final part of the course will focus on means for genetic manipulation of populations. The laboratory session will be used to discuss and/or demonstrate techniques for studying insect genetics. 2 hours lecture and one 3-hour lab each week.

ENTOM 920. Insect Behavior. (3) II, in even years. The study of the mechanisms, ecology, and evolution of behavior in social and nonsocial insects. Pr.: ENTOM 312, 313, and 875. Three hours lecture a week.

ENTOM 930. Topics in Environmental and Physiological Entomology. (Var.) I, II. Selected topics for advanced study in insect behavior, biomechanics ecology, genetics, physiology, and related areas. Pr.: Consent of instructor.

ENTOM 932. Topics in General and Systematic Entomology. (Var.) I, II. Offered on demand. Principles of taxonomy; advanced taxonomy;

taxonomy of immature insects; acarology; biological literature; and teaching experience. Pr.: ENTOM 710 and consent of instructor.

ENTOM 950. Conceptual Issues in Evolution. (3) II, in even years. This is an advanced lecture and discussion course in evolution. The topics covered include controversial and unresolved issues in evolution such as adaptation, evolution of sex, natural selection, neutral theory, parent-offspring conflict, kin selection, group selection, reciprocal altruism and cooperation, etc. Students will be exposed to primary and current literature as well as classic papers in evolution. Active student participation during discussions is expected and encouraged. Rec. Pr.: BIOL 450 and/or BIOL 620

ENTOM 995. Entomology Seminar. (1) I, II. Pr.: Consult seminar committee. Pass/fail grade only.

ENTOM 999. Research in Entomology. (Var.) I, II, S. Dissertation credit for students majoring in entomology. Pr.: Knowledge in special area and consent of instructor.

For more information

For additional information and application materials please contact:
Head and Director of Graduate Studies
Kansas State University
Department of Entomology
123 Waters Hall
Manhattan, KS 66506-4004
785-532-6154
Email: entomology@ksu.edu
Home Page: http://www.entomology.ksu.edu

Environmental Design & Planning

Overview | Admission procedures | Entrance Requirements | PhD requirements
Environmental Design & Planning courses | More information

Director of graduate studies:
Wendy Ornelas

Graduate Faculty:

Eric Bernard, Associate Professor of Landscape Architecture, MLA, Texas Tech University.

Wayne "Mick" Charney, Associate Professor of Architecture, M Arch, University of Illinois; PhD, Northwestern University.

Gary J. Coates, Professor of Architecture, M Arch, North Carolina State University.

Robert Condia, Professor of Architecture, MS, Columbia University.

Timothy D. Keane, Professor of Landscape Architecture, MLA and PhD, University of Michigan.

John W. Keller, Professor of Planning, MS and PhD, Rutgers University.

Larry Lawhon, Associate Professor of Planning, MCRP, University of Nebraska; PhD, Texas A&M University.

Stephanie A. Rolley, Professor of Landscape Architecture, MCP, Massachusetts Institute of Technology.

David R. Seamon, Professor of Architecture, PhD, Clark University.

Lee R. Skabelund, Assistant Professor of Landscape Architecture, MLA, University of Michigan.

Overview

Since the founding of the College in 1963, the faculty has based their relationships on the mutually held realization that the practice of any one of the design professions benefits from the interaction of their varied approaches to (re)shaping the built environment. The interdisciplinary doctoral program takes advantage of the diverse but interrelated nature of the college's design and planning disciplines. This program represents the comprehensive nature of our professional community and reflects the manner by which our faculty and the profession actually interact in practice.

A central aim of this doctoral program is to support advanced graduate research utilizing a comprehensive interdisciplinary view of design and planning to better contribute to a more livable and ecologically sustainable society. This program provides an advanced, interdisciplinary doctoral degree supported by faculty members from the Departments of Architecture, Interior Architecture and Product Design, and Landscape Architecture / Regional and Community Planning.

The major academic objective of this doctoral program is to prepare professionals and researchers who wish to teach at the graduate level or conduct research, design, and/or policy for private or public institutions, including governmental agencies, design and planning firms, and corporations. In various ways, student research will examine how the various aspects of design and planning might contribute to a more livable and sustainable environment and society for Kansas, the United States, and the world at large.

To draw on the wide-ranging expertise of the College of Architecture, Planning and Design (CAPD) faculty, the PhD offers the following design and research concentrations: **design**; **planning**; **sustainability**; and **place making**. The areas of specialization will focus the students on developing conceptual and problem-solving skills that have application to practical real-world situations involving design and planning - for example, designing more livable communities, planning for more efficient energy and resource use, or restoring natural environments.

The four concentrations of the doctoral program are broad and encompass the interdisciplinary and complex nature of the design and planning professions. ***Design*** emphasizes the role of the designed environment in contributing to human well being and provides opportunities, through practice and research, to explore issues that range from design pedagogy to design production, history, and theory. ***Planning*** considers the theory and methods of public decision-making and the development of models and tools to understand and improve decision-making processes, both public and private. ***Sustainability*** explores ways by which the design and planning professions can better provide peoples' environmental and resource needs without sacrificing the ability of future generations to meet their own needs. ***Place Making*** explores the importance of place in human life and considers ways by which design and policy might better make physical environments that work as robust human places and evoke a powerful sense of place.

By their very nature, these four concentrations are interconnected, and this interconnection provides a topical and educational venue for interdisciplinary participation and collaboration between doctoral students and the diverse core and graduate faculty of CAPD.

Admission procedures

The PhD requires at least three years of full-time study beyond the bachelor's degree, equivalent to at least 90 semester hours.

Applicants to the CAPD PhD program are expected to have earned a master's degree or be able to demonstrate equivalent professional, research, or creative-work experience. At least one member of the core PhD faculty must accept mentorship responsibility for any student admitted to the doctoral program. Students without a previous degree in the design or planning fields are encouraged to apply, although they may be required to complete a set of courses that will provide the appropriate professional background, as determined by the core PhD faculty in the student's selected area of concentration. Courses taken to strengthen the student's background in design and/or planning may count toward the 30 credit hours of course work required for the PhD, but only if approved by the student's graduate committee.

Regular admission to K-State's Graduate School and the CAPD doctoral program requires a 3.0 grade point average on a 4.0 scale, three letters of recommendation, submission of Graduate Record Examination scores, official transcripts, a one- to two-page statement of interests and objectives, and a non-returnable portfolio of the student's work, whether design projects, research projects, samples of written work, or other examples of creative and research efforts.

Entrance requirements

PhD applicants should have attained a score of at least 1100 on the combined verbal and quantitative components of the GRE. Prospective international students are required to take the TOEFL examination, with an essay score of at least 600 and a computer-based score of at least 250.

Admission to the PhD program is contingent upon the willingness of a CAPD faculty member to serve as the student's advisor. The application deadline for all student applicants is February 1.

All international students applying to the PhD program must meet the same level of achievement as U.S. students.

PhD requirements

Students will complete a minimum of 60 credit hours beyond the master's degree, with at least 30 credit hours of course work and 30 credit hours of dissertation research. Students will complete a research tool requirement, pass a preliminary written examination, submit an approved dissertation, and complete an oral dissertation defense. Students will be expected to complete at least one full academic year in residence.

To enhance program coherence, all first-year doctoral students will take two research core courses - ENVD 900 (Conceptual Approaches to Design and Planning Research) and ENVD 901 (Research Methods in Design and Planning) - as well as two research tools courses, and a cross-disciplinary elective seminar.

As soon as possible after the student begins the program, the Director of the PhD program will help each student set up a three-faculty-member supervisory committee that will give the student guidance in selecting two research tool areas and appropriate course work to develop competency in each area. Tool areas include but are not limited to: foreign languages; quantitative methods; qualitative methods; GIS; remote sensing; cultural and contextual perspectives; communication skills; graphic and digital media or representational skills; design-development methods; and instructional techniques.

PhD comprehensive examination. Students who have filed their program of study with the Graduate School and have completed at least 21 of the 30 hours of course work with a grade point average of 3.33 or better are eligible to take the preliminary written examination, which covers the student's fields of specialization, as defined by the student's doctoral committee. Performance on the examination must provide evidence of the student's mastery of the subject matter in three sub-fields, knowledge of related literature, and an understanding of research theory and methods. Successful completion of the preliminary examination is required for the student to become a doctoral candidate.

Dissertation prospectus defense. During the start of the student's third semester, she/he will complete a written dissertation proposal, about which the student's doctoral committee will provide written feedback. After the student revises the prospectus, she/he will make an oral defense to be conducted before the doctoral committee, other faculty, and students.

Writing the dissertation. The PhD student will complete 30 credit hours of ENVD 999 (Dissertation Research). The dissertation will be a cohesive, original, and an independent contribution to scholarship. The research is to be performed under the guidance of the major professor and the supervisory committee and must be acceptable to them. The dissertation must follow guidelines outlined by the Graduate School.

Dissertation defense. A final oral examination in defense of the dissertation will be conducted and evaluated by the doctoral committee. Two weeks prior to the dissertation defense the written dissertation will be available for review by the doctoral committee, other faculty, and graduate students. Other faculty and students are encouraged to attend the defense.

Sample Program of Study

1st Semester
ENVD 900 Conceptual Approaches to Design and Planning
Research
Research tools course
Form advisory committee for research tool and course of study

2nd Semester
ENVD 901 Research Methods in Design and Planning

Research tools course
College 800-level cross-disciplinary seminar
Form doctoral committee
Submit doctoral Program of Study to the Graduate School

3rd Semester
700- or 800-level elective
700- or 800-level elective
700- or 800-level elective
Write first draft of dissertation proposal

4th Semester
700- or 800-level elective
Independent study (with major professor)
Preliminary examination (early in semester)
Defend dissertation proposal (late in semester)

5th Semester
ENVD 999 Dissertation Research

6th Semester
ENVD 999 Dissertation Research
Defend dissertation

Environmental Design and Planning Courses

ENVD 900. Conceptual Approaches to Design and Planning. (3) I, II. Overview of contributions and limitations of various theoretical perspectives that inform the field of design and planning inquiry. Knowledge and theory construction. Nature, scope, and merits of scientific approach. Criticism of the scientific approach and examination of alternative approaches utilized in design and planning research and practice. Linking philosophy, research, and action/practice/application.

ENVD 901. Research Methods in Design and Planning. (3) I, II. Survey of research methods in the fields of design and planning, including overall systems of inquiry, criteria for assessing quality, strategies and tactics. Strengths and weaknesses of various research designs. Methods covered include experimental and quasi-experimental research, correlational research, qualitative research strategies, simulation and modeling research, action research and design intervention, case study, and combined strategies.

ENVD 999. Dissertation Research. (Var.) I, II. For students who have completed all credit hour, full-time enrollment, preliminary examination, and residency requirements for the doctoral degree, and are writing and defending their dissertations.

Elective Courses:

Design

ARCH 801 Topics in History of the Designed Environment
ARCH 870 History of American Architecture and Allied Design I
ARCH 871 History of American Architecture and Allied Design II
ARCH 880 Development Analysis
ARCH 810 Topics in Architectural Design Methods
ARCH 815 Theory of Design
ARCH 830 Environment and Aging
ARCH 835 Topics in Building Construction Systems in Architecture
ARCH 840 Building-related Health and Safety
ARCH 852 Structural Systems in Architecture V
ARCH 853 Professional Practice
ARCH 765 Problems in Architecture
IAPD 608 Design Workshop I
IAPD 625 Lighting in Interior Architecture
IAPD 710 Advanced 3-D Modeling
IAPD 730 Facility Management
IAPD 760 Interior Architecture Seminar
IAPD 802 Design Workshop II
IAPD 803 Design Workshop II Studio
IAPD 806 Advanced Product Design Studio
IAPD 808 Advanced Furniture Workshop II
IAPD 814 Furniture Design Workshop
IAPD 820 Advanced Seminar in IA

IAPD 821 Advanced IAPD Design Studio
IAPD 822 Building Systems in IA
IAPD 823 Advanced IA Design Studio
IAPD 824 Advanced Furniture Design Studio & Workshop
IAPD 830 Problems in Interior Architecture & Produce Design
IAPD 840 Advanced Design Workshop
IAPD 891 Contemporary Design
LAR 635 Golf Course Planning and Design
LAR 648 Specialization Studio
LAR 647 Advanced Golf Course Planning and Design
LAR 741 Problems in Landscape Architecture
PLAN 745 Urban Design and Preservation Planning Theory
PLAN 746 Urban Design and Preservation Studio
PLAN 747 Urban Design and Preservation Field Study
PLAN 748 Urban Visual Analysis

Planning

LAR 646 Community Planning and Design
LAR 648 Specialization Studio
LAR 704 Environmental Landscape Planning and Design
PLAN 630 Computer Applications in Planning and Design
PLAN 633 Computer Applications in Planning III
PLAN 655 Land Development Planning
PLAN 699 Special Studies in Planning
PLAN 716 Seminar in Planning
PLAN 717 Seminar in Grant Preparation
PLAN 721 Infrastructure Planning and Financing
PLAN 752 Physical Processes of Plan Implementation
PLAN 753 Planning Law
PLAN 765 Growth Management
PLAN 801 Planning Methods I
PLAN 802 Planning Methods II
PLAN 815 Planning Theory Ethics & Practice
PLAN 820 Planning Administration
PLAN 836 Community Plan Preparation
PLAN 880 Topics in Planning

Sustainability

ARCH 816 Environmental Systems in Architecture
IAPD 720 Advanced Seminar in Interior Architecture
LAR 647 Land Construction III
LAR 704 Environmental Landscape Planning and Design
LAR 720 Public Lands and Natural Resources Law
LAR 758 Land Resource Information Systems
PLAN 721 Infrastructure Planning and Financing
PLAN 731 Solid Waste Planning and Management
PLAN 765 Planning Growth Management

Place Making

ARCH 803 Environmental Aesthetics
ARCH 704 Environmental Seminar
ARCH 820 Environment and Behavior
LAR 646 Community Planning and Design
LAR 648 Specialization Studio
LAR 647 Land Construction III
LAR 750 Landscape Architecture Seminar III
PLAN 650 Housing and Development Programs
PLAN 760 Community Development Planning
PLAN 761 Community Development Workshop
PLAN 715 Planning Principles and Process
PLAN 740 Small Community and Rural Area Planning
PLAN 745 Urban Design and Preservation Planning Theory
PLAN 746 Urban Design and Preservation Studio

PLAN 747 Urban Design and Preservation Field Study
PLAN 748 Urban Visual Analysis

For more information

For additional information and application materials please contact:
Wendy Ornelas, FAIA
Acting Director of the PhD Program
College of Architecture Planning & Design
Kansas State University
115 Seaton Hall
Manhattan, KS 66506-2902
Phone: 785-532-5950
Fax: 785-532-1086

E-mail: wornelas@ksu.edu
Home page: www.capd.ksu.edu

Graduate Faculty

Link to Graduate Faculty List: www.K-State/edu/grad/gspeopleorg/faculty/facultylist.htm

Food Science

Graduate faculty | About the program | Admission
Master of Science in Food Science | Food science courses | More information

The Food Science interdepartmental graduate program is part of the Food Science Institute and includes graduate faculty housed in five colleges and eleven departments.

Director of graduate studies:
Thomas J. Herald

Graduate faculty:

Koushik Adhikari, Ph.D., University of Missouri.

Sajid Alavi, Ph.D., Cornell University.

Fadi M. Aramouni, Ph.D., Louisiana State University.

R. Scott Beyer, Ph.D., University of Georgia.

Kristina Boone, Ph.D., Ohio State University.

Elizabeth Ernst Boyle, Ph.D., Colorado State University.

Delores H. Chambers, Ph.D., Kansas State University.

Edgar Chambers, IV, Ph.D., Kansas State University.

Michael E. Dikeman, Ph.D., Kansas State University.

James S. Drouillard, Ph.D., University of Nebraska.

Larry E. Erickson, Ph.D., Kansas State University.

Daniel Y. C. Fung, Ph.D., Iowa State University.

Kelly J. K. Getty, Ph.D., Kansas State University.

Joye C. Gordon, Ph.D., Purdue University.

Thomas J. Herald, Ph.D., Michigan State University.

Melvin C. Hunt, Ph.D., University of Missouri.

Curtis L. Kastner, Ph.D., Oklahoma State University.

Finlay MacRitchie, Ph.D., University of Sydney.

Ron Madl, Ph.D., Kansas State University.

James Marsden, Ph.D., Oklahoma State University.

Denis M. Medeiros, Ph.D., Clemson University.

Harish C. Minocha, Ph.D., Kansas State University.

Richard D. Oberst, Ph.D., University of California-Davis.

Randall K. Phebus, Ph.D., University of Tennessee.

Om Prakash, Ph.D., Central Drug Research Institute, India.

Gerald R. Reeck, Ph.D., University of Washington.

Karen Schmidt, Ph.D., University of Minnesota.

Carol Shanklin, Ph.D., University of Tennessee.

J. Scott Smith, Ph.D., Pennsylvania State University.

X. Susan Sun, Ph.D., University of Illinois.

Dolores J. Takemoto, Ph.D., University of Southern California.

Katherine A. Tilley, Ph.D., Kansas State University.

John A. Unruh, Ph.D., Kansas State University.

Weiqun (George) Wang, Ph.D., Nanjing Agriculture University.

Ludek Zurek, Ph.D., University of Alberta.

About the Program

The food science graduate program involves the interrelationships among 40 professionals from 11 departments. Faculty from five colleges (agriculture, arts and sciences, engineering, human ecology and veterinary medicine) have participated in the interdisciplinary food science master's and doctoral programs since 1965. Graduate faculty are located in the Departments of Agronomy; Animal Sciences and Industry; Biochemistry; Biological and Agricultural Engineering; Chemical Engineering; Veterinary Clinical Sciences; Diagnostic Medicine/Pathobiology; Grain Science and Industry; Hotel, Restaurant, Institution Management and Dietetics; Human Nutrition; and Journalism and Mass Communications.

Graduate students conduct their research in one of the participating departments. The food science faculty are involved in research on the chemical, microbiological, sensory, and nutritional aspects, functional characteristics, and processing of foods. Faculty with expertise in chemical analysis, instrumental analysis, sensory analysis, systems analysis, biochemistry, dietetics, statistics, microbiology, thermodynamics, rheology, biochemical engineering, and food engineering participate in the food science program.

Research facilities related to animal products include complete dairy and red-meat processing facilities, well-equipped research laboratories for red meat, poultry and dairy research, food chemistry, and food microbiology research laboratories. Research facilities for cereals include a complete pilot plant for milling grain into flour, complete baking research facilities, equipment for extrusion research, well-equipped laboratories for cereal chemistry, a specialized cereal science library, and other supporting facilities. Flavor and sensory evaluation laboratories and instrumentation for physical, histological, and biochemical analysis of food products are also available. Laboratory facilities for food engineering research include ultrafiltration cells, instrumental fermentors, gas and liquid chromatography, an elemental analyzer, and an environmental chamber with temperature and humidity control. Facilities and instrumentation for food safety studies are available.

Graduate study in food science provides training for a number of varied academic and technical careers. Food processing is a leading industry in the United States so the need for food technologists is growing.

Admission

Application should be made at the beginning of the previous semester, and preferably earlier to ensure availability of a major professor. Consult with the Graduate School on admission deadlines. An optimal number of about 50 graduate students is usually maintained; therefore, admission is highly competitive. All prospective students must complete a graduate school application and submit a statement of objectives, official transcripts, three letters of recommendation, and GRE scores. Seniors and master's students may submit a current transcript and, if admitted, will receive provisional acceptance pending submission of an official transcript showing completion of a bachelor's degree, or M.S. degree for doctoral applicants. It is imperative that the statement of objectives contain a specific area of study within food science, i.e., food chemistry, food microbiology, cereals, red meat, or sensory analysis, so that the application may be directed to the appropriate faculty. Terms such as food processing and food technology are too general and may result in rejection because of lack of specificity.

Foreign students must submit a TOEFL score of at least 550 (213 on the computer-based) or have received a degree in the last two years from a United States college or university. In addition, a financial form must be completed and signed by a sponsor and a financial institution to show evidence of support for the entire program of study.

All applications will be reviewed by three appropriate members of the food science graduate faculty. A faculty member must be willing to act as a major advisor prior to submission of credentials to the graduate school.

Research and teaching assistantships administered by the individual departments are available on a limited basis. Those receiving assistantships pay in-state fees. Members of the food science program obtain funds from the Agricultural and Engineering Experiment Stations and outside research funds that help sponsor some graduate research assistants. Currently, research stipends are competitive but may vary by department.

General requirements for entering graduate study in food science are: (1) mathematics, including college algebra, calculus, and statistics; (2) biochemistry and organic chemistry; (3) a course in physics; (4) an introductory course in microbiology; and (5) a course in botany, zoology, or biology. The student's supervisory committee will resolve course deficiencies. Certain programs within Food Science may require additional courses.

When the student's committee believes it necessary, the student will be required to take additional undergraduate courses to prepare more completely for the individual program.

Candidates for degrees are expected to select courses that provide adequate coverage in several food areas, with primary emphasis in one or more areas.

The M.S./Ph.D. program of study shall be expected to include courses in biochemistry, statistics, food microbiology, food chemistry, and food processing/food engineering. No more than 6 credit hours at the 500 level will be accepted. One credit of food science seminar for the M.S. degree and 2 credits of food science seminar for the Ph.D. degree shall be included. There is no foreign language requirement.

Course requirements will be evaluated by the student's supervisory committee. The chairman of the food science graduate program must approve members of the student's advisory committee and the program of study.

Master of Science in Food Science:

Thesis option: Minimum of 30 credit hours with at least 24 course credit hours with at least 18 hours at 700 level including FDSCI 850 Graduate Seminar and 6 credit hours of FDSCI 899.

Report option: Minimum of 30 credit hours with at least 28 course credit hours with at least 18 hours at 700 level including FDSCI 850 Graduate Seminar and 2 credit hours of FDSCI 898.

Non-Thesis (course-work only) option: Minimum of 30 credit hours with 19 core credits and at least 18 hours at 700 level. The core courses as outlined below are to ensure that the student possesses the critical graduate level food science knowledge and communication skills required.

Core Courses:		
ENGL 604	Prb/Expos Writing Workshop	2 credits
FDSCI 600	Food Microbiology	2 credits
FDSCI 690	HACCP	2 credits
FDSCI 695	Quality Assurance	3 credits
FDSCI 725	Food Analysis	3 credits
FDSCI 961	Problems/Food Chemistry	3 credits
FDSCI 850	Food Science Graduate Seminar	1 credit
STATS 703	Statistics for Natural Scientists	3 credits
	Total core courses	19 credits
	Elective courses	11 credits
	Total credit hours	30 credits

*Note: It is possible that a student may already have taken one or more of these courses or their equivalent on another degree. Therefore, the graduate advisory committee will determine course substitution as needed.

Food science courses

Below is a partial list of courses that may be selected for the major. See your advisor for details.

Undergraduate and graduate credit in minor field

***Note: 500-599 courses can not be used in a student's program of study.*

FDSCI 500. Food Science Seminar. (1) I. Review of recent developments in the food science industry and in food science research. Food science literature and intradepartmental research will provide source material. Required of all food science undergraduates in agriculture.

FDSCI 501. Food Chemistry. (3) II. An in-depth coverage of the chemical structures of major food components and the chemical reactions occurring during storage and processing. Two hours lec. and three hours lab a week. Rec. Pr.: CHEM 350 and BIOCH 521.

Undergraduate and graduate credit

FDSCI 600. Microbiology of Food. (2) I, II, S. This course deals with the isolation, identification, enumeration, and characterization of bacteria, yeasts, molds and other microbes associated with foods and food processing. Effects of physical and chemical agents on micro-organisms will be studied. Microbiological problems in food spoilage, food preservation, food fermentation, and food-borne diseases will be discussed. This is a Web-based lecture course intended for off-campus distance education students. This course cannot susbstitute for FDSCI 607. Pr.: BIOL 455.

FDSCI 603. Food Science Internship. (1-6) I, II, S. Supervised professional field experience in food science. Pr.: Consent of supervising instructor. Same as FN 601.

FDSCI 607. Food Microbiology. (4) I. This course deals with the identification, enumeration and characterization of bacteria, yeast and mold associated with foods and food processing. Effects of physical and chemical agents on microorganisms will be studied. Microbiological problems in food spoilage, food preservation, food fermentation, and food-borne diseases will be discussed. Two hours lec. and two two-hour labs a week. Pr.: BIOL 455.

FDSCI 630. Food Science Problems. (Var.) I, II, S. Research or related work with others, or a literature search. Written reports are required. Any field of food science for which the student has adequate background. Rec. Pr.: FDSCI 302.

FDSCI 690. Principles of HACCP. (2) I. A comprehensive study of the Hazard Analysis and Critical Control Point System and its application in the food industry. Two hours lec. a week. Rec. Pr.: BIOL 198 and CHM 110.

FDSCI 694. Food Plant Management. (3) I. The integration of food science knowledge in managing a food processing operation to produce high quality food products. Two hours lec. and two hours lab a week. Rec. Pr.: Senior standing.

FDSCI 695. Quality Assurance of Food Products. (3) I. A comprehensive course covering all aspects of quality assurance practices in the food industry. Emphasis is placed on interrelations of food chemistry, microbiology, sanitation, processing, and laws and regulations. Three hours lec. a week . Pr: One course in microbiology.

FDSCI 713. Rapid Methods and Automation in Microbiology. (2) Spring intersession. Rapid methods and automation is a dynamic area in applied microbiology dealing with the study of improved methods in the isolation, detection, characterization, and enumeration of microorganisms and their products in clinical, food, industrial, and environmental samples. The knowledge and techniques of this course are useful for students interested in medical, food, industrial, and environmental microbiology for early detection of beneficial as well as harmful microorganisms in their work.

FDSCI 725. Food Analysis. (3) I, II. Principles, methods, and techniques necessary for quantitative, instrumental, physical, and chemical analyses of food and food products for off-campus students using an audio/video taped format. The analytical principles will be related to standards and regulations for food processing. Pr.: ASI 501.

FDSCI 727. Chemical Methods of Food Analysis. (2) I. Methods for quantitative, physical, and chemical analyses of foods and food products. Analytical techniques covered will include spectroscopy, chromatography, mass spectrometry, immunochemistry and atomic absorption. The analyses will be related to standards and regulations for food processing. Meets during first half of semester. Three hours lec. and three hours lab a week. Rec. Pr.: ASI 501.

FDSCI 728. Physical Methods of Food Analysis. (2) I. Principles of physical and chemical methods and instrumentation for measuring protein, fat, moisture, and ash content. Determination of fat and oil quality characteristics. Physical measurements of food properties: color, water activity, water holding capacity, textural characteristic. Determination of properties and stability of emulsions, foams, and gels. One hour rec., and three hours lab a week. Rec. Pr.: FDSCI 501.

FDSCI 730. A Multidisciplinary Overview of Food Safety and Security. (2) I, II, S. Multidisciplinary food safety and security perspectives provided by numerous subject matter experts. Topics include food safety policy, ag bioterrorism, border security, animal ID, food defense and site security, risk analysis, crisis communication, epidemiology, HACCP, and more. Pr.: A course in biology or chemistry.

FDSCI 740. Research and Development of Food Products. (4) I. All aspects of new food product development from concept to store shelves will be covered, including market screening; focus groups; idea generation; prototype development; ingredient functionality and interactions; statistical designs for product development; processing; packaging; scale-up of operations; regulatory issues; labeling; physical, chemical, microbiological and sensory evaluations; quality control procedures; and HACCP plans. Two hours lec. and six hours lab a week. Rec. Pr.: FDSCI 501.

FDSCI 791. Advanced Application of HACCP Principles. (3) II. Evaluation of control parameters and methodology at critical control points, validating and auditing the effectiveness of critical control points, critical limits, monitoring tools, corrective action procedures, recordkeeping and verification procedures in addressing biological, chemical, and physical hazards that may be present in food products. Three hours lec. a week. Pr.: FDSCI 690. Recommended pr.: BIOL 455.

Graduate credit

FDSCI 811. Food Fermentation. (4) II. Application of the principles of microbiology to the understanding of the fermentation of various categories of foods. Chemical, biochemical and microbiological changes under controlled and uncontrolled conditions. Two hours lec. and six hours lab a week. Pr.: BIOL 455.

FDSCI 815. Advanced Food Chemistry. (3) I. Relationship of chemical composition to properties and to physical and chemical stability of foods. Chemical reactions will be covered extensively. Special attention will be given to dairy and poultry products, red meats, vegetables, and cereal grains. Pr.: BIOCH 521, 522.

FDSCI 840. Public Health Field Experience.. (3-6) I, II, S. Supervised field experience in an international, state, local, or district health agency or other appropriate health agency. May be taken more than once, but only 6 hours may be applied toward the MPH degree/program of study. Pr.: Consent of instructor. Same as DMP 840, HN 840, and KIN 840.

FDSCI 850. Food Science Graduate Seminar. (1.) II. This course is designed to provide students with experience in developing and delivering a scholarly presentation on a specific topic. The course will include instruction on how to properly design technical presentations for effective communication. Students will learn how to use visual aids such as transparencies, slides and multimedia projectors. At least one technical presentation will be required. One credit required for an M.S. degree and 2 credits for a Ph.D. degree.

FDSCI 898. Master's Report in Food Science. (1-2) I, II, S. A written report of either research or problem work on a topic in the major field.

FDSCI 899. Master's Research in Food Science. (Var.) I, II, S. Research leading to the completion of a master's thesis.

FDSCI 907. Food Dispersions. (2) II, in odd years. Laws and theorems applied to the formation, mechanization and stabilization of food dispersions: properties of food dispersions; food solids, gels, batters, emulsions and foams. Two hours lec. a week. pr.: ASI 815.

FDSCI 915. Food Toxicology. (2) II, in odd years. This course deals with the study of occurrence, detection, and control of microbial toxins and chemical toxins in fresh and processed foods. The genetics, physiology, and mechanisms of toxin production by microbial cells and the chemistry, formation, and interactions of chemical toxins with food systems during food processing will be addressed. Two hours lec. a week. Pr.: ASI 607 and 715.

FDSCI 961. Graduate Problem in Food Science. (Var.) I, II, S. In-depth study of a topic supervised by a member of the graduate faculty.

FDSCI 999. Doctoral Research in Food Science. (Var.) I, II, S. Research leading to the completion of a Ph.D. degree.

College of Agriculture

Animal sciences and industry

ASI 605	Fresh Meat Operations
ASI 608	Dairy Foods Processing and Technology
ASI 610	Processed Meat Operations
ASI 640	Poultry Products Technology
ASI 671	Meat Selection and Utilization
ASI 690	Principles of HACCP
ASI 713	Rapid Methods and Automation in Microbiology
ASI 777	Meat Technology
ASI 791	Advanced Application of HACCP Principles in the Meat and Poultry Industry
ASI 902	Topics in Animal Science
ASI 930	Advanced Meat Science

Biochemistry

BIOCH 521	General Biochemistry
BIOCH 755	Biochemistry I
BIOCH 756	Biochemistry I Laboratory
BIOCH 790	Physical Biochemistry
BIOCH 840	Intermediary Metabolism
BIOCH 910	Lipids
BIOCH 930	Proteins
BIOCH 940	Chemistry of Carbohydrates
BIOCH 950	Enzyme Chemistry

Biological and agricultural engineering

ATM 540	Introduction to Food Engineering
ATM 541	Introduction to Food Engineering Laboratory Exercises
BAE 575	Fundamentals of Agricultural Process Engineering
BAE 625	Thermal Processing Operations in Food Engineering
BAE 635	Food Plant Design
BAE 700	Agricultural Process Engineering

Biology

BIOL 670	Immunology
BIOL 675	Genetics of Microorganisms
BIOL 690	Microbial Physiology and Metabolism
BIOL 730	General Virology
BIOL 805	Advanced Mycology
BIOL 830	Advanced Virology
BIOL 888	Electron Microscopy Techniques

Chemistry

CHM 545	Chemical Separations
CHM 922	Advanced Separations Laboratory
CHM 942	Advanced Analytical Chemistry

Chemical engineering

CHE 530	Transport Phenomena I
CHE 531	Transport Phenomena II
CHE 550	Chemical Reaction Engineering
CHE 626	Bioseparations
CHE 715	Biochemical Engineering
CHE 805	Selected Topics in Biochemical Engineering

Grain science and industry

GRSC 500	Milling Science I
GRSC 602	Cereal Science
GRSC 625	Flour and Dough Testing
GRSC 635	Baking Science I
GRSC 636	Baking Science I Laboratory
GRSC 651	Food and Feed Product Production
GRSC 661	Qualities of Feed and Food Ingredients
GRSC 710	Fundamentals of Grain Storage
GRSC 720	Extrusion Processing in the Food and Feed Industries
GRSC 730	Milling Science II
GRSC 734	Milling Processing Technology Management
GRSC 737	Baking Science II
GRSC 738	Baking Science II Laboratory
GRSC 805	Nutritional Properties of Cereals and Legumes
GRSC 811	Principles of Food Analysis
GRSC 815	Fundamentals of Processing Grains for Food
GRSC 820	Advanced Extrusion Processing
GRSC 840	Advanced Grain Processing Technology
GRSC 901	Starch Chemistry and Technology
GRSC 902	Carbohydrates in Food
GRSC 905	Enzyme Application
GRSC 906	Food Proteins
GRSC 915	Advanced Cereal Chemistry

Horticulture, forestry, and recreation resources

HORT 725	Postharvest Technology and Physiology of Horticultural Crops
HORT 800	Horticulture Physiology

Hotel, restaurant, institution management and dietetics

HRIMD 640	Consultation in Hotel, Restaurant Management and Dietetics
HRIMD 705	Computer Implementation in Foodservice and Hospitality Operations
HRIMD 805	Food Production Management
HRIMD 880	Procurement for Foodservice and Hospitality Operations
HRIMD 890	Administration of Foodservice and Hospitality Organizations
HRIMD 895	Cost Controls in Foodservice Systems

Human nutrition

HN 550	Nutrient Metabolism
HN 660	Nutrition and Food Behavior
HN 701	Sensory Analysis of Foods
HN 702	Nutrition in Developing Countries
HN 741	Consumer Response Evaluation
HN 780	Problems in Human Nutrition
HN 810	Advanced Macronutrient Metabolism
HN 812	Advanced Micronutrient Metabolism
HN 819	Food Systems
HN 821	Practicum in Sensory Analysis
HN 831	Descriptive Sensory Analysis
HN 844	Nutritional Epidemiology

Statistics

STAT 703	Statistical Methods for Natural Scientists
STAT 704	Analysis of Variance and Covariance
STAT 705	Regression and Correlation Analyses
STAT 720	Design of Experiments
STAT 730	Multivariate Statistical Methods

For more information

For additional information and application materials please contact:

Dr. Thomas Herald
Food Science Graduate Program
Kansas State University
216 Call Hall
Manhattan, KS 66506

785-532-4057 or 785-532-1221
Fax: 785-532-5861
E-mail: etoburen@ksu.edu
Food Science Institute Home Page: http://www.foodsci.k-state.edu

Tuition and Fees for Graduate Students

Payment of fees | Tuition and Fees |
Application for admission processing fees |
Students eligible for resident fees | Refund policy | More information

Keith L. Ratzloff, Controller

Tuition and fees are established annually by the Kansas Board of Regents. Tuition is assessed at a rate per credit hour, where the rate depends on residency (resident or non-resident) and level of credit (graduate or undergraduate.)

Students are additionally assessed a campus privilege fee, based on credit hours taken.

The Graduate School has an application fee of $55.00 for all international students and $30.00 for all domestic students.

PLEASE NOTE: *If applying to graduate programs in the College of Architecture, Planning and Design or the College of Business, additional application fees apply. Refer to program websites for more information.*

Tuition

This is the student's contribution toward the costs of instruction and covers approximately 13.1% of the university budget.

Fees Subject to Change

The 2006-2007 schedule of fees was in effect when this catalog was prepared. However, there is no guarantee this schedule will not be changed without notice before the beginning of any semester or summer term.

Students will be assessed for all hours in which they are enrolled, including those for which the grade of W is recorded. Students withdrawing from courses are eligible for refunds in accordance with the refund policy.

Students receiving scholarships or grants not processed through the K-State Office of Student Financial Assistance before registration will be required to pay the full amount of their tuition and fees from personal resources.

It is the student's reponsibility to withdraw from classes at any time after enrollment if he or she does not plan to attend. Classes are no longer administratively dropped if tuition is unpaid. Students may access their university account balances on KATS.

Payment of Tuition and Fees

Unless a deferment is granted, students should pay the total amount of their semester tuition and fees by the due date on the statement of account they receive and should use a check for exact amount, MasterCard, or VISA. A special handling fee is assessed for students who enroll after the start of classes and a 1.5% default charge is assessed for any balance billed but not paid by the due date.

Deferments

If the student's eligibility to receive financial aid is verifiable, the director of student financial assistance may authorize the deferment of payment of tuition and fees in accordance with the Board of Regents Policy and Procedures Manual (Chapter 2, Section E). The student's obligation to pay regularly assessed tuition and fees is not reduced by an approval to defer payment.*

Listed below are the authorized categories for deferments:

- Students who have met all financial aid application requirements and whose awards have been made by the June packaging date, but whose aid has not been disbursed. The student must pay any amount of tuition and fees over and above the pending financial aid award.
- Graduate students on assistantship who are employed in a research or teaching assistantship and will be receiving a university payback.
- Military veterans eligible to receive monthly benefits from the U.S. government.
- International students awaiting funds from their home country.

A student may choose to sign up for the Tuition Installment Payment Plan (TIPP) offered by the university. Information is available in the Cashier's office in Anderson Hall or it can be accessed online at http://www.k-state.edu/controller/cashiers/TIPP.htm.

* A default charge will be suppressed only until November 15 (Fall Semester), April 15 (Spring Semester) and July 15 (Summer Semester). If an unpaid balance remains as of those dates, the 1.5% default charge will be assessed.

Returned Checks

Tuition and fee checks that are returned uncollectible by financial institutions will be subject to a $30 charge, in addition to all other fees.

Withholding Student Records

The university withholds students' academic records for nonpayment of tuition and fees, loans, and other appropriate charges and for nonreturn of university property.

Privilege Fees

The Kansas State University privilege fee provides students with services, activities, and supplemental educational opportunities tailored to fulfill their academic and personal goals.

Privilege Fee Recipients:

Educational Opportunity Fund
Student health
K-State Student Union repair and replacement
Rec Complex expansion
Library expansion
Coliseum repair and replacement
Activity fee
K-State Student Union
Student Publications
Recreational Services
KSDB-FM
Athletics
Fine Arts
Student Publications equipment
Student Union enhancement
Student Union special program
OSAS - Office of Student Activities and Services

Tuition and Fees

The comprehensive schedule of fees and detailed tuition and fees information can be found on the Cashiers Office website at: http://www.k-state.edu/controller/cashiers/TuitionFees.htm.

Students enrolled in a spring semester, but not attending summer term, may access Lafene Health Care services during the summer by paying the health privilege fee assessed a summer student enrolled in 6 or more credit hours, due prior to receiving services. A student who has paid the health privilege fee in a current semester may elect to provide his/her non-student spouse with health service eligibility by paying the health privilege fee assessed a full-time student, as defined by the university, for the fall and spring semesters or the summer session fee defined above. This fee is also due prior to receiving services. These special health service fees do not include the use of university Counseling Services. Full time employees of Kansas State University enrolled in classes are not assessed a Lafene Health fee, but may elect to pay the fee, based upon enrolled credit hours, and therefore be eligible for Lafene Health Center services.

Students who will be attending classes off-campus which are in excess of the 30 mile radius for an entire semester and will reside outside of a 30-mile radius of KSU-Manhattan campus during that semester are exempt from all campus privilege fees.

Employees (as defined in Eligibility for Resident Fees) are assessed resident tuition.

Auditing

Auditing is permitted at no charge on a space-available basis. It allows course attendance without participation or credit upon approval of the instructor. This privilege is not applicable to laboratory and continuing education courses.

Application Processing Fees (not subject to refund)

For post-baccalaureate programs in the Department of Architecture and Landscape Architecture/Regional and Community Planning (not applicable to other fees)	$30.00
For post-baccalaureate programs in College of Business Administration	$45.00
For international students to post-baccalaureate programs except Business Administration	$25.00
For Graduation	$15.00

Eligibility for Resident Tuition

The following are eligible for resident tuition:

Residents. Guidelines for the determination of residency for fee purposes are set forth in Appendix D, Residency Rules and Regulations, of the Policy and Procedures Manual for the Board of Regents along with referenced Kansas Statutes and Administrative Regulations. Information is available at http://www.ksu.edu/registrar/faqs/faq_res.html and at http://www.kansasregents.org/academic/policy/appendicies/d.html.

Employees for universities under the Kansas Board of Regents, other than hourly student employees, working .40 FTE time or more as follows:

- For fall semesters (Employed September 1 through November 17)
- For spring semesters (Employed February 1 through April 17)
- For summer term (Employed the duration or employed from February 1 through April 17)
- For the term in which a graduate degree is awarded

Employees of the federal government given adjunct appointments at Kansas State University or assigned to one of the ROTC units at Kansas State University.

Military personnel.

- Stationed and living in Kansas and military personnel assigned to Kansas State University as full-time students
- People who are domiciliary residents of the State, who were in active military service prior to becoming domiciliary residents of the State, who were present in the State for a period of not less than two years during their tenure in active military service, whose domiciliary residence was established in the State within 30 days of discharge or retirement from active military service under honorable conditions, but whose domiciliary residence was not timely enough established to meet the residence duration requirement.

Dependents. Spouses and dependent children of full time employees and military personnel defined above.

Exchange Students From Missouri. Students eligible to pay resident fees at the University of Missouri who are enrolled in the following programs at Kansas State University: Bachelor of Architecture, BS in Architectural Engineering, BS in Bakery Science and Management, BS in Construction Science (not available for new and readmitted students), BS in Feed Science and Management, BS in Horticultural Therapy, Bachelor of Interior Architecture, Bachelor of Landscape Architecture, BS in Milling Science and Management, MS and PhD in Grain Science and Industry.

This privilege is granted in exchange for resident fees for Kansas students who enroll in certain programs in Missouri. (Subject to limitation arbitrated by Kansas Board of Regents and Missouri Board of Education).

Kansas High School Graduates. Persons who are not domiciliary residents of the State, who have graduated from a high school accredited by the State Board of Education within six months of enrollment, who were domiciliary residents of the State at the time of graduation from high school or within 12 months prior to graduation from high school, and who are entitled to admission at a State educational institution pursuant to K.S.A. 72-116, and amendments thereto.

Recruited/Transferred Employee. Persons who have been recruited to Kansas for full-timed employment or transferred to a Kansas location within the last 12 months and their dependents. Self employed persons are not eligible for this resident tuition status.

Refund Policy

On-Campus

The following table applies to students who completely withdraw from a semester and to the reduction in tuition and fees for students who reduce their enrollment. Percentages and days are illustrated for full-semester (10 weeks or more) courses. Refunds for courses of less than 10 weeks will be pro-rated based on the number of days in the course. Each course will be refunded separately from any other courses.

Time of Withdrawal	Refund Percentage
Through 21st Calendar Day	100%
22nd Through 28th Calendar Day	50%
After 28th Calendar Day	No refund

Refunds will not be made until sufficient time has elapsed to ensure that fee payment checks have been honored by the bank, usually 15 days after the student pays. Students who completely withdraw from a semester lose access to all campus student services as of the date of withdrawal. Academic action taken after the last day of a semester will not result in a refund.

Federal regulations may require students attending the university who receive federal forms of financial assistance under Title IV, and completely withdraw from the university, to be subject to a "return of Title IV aid" calculation which is different from the above refund percentages. Contact the office of Student Financial Assistance for details.

Military

Students serving in the National Guard or Reserves who are called to active duty during an academic semester are entitled to receive a full refund of tuition and fees. Students who are drafted and must report for active duty during an academic semester are entitled to receive a full refund of tuition and fees. All refunds are subject to presentation of official military documentation. Students who volunteer for military service will be subject

to the University's non-military refund policy. Room and board charges will be prorated to the extent that services have been provided.

Continuing Education refunds

- Students may receive a full tuition refund on most mediated courses if it is requested in writing prior to 20% of the course, or if the class is cancelled.
- Students may receive a 50% tuition refund if it is requested in writing on or before 20% of the course.
- No refund is issued after 25% of the course.
- Some additional fees are non-refundable (i.e., fees for book handling, late registration, media, materials or lab fees).
- There are no refunds for non-credit enrollments after the term begins.

For More Information
E-mail:cashiers@ksu.edu
(785) 532-6317

Finance

Finance courses | For more information

Head:
Anand S. Desai

Director of graduate studies:
Jeff Katz

Graduate faculty:

Xuanjuan (Jane) Chen, Ph.D., University of Rhode Island.

Chairat Chuwonganant, Ph.D., University of Memphis.

Anand S. Desai, Ph.D., University of Michigan.

John Graham, Ph.D., University of Arkansas.

Eric J. Higgins, Ph.D., Florida State University.

Amir Tavakkol, Ph.D., Kansas State University.

Programs

The Department of Finance supports the Master of Business Administration (MBA) and Master of Accountancy (MACC) degrees.

Finance courses

Undergraduate and graduate credit in minor field

FINAN 510. Debt Securities and Markets. (3) I, II. An analysis of the features, valuation and use of debt securities issued by both businesses and governments, from the investor's point of view. The determinants of interest rates and the impact of inflation on asset returns. Applications to the management of bond portfolios and the use of derivatives of debt securities will be discussed. Pr.: FINAN 450. May be taken concurrently with FINAN 520.

FINAN 520. Equity Securities and Markets. (3) I, II. An analysis of equity securities and markets from the investor's point of view. Topics covered include the mechanics of investing in equity securities, risk-return tradeoff, asset pricing models, market efficiency, valuation of equity securities, portfolio performance measurement and an introduction to equity derivatives. Pr.: FINAN 450. May be taken concurrently with FINAN 510.

FINAN 531. Commercial Banking. (3) II. An application of financial management concepts to the liquidity management, investment portfolio analysis, capital budgeting, and capital structure decision-making process required by a commercial bank to perform effectively its financial intermediation role within the financial system's institutional, regulatory, and competitive environment. Pr.: FINAN 510 and FINAN 520.

FINAN 552. Real Estate. (3) II. Principles and practices including legal, economic, and social implications from the viewpoint of the real estate practitioner, investor, and society. Pr.: Junior standing.

FINAN 561. Financing Emerging Businesses. (3) On sufficient demand. A study of the business environment, methods of organizing and financing, investment and valuation, and financial planning from the perspectives of owner-managers and venture capital investors. Pr.: FINAN 510 and FINAN 520.

FINAN 562. Short-Term Financial Management. (3) I. Application of financial concepts to the firm's short-term investment and financing decisions. Topics include cash collection, cash concentration, cash disbursement, banking relationships, receivables and payables management, hedging, risk management, and international short-term finance. Pr.: FINAN 510 and FINAN 520 or FINAN 815.

FINAN 575. Intermediate Finance (4) I, II. An in-depth study of a firm's investment and financing decisions, firm performance measurement and financial planning for a business enterprise. Topics include financial statement analysis and forecasting, capital budgeting, risk considerations in capital budgeting, cost of capital, capital structure theory and practice, distribution policy, leasing and mergers and acquisitions. Pr.: FINAN 510 and FINAN 520.

Undergraduate and graduate credit

FINAN 643. International Financial Management. (3) I. The international (cross-currency) aspects of financial management. Topics include currency markets and exchange rate determination, parity conditions, foreign exchange exposure and management, and valuation of international

projects. Pr.: Either FINAN 510 and FINAN 520 or FINAN 815.

FINAN 653. Security and Portfolio Analysis. (3) I, II. The analysis and valuation of securities and the management of investment portfolios. Students analyze the composition of, make buy/sell recommendations for, and evaluate the performance of an actual portfolio. Pr.: FINAN 510 and FINAN 520 or FINAN 815.

FINAN 654. Derivative Securities and Markets. (3) II. Structure and operation of markets for futures, swaps, options, synthetic options, and futures on options. Valuation of futures contracts and options. Applications of derivatives to hedging and speculating strategies. Pr.: FINAN 510 and FINAN 520 or FINAN 815.

FINAN 661. Professional Financial Planning. (3) I, II. A study of the principles and practices of professional financial planning using an integrated planning model. Topics include the planning environment, concepts, tax management, asset acquisition and management, credit management, risk management, investments, retirement planning, and estate planning. Contemporary applications, professional opportunities, and legal/ethical standards are emphasized. Pr.: FINAN 510 and FINAN 520.

FINAN 675. Cases in Finance. (3) I, II. Capstone course in finance utilizing real world cases to integrate and apply financial concepts and theories, with emphasis on analytical and written and oral communication skills. Pr.: FINAN 665, and senior level students admitted in a College of Business Administration degree track or graduate standing.

Graduate credit

FINAN 815. Managerial Finance I. (3) II. Introduction to the process of value creation. Development of an understanding of the environment in which firms operate, including a discussion of financial markets and institutions and valuation of financial assets. Provides a working knowledge of the financial system and analytical tools for decision making. Pr.: ACCTG 810.

FINAN 820. Advanced International Financial Management. (3) II. A study of the international dimensions of corporate financial management with an applied orientation. Pr.: FINAN 815.

FINAN 830. Financial Market Theory. (3) I. Development and analysis of conceptual framework for understanding (1) the functions performed by financial markets and their associated institutional arrangements, and (2) the contractual claims in transferring savings among business, household, and government participants in the economic system. Pr.: FINAN 815 or FINAN 450 and ACCTG 433.

FINAN 840. Entrepreneurial Finance. (3) On sufficient demand. This course will provide potential entrepreneurs a sufficient knowledge of applied finance needed to start and run an entrepreneurial business. Concepts covered will include the basic paradigms of finance such as risk and portfolio diversification. Discussions of the accounting environment of a small business and how the financial conditions can be analyzed will also be included. Finally, the course will focus on the financial skills a beginning entrepreneur will need to know to operate a small business, such as valuation, short-term capital management, financing decisions, and the exit strategies available to such enterprises. Pr.: FINAN 815.

FINAN 860. Managerial Finance II. (3) I. Advanced concepts in managerial decision making. Topics include strategic financial planning, capital structure, distribution policy, options and futures, real options, financial risk management, and mergers and acquisitions. Synthesis of the concepts and tools is achieved through real world business case analyses. Pr.: ACCTG 810, ECON 815, FINAN 815, MANGT 810, MANGT 820, MANGT 830, MKTIB 810, STAT 702 or FINAN 815 and enrollment in the MAcc program.

FINAN 890. Seminar in Finance. (3) On sufficient demand. In-depth study of selected contemporary issues in finance. Pr.: FINAN 815.

FINAN 898. Advanced Problems in Finance. (Var.) I, II, S. Independent study of selected advanced topic(s) in finance. Pr.: Consent of department head.

For more information

For additional information and application materials please contact:
Jeff Katz, Assistant Dean
Director of Graduate Studies
College of Business Administration
Student Services
107 Calvin Hall
Manhattan, KS 66506-0501

Phone: 785-532-7451
Fax: 785-532-7809
E-mail: gradbusiness@ksu.edu
Home Page: http://www.cba.k-state.edu/departments/finance/index.htm

Financial Assistance

In order to support research, scholarship, and the acquisition of advanced degrees, the university offers several kinds of financial aid for graduate students. These include fellowships, traineeships, teaching assistantships, and research assistantships. In addition, a variety of loan programs are available to graduate students.

Teaching and Research Assistantships | Traineeships | Loans
Satisfactory Academic Progress | Financial Assistance Exclusion Appeal Process

Teaching and Research Assistantships

Individual departments and graduate programs administer graduate student financial assistance primarily in the form of teaching and research assistantships. Award of assistantships is based on the student's ability and promise and is usually made for either nine or twelve months. The maximum appointment is for half time, but appointments for lesser fractions also may be made. Continuation of appointments is subject to availability of funds and academic performance in "good standing" in the Graduate School (GPA 3.0 or greater). Information on applying for graduate assistantships may be obtained from the head of the department concerned.

Students are eligible for tuition benefits for each term in which they hold an appointment of at least 0.4 time. Graduate research assistants pay tuition at the staff rate; in addition, those who have been on appointments for at least 0.4 time during the spring term are eligible for staff fees during the following summer term, even though they may not hold assistantships. Graduate teaching assistants receive a full tuition waiver for spring and fall semesters in which they hold at least a 0.4 appointment. These waivers are not available in the summer, but, like research assistants, teaching assistants pay staff fees for the term if they have held at least a 0.4 appointment in the previous spring. Funds are provided for tuition benefits only; students will be responsible for campus privilege fees (student health, activity fees, etc.).

To be eligible for tuition benefits, students must be enrolled for a minimum of 6 graduate credit hours in a fall and spring semester. Individual departments may also require minimum enrollment in the summer of 3 graduate credit hours. The maximum enrollment for graduate assistants is 10 hours for 0.5 and 12 hours for 0.4 appointments. The corresponding maximums for a summer term are 5 and 6 hours respectively.

Graduate teaching assistants must be on appointment from September 1 through November 17 for the fall semester and February 1 through April 17 for the spring semester. (Dates are subject to change.) If a graduate appointment does not begin by these dates or terminates before these ending dates, all tuition benefits will be lost. The student then is responsible for the total tuition payment.

All prospective graduate teaching assistants who are non-native speakers of English shall be required to achieve a minimum score of 50 on the TSE (Test of Spoken English).

Traineeships

The university has a number of traineeships available. Several departments also have federally supported traineeships available under the programs of the National Institutes of Health and other agencies. Contact individual departments for information.

Loans

Kansas State University offers four differing loan programs to its graduate student population: the Federal Stafford Loan/Federal Direct Loan, the Federal Perkins Loan, the Health Professions Student Loan (HPSL), and Alumni/Foundation Loans. Before a graduate student may be considered for one or more of the above listed loan programs, he/she must have successfully applied for financial assistance utilizing the Free Application for Federal Student Aid (FAFSA). The FAFSA is academic year specific, and should, therefore, be completed well in advance of each academic year for which a student is seeking financial assistance.

Eligible graduate students may be offered either a Federal Stafford Loan or a Federal Direct Loan by Kansas State University. Under the Federal Stafford Loan Program, a student must locate a private lender, such as a bank or credit union, from whom to borrow the loan funds. Under the Federal Direct Loan Program, a student borrows funds directly from the federal government through Kansas State University. Currently, the interest rate for either loan type is capped at 8.25% and is set anew each July 1st.

In addition, qualifying graduate students may also be eligible to borrow under the Federal Perkins Loan Program (5% interest), the Health Profession Student Loan Program (5% interest), and/or the Alumni/Foundation Loan Program (6% interest). Finally, graduate students may also borrow, on a case-by-case basis, from emergency, alumni, and endowment funds.

Students interested in any of the above listed loan programs are encouraged to contact the Office of Student Financial Assistance for more detailed information or contact them on-line through their homepage at http://www.ksu.edu/sfa.

Satisfactory Academic Progress

Federal regulations require that financial aid recipients make satisfactory academic progress in order to remain eligible for federal financial assistance. Satisfactory academic progress regulations apply to such forms of assistance as: the Federal Stafford Loan Program, the Federal Direct Loan Program, the Federal Perkins Loan Program, the Health Professions Student Loan Program, and the Federal College Work Study Program.

The only programs which are exempt are athletic grants-in-aid and other, non-federally funded forms of assistance.

Kansas State University has established standards of satisfactory academic progress for the purpose of evaluating a student's efforts to earn a degree within a specified time frame. The evaluative standards are comprised of qualitative as well as quantitative components. One of the quantitative aspects prescribes a ratio of credit hours attempted to credit hours successfully completed which a student must meet in order to remain eligible for federal financial assistance. The other quantitative measure sets a limit upon the total number of attempted credit hours for which a student may receive federal financial assistance during his/her program of study. The qualitative component of the satisfactory academic progress standards addresses the minimum allowable grade point average which a student must achieve in credit hours completed in order to remain eligible for federal student financial assistance. Note: All recipients of federal financial assistance are required to meet the standards of satisfactory academic progress. The monitoring of satisfactory academic progress begins with the first term in which a student is the recipient of any form of federal financial assistance. For more detailed information on the topic of satisfactory academic progress, contact the Office of Student Financial Assistance, 104 Fairchild Hall, (785) 532-6420.

Quantitative Satisfactory Academic Progress Standards

Graduate Students	Hours Attempted per Semester	Minimum Hours to Complete per Semester**
Full time	9 and above*	7
Half time	5-8.5	4

*Graduate students eligible for veterans administration benefits are considered as full time students if they are enrolled in 6 hours or more.

**Hours completed in excess of the required minimum standard will carry over as "credits" into subsequent semester(s). Hours completed which fall short of the minimum standard are also carried forward into subsequent semester(s), and are referred to as "deficiencies."

The maximum number of attempted hours for which a graduate student may receive federal student financial assistance is 60 (master's degree program) and/or 120 (doctoral degree programs). Any graduate student who exceeds these maximum hours, will not be eligible for further federal financial assistance, without going through the established appeals process.

Qualitative Satisfactory Academic Progress Standards

In order to remain eligible for federal financial assistance students must meet the qualitative standards as set out in the "Academic Probation and Dismissal" section of this catalog.

Further Considerations

A course cannot be counted twice for financial assistance purposes. Example: A student has received a D in a 3-credit-hour course and takes that course again in order to earn a higher grade. The credit hours have already been counted as financial assistance hours and cannot be counted again, even though the student's g.p.a. may be improved.

Courses in which a grade of F or incomplete (I), (IX), withdrawn (WD), no grade reported (NR), or no credit reported (NC) are not counted in the qualitative portion of the satisfactory academic progress standards. Graduate students receive credit for incompletes in research that follows the published degree requirements as elective or required courses, or courses taken as a part of developmental studies.

Financial Assistance Warning

Students who fail to meet K-State's satisfactory academic progress standards at the end of the spring semester will be placed on financial assistance "warning" for the following semester. At the conclusion of the following academic year, the student's academic progress will, once again, be measured. The student will be reinstated into the "satisfactory" academic progress status if he/she has met K-State's standards. However, a student will be placed on financial assistance "exclusion" status if he/she has failed to meet K-State's academic progress standards.

Financial Assistance Exclusion

Students with a financial assistance "exclusion" status are denied any federal form of student financial assistance until they have met K-State's satisfactory academic progress standards. Students are permitted to appeal their "exclusion" status with the Office of Student Financial Assistance. If an appeal is approved, federal financial assistance, if available, may be reinstated for the semester in question.

Financial Assistance Exclusion Appeal Process

Appeal forms for satisfactory academic progress are available at the Office of Student Financial Assistance. Appeal are made in writing to the satisfactory academic progress administrative officer. Students filing an appeal are encouraged to outline a specific strategy for academic recovery as well as to provide a written statement of support from their academic advisor. Premised upon professional judgment, the completed appeal may be either approved or denied by the Office of Student Financial Assistance. The student may be required to participate in special activities to improve his/her academic progress. Decisions regarding appeals are final and, consequently, not subject to further review.

Academic Information

Dr. Jon Wefald, President
Dr. M. Duane Nellis, Provost
Robert S. Krause, Vice President for Institutional Advancement
Dr. Thomas M. Rawson, Vice President for Administration and Finance
Dr. Ron Trewyn, Vice President for Research

Board of Regents

http://www.kansasregents.org/board/members/index.html

Richard "Dick" Bond
Janice B. DeBauge
Christine Downey-Schmidt
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Academic Divisions

Fred Cholick, Dean, College of Agriculture
Dennis Law, Dean, College of Architecture and Design
Stephen White, Dean, College of Arts and Sciences
Yar Ebadi, Dean, College of Business Administration
Michael C. Holen, Dean, College of Education
John English, Dean, College of Engineering
Virginia Moxley, Interim Dean, College of Human Ecology
Dennis Kuhlman, Dean, College of Technology and Aviation, K-State at Salina
Ralph Richardson, Dean, College of Veterinary Medicine
Sue Maes, Interim Dean of Continuing Education
Lori A. Goetsch, Dean of Libraries

Graduate School Administration

Carol Shanklin, Interim Dean of the Graduate School
James A. Guikema, Associate Dean & Associate Vice Provost for Research
Cheryl Polson, Assistant Dean

Graduate Council

http://www.ksu.edu/grad/gspeopleorg/council/counmemb.htm

Koushik Adhikari, Human Nutrition
Kassim Al-Khatib, Agronomy
Kris Boone, Communications
Stefan Bossmann, Chemistry
Todd Easton, Industrial and Manufacturing Systems Engineering
Jana Fallin, Music
Jon Faubion, Grain Science and Industry
Bronwyn Fees, Family Studies & Human Services
Don Gruenbacher, Electrical and Computer Engineering
Marjorie Hancock, Elementary Education
Michael Herman, Biology
Judith Hughey, Counseling & Education
Stacy Hutchinson, Biological & Agricultural Engineering
Marilyn Kaff, Special Education
Jeff Katz, Management

John Keller, Landscape Architecture
Kellan Kershner, Graduate Student Council
Stacy Kovar, Accounting
Kimberly Kramer, Architectural Engineering & Construction Science
Vladimir Krstic, Architecture
Deborah Meyer, Apparel, Textiles, and Interior Design
Teresa N. Miller, Educational Leadership
Jim Nechols, Entomology
James Neill, Statistics
David Olds, Graduate Student Council
Michael O'Shea, Physics
Robert Schaeffer, Sociology, Anthropology and Social Work
Bill Schenck-Hamlin, Speech Communication, Theatre & Dance
Steve Smethers, Journalism/ Mass Communications
David Smit, English
Philine Wangemann, Anatomy & Physiology
Melinda Wilkerson, Diagnostic Medicine/Pathobiology
Michal Zolkiewski, Biochemistry
James Guikema, chair (ex oficio)
Carol Shanklin, chair (ex oficio)

Information

You may call toll-free about admission to graduate study at Kansas State University. Dial 1-800-651-1816. Outside the United States dial 785-532-6191.

Prospective students should contact the Graduate School, Kansas State University, 103 Fairchild Hall, Manhattan, KS 66506-1103.

This catalog is constantly being revised on our web site as new information becomes available. Please refer to the online catalog for the updated version at http://www.ksu.edu/grad/gscurrent/catalog/index.html

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Family Studies and Human Services

Overview | Distance education and certificate programs
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Director:
William Meredith

Director of graduate studies:
Esther M. Maddux

Graduate faculty:

Joyce Baptist, Ph.D., Virginia Polytechnic Institute and State University.

M. Betsy Bergen, Ph.D., Kansas State University.

Stephan R. Bollman, Ph.D., Iowa State University.

L. Ann Coulson, Ph.D., University of Missouri - Columbia.

Linda K. Crowe, Ph.D., Louisiana State University A & M.

Gayle Doll, Ph.D., Kansas State University..

Mary F. De Luccie, Ph.D., Kansas State University.

Bronwyn S. Fees, Ph.D., Iowa State University.

Jane Garcia, Ph.D., University of South Alabama.

Briana Nelson-Goff, Ph.D., Texas Tech University.

John E. Grable, Ph.D., Virginia Polytechnic Institute and State University.

Charles L. Griffin, MS, Kansas State University.

Linda A. Hoag, Ph.D., University of Illinois.

Elaine M. Johannes, Ph.D., Kansas State University.

Anthony P. Jurich, Ph.D., Pennsylvania State University.

Carol Kellett, Ph.D., University of Missouri-Columbia.

Esther M. Maddux, Ph.D., Purdue University.

Terrie McCants, MS, Nova Southeastern University.

William Meredith, Ph.D., University of Nebraska

Virginia M. Moxley, Ph.D., Kansas State University.

Ann D. Murray, Ph.D., Macquarie University, Australia.

John P. Murray, Ph.D., The Catholic University of America.

Karen Myers-Bowman, Ph.D., Purdue University.

Nancy O'Conner, MS, Kansas State University.

Charlotte Shoup Olsen, Ph.D., Kansas State University

Candyce S. Russell, Ph.D., University of Minnesota.

Rick J. Scheidt, Ph.D., University of Nebraska.

Walter R. Schumm, Ph.D., Purdue University.

Debra M. Sellers, Ph.D., Kansas State University.

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Overview

The School of Family Studies and Human Services is a multidisciplinary program that provides graduate training for M.S. and Ph.D. students. The professional specializations are addressed to broad issues concerning individuals and families, and the courses are taught by a faculty of sociologists and psychologists, educators and economists, health specialists and gerontologists, social workers, marriage and family therapists, speech language pathologists and audiologists.

Extensive research and professional practice opportunities are provided through seven centers operated by the program: Early Childhood Laboratory; The Family Center, Hoeflin Stone House Child Care Center; Speech and Hearing Center; Marriage and Family Therapy Clinic. Opportunities are also available through the university-wide Galichia Center on Aging.

The school offers graduate work toward M.S. and Ph.D. degrees in a broad range of the human sciences and human services. The M.S. degree in family studies and human services includes specializations in communication sciences and disorders, conflict resolution, early childhood education, family life education and consultation, gerontology, life span human development, marriage and family therapy, personal financial planning, and youth development. The school offers the following specializations leading to the Ph.D. degree in human ecology: family life education and consultation, life span human development, and marriage and family therapy.

Distance education and certificate programs

The school collaborates with the Great Plains Interactive Distance Education Alliance (GPIDEA) to offer the M.S. degree in family studies and human services in the following specializations: personal financial planning, gerontology, and youth development. The inter-institutional M.S. programs draw upon the expertise of graduate faculty from seven universities. The programs are taught entirely via the Internet. Students enrolled in the program through Kansas State University will receive their degrees from Kansas State University. Also available through the GPIDEA are certificates in gerontology or youth development.

Students completing the personal financial planning M.S. are eligible to sit for the certified financial planner certification examination.

Graduate program specializations

Communication sciences and disorders

The program in communication sciences and disorders offers the M.S. degree with emphasis in speech-language pathology. It has clinical affiliations with a variety of professional sites including public school systems, hospitals, and specialized settings such as The Capper Foundation for Crippled Children. The speech-language pathology master's degree program is accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association (ASHA). Graduates of the program are eligible for clinical certification by ASHA. The program also meets the requirements for licensure awarded by the Kansas Department of Health and Environment.

Conflict Resolution

The Graduate Certificate in Conflict Resolution offers students the fundamentals of conflict resolution and practice. It is intended to meet the needs of those individuals who seek introductory graduate training in conflict resolution. It may also be appropriate for professionals who have already earned a graduate degree in their professional field, but who would benefit from academic study of applications of conflict analysis and resolution in their current profession.

Early childhood education

The M.S. program in early childhood education prepares individuals to be curriculum specialists, directors of early childhood programs, and leaders in the development of child care policy. Early childhood education certification is available with additional coursework.

Family life education and consultation

The M.S. and Ph.D. specializations in family life education prepare students to develop and implement educational programs designed to strengthen family life. Course work and practica are tailored to the backgrounds and professional goals of each student, with emphasis on human development and family studies, and on program development and evaluation.

Gerontology

The inter-institutional M.S. program in family studies and human services with a gerontology specialization draws on the expertise of graduate faculty and graduate courses from seven universities. The program is taught entirely via the Internet. A certificate program in gerontology is also

available via distance learning.

The school also participates in the university's interdisciplinary graduate emphasis program in gerontology at both the M.S. and Ph.D. levels. This program prepares graduates to establish careers in academic work, research, program development, or professional services related to aged individuals and their families.

Life span human development

The life span human development M.S. and Ph.D. specializations are concerned with the growth and development of the individual, the varying contexts of human development, and the processes underlying development throughout the life cycle. Emphasis is placed on understanding the continuous and systematic changes in individual behavior.

Marriage and family therapy

The marriage and family therapy M.S. and Ph.D. specializations prepare professionals to conduct and evaluate therapy with marital and family groups. Students pursue programs of study that include course work in human development, family studies, marital and family therapy, statistics, and research methods. Both the M.S. and Ph.D. specializations in marriage and family therapy are accredited by the Commission on Accreditation for Marriage and Family Therapy Education.

Personal financial planning

This inter-institutional M.S. program in personal financial planning draws on the expertise of graduate faculty and graduate courses from six universities. The program is taught entirely via the Internet and upon completion of the curriculum students are eligible to sit for the certified financial planner certification examination. A certificate program in personal financial planning is also available via distance learning.

Youth development

The inter-institutional M.S. program in family studies and human services with a youth development specialization draws on the expertise of graduate faculty and graduate courses at seven universities. The program is taught entirely via the Internet. Certificate programs in Youth Development Administration and Youth Development Professional are also available via distance learning.

Other specializations

See the Human Ecology section of the catalog for further information on the Ph.D. program (click here).

Family Studies and Human Services Courses

Undergraduate and graduate credit in minor field

FSHS 506. Middle Childhood and Adolescence. (3) I, S. Principles of growth and development during middle childhood and adolescence, including familial, societal, and other ecological factors affecting development of youth. Pr.: FSHS majors only.

FSHS 510. Human Development and Aging. (3) I, S. Survey of issues, research, and problems in aging and human development throughout adulthood, with particular emphasis upon the later years. Pr.: FSHS 110 or PSYCH 280.

FSHS 515. Laboratory in Acoustic Phonetics. (1) I. The study of speech perception and production through acoustic analysis. Laboratory experience in the use of computer-based speech analysis systems. Pr.: FSHS 347 and senior standing.

FSHS 531. Core Conflict Resolution. (3) I. This course focuses on a set of core skills and strategies for managing and resolving disputes. It is designed to (1) help individuals deal with differences and address conflict on a personal level, and (2) provide detailed knowledge of a structured approach for third party conflict revolvers.

FSHS 532. Conflict Resolution across Cultures & Contexts. (3) I. The course explores the cultural components of conflict by examining the dynamics of interpersonal beliefs and socialization, cross cultural conflict theory, and issues related to application in a variety of settings. This course is designed to be an exercise in critical thinking, cultural exploration, and self-reflection.

FSHS 533. Prevention & Intervention of Violence. (3) II. This course includes an introduction to a range of violence intervention and prevention approaches developed for use as the interpersonal, intergroup, and societal level. Various theories of human aggression and violence and their underlying assumptions about human nature and the causes of violence will be examined.

FSHS 534. Conflict in Organizations. (3) II. This course focuses on the causes and sources of conflict within organizations and groups, dispute systems assessment and design, and how conflict resolution professionals work as interveners and agents of change. Students will also explore and identify their own professional consultation strengths and interests.

FSHS 535. Divorce & Child Custody Mediation. (3) S. This course focuses on mediation as an approach for couples wishing to create divorce settlements through a cooperative, confidential, and private process. Divorce and child-custody is considered as a family problem and not

a legal problem. It addresses the psychological, financial, and legal dimensions of divorce in conflict resolution settings.

FSHS 540. Curriculum for Cognitive and Language Development of Young Children. (3) I. Planning for the enhancement of cognitive and language development. The application of child development theory to the planning of programs for young children within the major curriculum areas. Conc. with FSHS 541. Prior or conc. With FSHS 565. Pr.: FSHS 310, 313 and admission to teacher education.

FSHS 541. Curriculum for Emotional, Social, and Physical Development of Young Children. (3) I. Planning for the enhancement of physical, social and emotional development. The application of child development theory to the planning of programs for young children within the major curriculum areas. Conc. with FSHS 540. Pr.: FSHS 310, 313 and 420 and admission to teachers education.

FSHS 543. Reflective Practice: Infants and Toddlers. (3) I Application of developmental principles and evidenced-based practice to the diverse learning environments for infants and toddlers with and without special needs across content areas including the integration of the family and community and public policies that affect programs for young children. Admission to teacher education required; CoReq.: FSHS 553 required.

FSHS 544. Reflective Practice: Preschoolers and Kindergartners. (3) II Application of developmental principles and evidenced-based practice to the diverse learning environments for preschoolers and kindergarteners with and without special needs across content areas including the integration of the family and community and public policies that affect programs for young children. Admission to teacher education required. Corequisites: FSHS 554 and 555 required.

FSHS 549. Clinical Procedures in Communication Disorders. (3) II. Orientation to clinical practicum. Opportunities for clinical observation of speech, language, and hearing evaluation and treatment. Study of diagnostic tools, treatment materials, equipment, and clincial procedures. Pr.: CSD major; senior. Pr. or Coreq: FSHS 443 and 446 and senior standing.

FSHS 550. The Family. (3) I. Consideration of the family throughout the family life cycle; developmental tasks at each stage. Use and impact of family support services. Pr.: Nine hours in FSHS or other social science and junior standing.

FSHS 552. Families and Diversity. (3) I. Selected topics for understanding families in multiple contexts. Implications for professionals working with individuals and families. Pr.: FSHS majors only, 15 FSHS credits, junior or senior standing.

FSHS 553. Early Childhood Practicum I: Infants and Toddlers. (2) I Development and implementation of developmentally and functionally appropriate learning experiences, in a variety of formats, addressing content in the areas of early language and literacy, mathematics, science, social studies, the arts, and technology for infants and toddlers. Admission to teacher education required. CoReq.: FSHS 543.

FSHS 554. Early Childhood Practicum II: Preschoolers. (2) II Development and implementation of developmentally and functionally appropriate learning experiences, in a variety of formats, addressing content in the areas of early language and literacy, mathematics, science, social studies, the arts, and technology for the preschool child. Admission to teacher education required. Corequisite FSHS 544. Pr.: FSHS 540 and 541.

FSHS 555. Early Childhood Practicum III: Kindergartners. (2) II Development and implementation of developmentally and functionally appropriate learning experiences, in a variety of formats, addressing content in the areas of early language and literacy, mathematics, science, social studies, the arts, and technology for the kindergarten child. Admission to teacher education required. CoReq.: FSHS 544. Pr.: FSHS 540 and 541.

FSHS 560. Clinical Research in Communication Sciences and Disorders. (3) I. Logic and methods of clinical research with emphasis on those most frequently used in speech-language pathology and audiology. Experience formulating, doing, and evaluating research. Pr.: STAT 330 or equiv.

FSHS 565. Language Development. (3) Survey of the development of speech and language skills in children. Pr.: FSHS 310 or EDEL 300.

FSHS 566. Emergent Literacy. (3) I Exploration of literacy development from birth through kindergarten, including concepts relevant to pre-emergent, emergent, and developing literacy; procedures for designing developmentally and culturally appropriate experiences; factors impacting literacy acquisition and assessment; and intervention procedures for children at-risk for reading and writing problems. Pre.: FSHS 310. CoReq.: 565. Restricted to ECE majors only.

FSHS 567. Basic Audiology. (3) II. An introduction to audiology concepts and basic audiology testing procedures. Areas covered include disorders of the auditory system, testing procedures, and audiometric interpretation. Pr.: FSHS 361, CSD Major.

FSHS 579. Orientation to FSHS Internship. (1) I, II. Consideration and application of professional knowledge and skills necessary for selection and placement in a social agency for a supervised experience in direct service to clients. Pr.: FSHS 110 and 350 with a grade of B or better; senior standing; and minimum GPA of 2.50; FSHS majors only.

FSHS 580. FSHS Internship. (8) I, II, S. A block field placement in local agencies. Faculty-supervised experience in direct service to clients: individuals, groups, and communities. Weekly seminar during placement emphasizes theory underlying the practice. Pr.: FSHS 110 and 350 with grades of B or better; senior standing; and minimum GPA of 2.50; FSHS majors only.

FSHS 585. Professional Seminar FSHS. (3) I, II, S. Consideration of professional philosophy, identity, ethics, career development, and characteristics of client populations. Development of skills for family life educators working in agencies with various socioeconomic, age, and ethnic groups. Pr.: Senior standing and FSHS majors only.

FSHS 590. Proseminar in Family Studies and Human Services. (1-3) On sufficient demand. Review of specific issues or professional practices affecting children and/or families. Pr.: Junior standing and consent of instructor.

FSHS 591. Undergraduate Topics in Communication Sciences and Disorders. (1-3) Review of current topics in speech-language pathology and/or audiology. May be repeated for a maximum of 6 hours with a change in topic. Pr.: Consent of instructor.

FSHS 595. Professional Seminar in Family Financial Planning. (3) II. Examination of professional issues in family financial planning, including ethical considerations, regulation and certification requirements, communication skills, and professional responsibility. Development of skills needed for family financial planners working with families in meeting their financial needs. Pr.: Senior standing and FSHS 405.

FSHS 597. Home, School, and Community Partnerships. (3) I Strategies to enhance home-school communication with specific focus on families as the primary decision-makers for young children, with or without special needs. Emphasis on the development of family focused and culturally sensitive collaborations involving parents, schools, and the community to support child development, learning, and well-being. PR.: FSHS 350 or permission of instructor.

FSHS 598. Student Teaching in Early Childhood, Unified. (9) I, II, S. Design, implementation, assessment of developmentally and individually appropriate evidence-based curriculum for children with and without disabilities birth through kindergarten. Prearrangement and consent of instructor required. Pr.: FSHS 543, 544, 553, 554, 555 and admission into teacher education.

Undergraduate and graduate credit.

FSHS 603. Coping with Life Crises. (3) Examination of the effects of human competencies and coping strategies on successful adaptation to anticipated life crises, developmental transitions, and sudden, unexpected life events. Pr.: FSHS 110 or PSYCH 110 and 6 hours of social science.

FSHS 615. Manual Communication II. (3) Instruction in an additional 400-500 signs in the SEE system. Introduction to elementary ASL techniques. Discussion of other augmentative communication systems. Research will be conducted in the use of various manual communication systems with special populations, including aphasic, language disabled, mentally handicapped, and others. Pr.: FSHS 415 or basic sign language skills.

FSHS 624. Fundamentals of Family Financial Planning. (3) I. This course provides an overview of family financial planning by integrating concepts and issues with planning and counseling applications. Students will be introduced to the key concepts of family financial planning, including: insurance, tax, investments, retirement, and estate planning. The family financial planning process is introduced with an emphasis on the integration and application of concepts in meeting individual and family financial goals and objectives. Other topics presented include an ethics overview, compensation trends within the industry, and regulatory frameworks.

FSHS 654. Death and the Family. (2-3) Exploration of contemporary attitudes toward death and dying; related influences on individual development and family life. Pr.: FSHS 550 or SOCIO 640.

FSHS 670. Working with Parents. (3) II, S. Approaches to parenting and parent education with emphasis on programmatic implications of life-span developmental principles within a family context. Pr.: FSHS 110; and FSHS 350 or 550.

FSHS 675. Field Study in Family Economics. (1-3) I, II. Supervised experiences in financial planning, financial counseling, community action, or consumer services. Pr.: Consent of instructor.

FSHS 700. Problems in Family Studies and Human Services. (Var.) I, II, S. Independent study on aspects of human development and family studies. Pr.: Consent of instructor.

FSHS 704. Seminar in Family Studies and Human Services. (Var.) I. Interpretation and evaluation of information on varied topics relating to family members. May be taken for a maximum of nine hours. Pr.: Nine hours of FSHS or other social science.

FSHS 705. Practicum in Speech-Language Pathology. (1-3) I, II, S. Supervised practice in the use of the methods and materials of speech-language pathology. Pr.: FSHS 549.

FSHS 706. Practicum in Audiology. (1-3) I, II, S. Supervised practice in the use of equipment, materials, and methods of audiology. Pr.: FSHS 567.

FSHS 708. Topics in Family Studies and Human Services. (2-3) I, II, S. Review of recent research and theory related to exploration of methods and family and interpersonal processes. Pr.: Consent of instructor. May be taken more than one semester.

FSHS 709. Public Policy and Family Economic Well-Being. (3) I. Analysis of conceptual models for policy choices. Impact of socioeconmic and public policy factors as family economic well-being including the special issues faced by financially disadvantaged and nontraditional households. Pr.: Nine hours in FSHS or other social science.

FSHS 710. Child Care: Components and Issues. (2-3) On sufficient demand. Resources and facilities of quality child care; exploration of methods and philosophies of such programs; designed for those working with paraprofessional child care personnel. Pr.: Fifteen hours of either social science and/or FSHS.

FSHS 711. Foundations of Youth Development. (1) I. This course examines the fundamentals of youth development and the youth

development profession. Through this introduction to the field, students will explore the ethical, professional and historical elements of youth development as it has evolved toward professionalization.

FSHS 712. Community Youth Development. (3) I. Community Youth Development focuses upon the national emphasis of a strength-based or asset approach to community youth development. Emphasis is placed upon research, theory, and practice applied in communities throughout the U.S. Students will explore existing models, theoretical and applied literature and current community efforts as a basis for understanding community youth development.

FSHS 713. Adolescents & Their Families: Implications for Youth Professionals. (3) II. This course covers adolescent development as it is related to and intertwined with family development. The reciprocal influcences between adolescents and their families will be examined. Working with youth vis a vis the family system will be highlighted.

FSHS 714. Program Design, Evaluation, and Implementation. (3) II. This course is an overview of the program development process and out come evaluation of community, children, and family programs. Mode of outcome scholarship and their implications for community-based programs are discussed. Students will develop knowledge through participating in a community-based project involving the practical application of program design and evaluation methods.

FSHS 715. Youth Issues & Life Skills. (2) S. This course will present three strands: issues faced by youth today and associated risk and resiliency factors; life skills for youth; and helping skills necessary for youth professionals who work with young poeple.

FSHS 716. Topics in Contemporary Youth Issues. (1-3). I, II, S. This course will present issues faced by youth today and associated risk and resiliency factors. May be taken more than one semester.

FSHS 717. Youth Policy. (3) I. This course examines various federal and state policies designed specifically for youth. This course will be divided into three sections: (a) what is policy and what youth policies exist? (b) policies specifically designed for to "protect the well-being" of youth (e.g., zero tolerance, restorative justice, juvenile justice and reform), and (c) targeted youth policies (e.g., foster care, policies for youth with disabilities, homeless youth).

FSHS 718. Youth Professionals as Consumers of Research. (3) II. This course is designed to help youth development professionals understand and apply research results and thoeries to practice. Emphasis will be placed on research and thoery reports related to the youth development with particular attention to research procedures and outcomes.

FSHS 719. Program Administration and Management. (3) S. This course is designed to introduce students to the development, administration and management of youth-serving organizations.

FSHS 720. Youth Development. (3) S. This course is designed to introduce students to the developmental period of adolescence. The theory and research of positive youth development will be the lens through which this developmental period is examined. Through a critical examination of the theoretical and research literature, the course will help students recognize and become familiar with the major issues and transitions adolescents face as they successfully navigate this developmental stage.

FSHS 722. Youth and Cultural Contexts. (3) I. This course will provide participants with an understanding of the cultural heritage of differing family structures, types, and social and educational processes experienced by youth in these families through in-depth reading, writing, discussion, critical listening, viewing of contemporary videos, and informal interviews with youth. Students will gain further knowledge of how ethnic groups fit historically into our society, and the results of how history has shaped our present day situation.

FSHS 725. Augmentative and Alternative Communication. (2) II. This course examines the area of augmentative and alternative communication (AAC) from theoretical and practical perspectives. The etiologies and communicative needs of current and prospective AAC system users, as well as procedures used in evaluation are addressed. Strategies and procedures for implementing AAC systems in educational and acute care/rehabilitative settings are discussed. Opportunities for experience with state-of-the-art technology in AAC are provided at The Capper Foundation. Pr.: FSHS 443, 446, 549, and 705 or concurrent enrollment.

FSHS 728. Assessment of Young Children. (3) I. Theory and practice of individual assessment of handicapped and normal children, infancy to age eight, including cognitive, language, fine and gross motor, social, and self-help skills. Focus on selection, administration, interpretation, and evaluation of screening and comprehensive evaluation instruments for assessment and individual program planning. Pr.: FSHS 310.

FSHS 740. Play Facilitation. (3) II. The emphasis of this course is the empirical study and practice of play as an educational, evaluative, and therapeutic intervention with young children. Pr.: FSHS 540 or consent of instructor.

FSHS 741. Fluency Disorders. (3) I. Research and theory concerning etiology, characteristics, assessment, and treatment of individuals with disfluency problems. Pr.: FSHS 560.

FSHS 742. Language Assessment and Intervention II. (3) II. Theory and research concerning language disorders in school-aged children are presented. Specific language assessment and intervention methodologies for this population are reviewed. Dialectal and bilingual considerations for assessment and intervention are addressed. Pr.: FSHS 443.

FSHS 744. Aural Rehabilitation. (4) S. Study of techniques for the rehabilitation or rehabilitation of speech and language problems of the hearing impaired. Pr.: FSHS 567.

FSHS 745. Neuromotor Speech Disorders. (3) I. An introduction to motor speech disorders including an overview of the neurological system. Research and practical knowledge concerning etiologies, evaluation, and principles of treatment are addressed. Pr.: FSHS 360.

FSHS 750. Voice and Resonance Disorders. (3) I. The etiologies and characteristics of voice and resonance disorders, as well as general principles of assessment, prevention, and intervention of these disorders, are presented. Pr.: FSHS 360.

FSHS 751. Conflict Resolution: Core Skills and Strategies. (3) I. This course presents communication theories and interpersonal skills relevant to conflict resolution, including the understanding of, analysis of, and management of conflict. Completion of the course meets the Kansas Office of Dispute Resolution's training requirements for state approval in core mediation [K.S.A. 5-501 and Rule 902(e)].

FSHS 752. Culture and Conflict. (3) II. This course is an exercise in critical thinking, cultural exploration, and self-reflection. It explores the cultural dimensions of conflict, including the role of culture in defining conflict for individuals and groups. The dynamics of interpersonal beliefs and socialization, cross cultural conflict theory, and issues related to application are also examined.

FSHS 753. Violence Prevention and Intervention. (3) II. This course examines various theories of human aggression and violence, exploring their underlying assumptions about human nature, and the causes of violence. Included is an introduction to a range of violence intervention and prevention approaches developed for use at the interpersonal, intergroup, and societal level.

FSHS 754. Organizational Conflict. (3) S. This course provides an overview of the theories, methods, and practice issues involved in identifying and assessing sources of conflict. Students will learn about organizations, organizational development, causes and sources of conflict within organizations, dispute systems design, and how conflict resolution professionals work as interveners and agents of change.

FSHS 755. Family Mediation. (3) S. This course addresses the multidimensional aspects of divorce, including the legal divorce, the psychological divorce, and children of divorce. The second half of the semester focuses on how mediation can empower families - teens and parents - resolve their interpersonal conflicts using a neutral third party.

FSHS 756. Financial Counseling. (3) S. Theory and research regarding the interactive process between the client and the practitioner, including communication techniques, motivation and esteem building, the counseling environment, ethics, and methods of data intake, verification, and analysis. Other topics include legal issues, compensation, uses of technology to identify resources, information management, and current or emerging issues.

FSHS 757. Financial Behavior Assessment Consulting. (3) II. Students will learn characteristics , cultural factors, support issues, confidentiality and facilitation of discussions concerning the personal involvement, the family involvement, and the financial professional involvement in financial planning and counseling. The intent is to provide financial planners and counselors a framework for guiding individuals and families in restructuring dysfunctional developmental financial behavior. Pr.: FSHS 756.

FSHS 758. Housing/Real Estate. (3) I. An overview of the role of housing and real estate in the family financial planning process from a theoretical perspective. Taxation, legal aspects, mortgages, and financial calculations related to home ownership and real estate investments are included. New and emerging issues in the context of housing and real estate will be emphasized. The role of ethics in family financial planning with housing and real estate will also be included.

FSHS 760. Families, Employment Benefits, and Retirement Planning. (3) I. Study of micro and macro considerations for retirement planning. Survey of various types of retirement plans, ethical considerations in providing retirement planning services, assessing and forecasting financial needs in retirement, and integration of retirement plans with government benefits. Pr.: FSHS 405.

FSHS 762. Investing for the Family's Future. (3) I. An in-depth study of investment options for clients, this course will include common stocks, fixed income securities, convertible securities, and related choices. Relationships between investment options and employee/employer benefit plan choice will be studied. Current and emerging issues, and ethics will be an integral part of the course.

FSHS 764. Estate Planning for Families. (3) II. Introduction to fundamentals of the estate planning process. Includes property transfer, tax consequences, probate avoidance, powers of appointment, and various tools/techniques used in implementing an effective state plan. Pr.: FSHS 405.

FSHS 766. Insurance Planning for Families. (3) II. An in-depth study of risk management concepts, tools, and strategies for individuals and families, including: life insurance; property and casualty insurance; liability insurance; accident, disability, health, and long-term care insurance; and government-subsidized programs. Current and emerging issues, as well as ethical considerations, relative to risk management will be discussed. Case studies will provide experience in selecting insurance products suitable for individuals and families.

FSHS 772. Personal Income Taxation. (3) II. This course provides in-depth information of income tax practices and procedures including tax regulations, tax return preparation, the tax audit process, the appeals process, preparation for an administrative or judicial forum, and ethical considerations of taxation. New and emerging issues related to taxation will be covered. Family/individual case studies provide practice in applying and analyzing tax information and recommending appropriate tax strategies.

FSHS 775. Perspectives in Gerontology. (3) I, II, S (Upon demand). Exploration of basic concepts in gerontology through current and classic research. Themes and issues include stereotypes and myths of aging, theories of aging, research approaches in aging, and related social issues facing the elderly.

FSHS 776. Program Evaluation and Research Methods in Gerontology. (3) I, II, S (Upon demand). Overview of program evaluation,

research methods, and grant writing in gerontology. Includes application of quantitative and qualitative methods in professional settings.

FSHS 777. Public Policy: Economic and Social Impacts on Older Adults. (3) I, II, S (Upon demand). Study of policy development and public policy programs associated with aging. Attention is given to the impact of policies on older adults and economic impacts of and for an aging population.

FSHS 778. Aging and the Family. (3) I, II, S (Upon demand). Investigates the issues that relate to family life in the later years from the perspective of older adults, the family and society.

FSHS 779. Professional Seminar in Gerontology. (3) I, II, S (Upon demand). Students apply and integrate knowledge gained in earlier courses and strengthen skills in ethical decisions-making through applications in gerontology-related areas such as advocacy, professionalism, family and workplace issues. Students from a variety of professions bring their unique perspective to bear on topics of common interest.

FSHS 780. Clinical Speech Science. (3) II. Clinical application of research and theory dealing with the physiological and acoustic aspects of speech production. Instrumentation and procedures for observing and measuring aspects of speech breathing, phonation, velopharyngeal function, and articulation will be discussed. Pr.: FSHS 446,745, and 750.

Graduate credit

FSHS 810. Child Development. (3) I, II. Behavioral characteristics and developmental processes in childhood and adolescence. Analysis of developmental trends and issues in terms of research evidence and theoretical expectations. Pr.: FSHS 310; and 3 additional hours in FSHS or child psychology.

FSHS 815. Infant Behavior and Development. (3) II, in alternate years. Study of the infant as a developing individual within the family; examination of the theories and research relevant to development from conception through the second year. Pr.: FSHS 310, 810; and BIOL 198.

FSHS 820. Theories of Human Development. (3) I. Theories of development relating to physical, social, and psychological patterns of individuals' growth and interaction with the family and the community. Pr.: FSHS 310; and three additional hours in FSHS or child psychology.

FSHS 822. Transition to Adulthood. (3) S, in alternate years. Advanced study of theory and research of the transition period from adolescence through youth to adulthood. Pr.: FSHS 506 and 810.

FSHS 824. Parent-Child Interaction: Theory and Research. (3) II. Developmental theories and empirical research concerning the reciprocal interactions between parents and their children focusing on the socialization of the child within the family. Pr.: FSHS 810.

FSHS 830. Advanced Program Development. (2-3) Alternate II. Analysis of the process and application of child development theory to early childhood program planning. Pr.: FSHS 820.

FSHS 835. Professional Practices in Family Financial Planning. (3) II. Challenges of managing family financial planning practices including, but not limited to: business valuation, personnel, marketing, client services, ethics and technological applications. Relying both on theoretical as well as an applied approach, students will analyze case studies that provide relevant, practical exposure to practice management issues, with a strong emphasis on current research findings.

FSHS 836. Financial Planning Case Studies. (3) II. This course examines professional issues in financial planning, including ethical considerations, regulation and certification requirements, communication skills, and professional responsibility. Students are expected to utilize skills obtained in other courses and work experiences in the completion of personal finance case studies, the development of a targeted investment policy, and other related financial planning assignments.

FSHS 841. Acquired Language and Cognitive Disorders. (4) II. Study of acquired language and cognitive-communicative disorders in adults. Content addresses research and applied knowledge concerning etiologies, evaluation, and treatment of aphasia and communication deficits that result from right hemisphere damage, dementia, and traumatic brain injury. Pr.: FSHS 760.

FSHS 844. Dysphagia. (3) I. Study of normal and abnormal swallowing in children and adults. Procedures for assessment, diagnosis, and intervention are explored. Pr.: FSHS 760 or concurrent enrollment.

FSHS 845. Adult Development and Aging. (3) II. Developmental aging research as related to individual, social, and family functioning throughout adulthood. Pr.: Twelve hours social science.

FSHS 847. Externship in Speech-Language Pathology. (3-12) I, II, S. Clinical practicum in off-campus sites, including supervised experience in evaluation and treatment of children and adults with communication disorders. May be repeated. Pr.: FSHS 705 and consent of the instructor.

FSHS 849. Graduate Topics in Communication Sciences and Disorders. (1-3) Critical review of recent research related to measurement and modification of speech, hearing, or language deficits. May be repeated for a maximum of 9 hours with change in topic. Pr.: FSHS 560, graduate standing, and consent of the instructor.

FSHS 850. Family Studies. (3) II. Survey of family research literature to illustrate various approaches to the study of the family and to understand family changes within the life cycle. Pr.: FSHS 550; and STAT 330 or 702.

FSHS 851. Professional Issues in Speech-Language Pathology. (2) S. An overview of current professional issues in speech-language pathology. Primary topics include professional and ethical practices, scope of practice and service delivery, preparation for employment, and credentialing. This course can be taken concurrently with FSHS 847. Pr.: FSHS 705 and consent of instructor.

FSHS 852. Contemporary Family Theories. (3) I. Survey of contemporary family conceptual frameworks and theoretical perspectives, with emphasis on the application of family theory in basic and applied family research. Pr.: FSHS 550; and STAT 330 or 702.

FSHS 853. Family Systems in Cultural Context. (3) I. Examines systems theory as a framework for understanding families and the cultural contexts in which they are embedded. Discusses the privileges, opportunities and oppressions accompanying membership in a group and emphasizes issues pertaining to gender, race, ethnicity, and sexuality. Discusses implications for family life professionals. Pr.: FSHS 550.

FSHS 855. Family Crisis. (3) I. The nature of stress in the family from a theoretical and research base, focusing on the genesis of family crisis and the family's response to stress and crisis. Pr.: FSHS 550.

FSHS 860. Family Policy. (3) II, in alternate years. Examines the development, formation, implementation, and application of policy issues related to the family issues and social problems. Emphasis placed on how policy is made and how professionals can influence policy issues and outcomes.

FSHS 862. Marital Interaction. (3) I. A study of the dynamics of marital interaction with emphasis upon the interpersonal relationships and processes of adjustment. Pr.: FSHS 350 and 550 and consent of instructor.

FSHS 863. Single-Parent and Reconstituted Families. (3) I, II. Survey of research literature regarding single-parent and reconstituted families. Demography, complexity, problems, strengths, and processes of adjustment of family units and their members. Implications for professionals working with these families. Pr.: FSHS 550.

FSHS 864. Clinical Theory and Practice. (3) I. Frameworks and skills for helping individuals within the family context. Study and observation of operations in family clinical programs and family therapy. Pr.: FSHS 301; FSHS 550 and consent of instructor.

FSHS 865. Human Sexuality. (3) II, alternate S. Focus on implications of personal and familial aspects of human sexuality throughout the life cycle. Pr.: FSHS 350 and six hours social science.

FSHS 866. Sex Therapy. (3) II, in alternate years. A focus on the framework and skills for delivering therapy to individuals and couples experiencing difficulties with their own sexuality or with sexual functioning in their relationships. Pr.: FSHS 865.

FSHS 867. Pre-Practicum in Marriage and Family Therapy I. (1) I. Introduction to master's program in marriage and family therapy, including clinic policies and clinical observations. Restricted to students admitted to the marriage and family therapy program. Pr.: Concurrent enrollment in FSHS 853 and FSHS 878.

FSHS 868. Pre-Practicum in Marriage and Family Therapy II. (1) II. Preparation for screening into the clinical practicum in marriage and family therapy and participation in clinic research program. Pr.: FSHS 867 and concurrent enrollment in FSHS 870.

FSHS 870. Principles of Marriage and Family Therapy. (3) II, S. Examination of processes in marriage and family therapy; study of interactions within the therapeutic setting; and application of knowledge of the family and of marriage to the helping relationship. Pr.: FSHS 852 and 864 or EDAF 823 and permission of instructor.

FSHS 871. Family Life Education and Consultation. (3) I, II. Theory and procedures for family life education and consultation with professional and volunteer staff in a variety of settings. Pr.: FSHS 550.

FSHS 875. Delivery of Human Services. (3) I, II, alternate S. Cognitive and experiential understanding of professional responsibilities in working effectively with families in an educational outreach or consultative setting. Pr.: FSHS 871.

FSHS 877. Individual and Family Assessment. (3) I. Assessment of individual and family functioning within developmental, ethnic, community and gender-sensitive contexts; including indicators for further evaluation and referral. Pr.: FSHS 870.

FSHS 878. Professional Studies in Family Therapy. (3) I. Analysis of professional issues, techniques, and responsibilities associated with working effectively with families in a family therapy setting. Pr.: FSHS 864 or concurrent enrollment and consent of instructor.

FSHS 879. Systemic Assessment and Treatment of Psychopathology. (3) II. Examination of the Diagnostic and Statistical Manual of Mental Disorders. Exploration of relational diagnoses and the interaction of individual disorders and relational functioning. Review of empirically supported treatments for individual and relational disorders. Pr.: FSHS 877.

FSHS 880-885. Practica in Family Studies and Human Services. (Var.) I, II, S. Supervised experience in providing help and/or instruction in the several areas of human development and family studies presented in terms of the special interests of the students. Consent of practicum supervisor is required for each.

FSHS 880. Practicum in Counseling. Same as PSYCH 860 and EDAF 863. Pr.: FSHS 870 and EDAF 823.

FSHS 881. Practicum in Family and Community Services. Pr.: FSHS 875 and 871.

FSHS 882. Practicum in Study of Student Development.

FSHS 883. Practicum in Early Childhood Education. Pr.: FSHS 540.

FSHS 884. Practicum in Parent Education. Pr.: FSHS 670.

FSHS 885. Practicum in Marriage and Family Therapy. (3) Supervised experience in marriage and family therapy. Designed for master's level students. Pr.: FSHS 870; FSHS 878 and admission to marriage and family therapy program.

FSHS 888. Research Methods in FSHS I. (3) I, II. Study and application of family and human developmental methodology for research in graduate programs and professional careers. Pr.: STAT 330 or 702.

FSHS 890. Research Methods in FSHS II. (3) II. Intermediate level course with a focus on the applied aspects of family and human developmental research. Emphasis on applied quantitative and qualitative methodologies. Pr. FSHS 888 and any upper division or graduate level statistics courses.

FSHS 891. Family Survey Research. (3) II. Principles and techniques for collection, coding, analysis, and interpretation of survey data from several family members. Computer-oriented. Pr.: STAT 330, FSHS 550 and 890.

FSHS 892. Practicum in Human Development Research. (Var.) I, II, S. Observation, modification, and reporting of behavior. Pr.: FSHS 890; course in methods of research; 9 other graduate hours in family studies and human services; consent of instructor.

FSHS 893. Program Evaluation in Human Services. (3) II. Study and application of program evaluation approaches and methodology pertinent to evaluating programs in human service and education settings. Pr.: FSHS 890 or another graduate level social sciences research course.

FSHS 894. Readings in Family Studies and Human Services. (Var.) I, II, S. Implications of research findings in preparation for professional work in counseling, teaching, and research in human development and family studies. Pr.: Twelve hours in social-behavioral science; and consent of instructor. May be taken for a maximum of 9 hours.

FSHS 895. Principles and Techniques of Family Measurement. (3) II. The comparative reliability and validity of current measures of family interaction and analysis of their suitability for use in program evaluation of family life education and family therapy. Pr.: FSHS 850 and a graduate-level research methods course.

FSHS 896. Advanced Family Therapy. (3) II. Analysis of care management issues and literature related to the application of advanced techniques in family therapy. To be taken concurrently with FSHS 885. Pr.: FSHS 870 and consent of instructor.

FSHS 897. Graduate Seminar in Communication Sciences and Disorders. (1-3) S. Advanced course providing critical analysis of recent theory and research in a designated topic area. May be repeated with a change in subject matter. Pr.: FSHS 560 and consent of the instructor.

FSHS 898. Professional and Ethical Issues in Family Life Education and Consultation. (3) II. Capstone course for the master's level. Emphasize the research-theory-practice connection. Includes coverage of FLE framework, cutting-edge issues in the field, ethics and professional development.

FSHS 899. M.S. Research in Family Studies and Human Services. (Var.) I, II, S. Individual research problems which may form the basis for the master's thesis or report. Pr.: Consent of major professor.

FSHS 908. Topics in Family Life Education and Consultation. (3) On sufficient demand. Recent research, theory construction, and program development; focusing on selected relevant topics. Designed for doctoral students in family life education and consultation. Pr.: FSHS 871.

FSHS 910. Topics in Marriage and Family Therapy. (1-3) I, II. Examination of recent research, theory, and clinical practice related to marriage and family therapy. Pr.: FSHS 870 and consent of instructor. May be taken up to 9 hours.

FSHS 930. Human Development Seminar. (3) Analysis of the continuous and systematic changes in the development of individuals as they interact with their physical and social environments. Pr.: FSHS 810, 820, and 845. May be taken for a maximum of 12 hours.

FSHS 950. Advanced Family Theory. (3) I, in alternate years. Examination of theoretical approaches to the study of the family unit from the perspective of interpersonal relationships. Emphasis on axiomatic theory construction in contemporary family studies literature. Pr.: FSHS 850, 852, and 890.

FSHS 970. Clinical Specialization in MFT. (3) S, in alternate years. Seminar focusing on th development of a clinical specialty area in marriage and family therapy. Pr.: FSHS 870 and FSHS 987.

FSHS 979. Advanced Family Life Education and Consultation. (3) II, in alternate years. Theory and practices of family life education and consultation, including issues of development of the family life profession and national family policy. Pr.: FSHS 871.

FSHS 981. Advanced Practicum in Family and Community Services. (1-3) Supervised experience in family life education and consultation. Pr.: FSHS 871, 875, 881, and consent of instructor; may be taken for a maximum of 6 hours.

FSHS 983. Marriage and Family Therapy Research. (3) I, in alternate years. Analysis of psychotherapy research in general and family

therapy process and outcome research in particular. Covers a variety of approaches to clinical research. Pr.: FSHS 870 and a graduate-level research methods course.

FSHS 984. Supervision of Marriage and Family Therapy. (3) I. Preparation of experienced marriage and family therapists for supervision roles within educational, medical and agency settings. Must be concurrently enrolled in FSHS 986 (Practicum in Supervision). Pr.: FSHS 896 and FSHS 985.

FSHS 985. Ph.D. Practicum in Marriage and Family. (1-3) I, II, S. Supervised experience in family therapy. Consent of instructor is required. Pr.: FSHS 880. May be taken for up to 9 hours.

FSHS 986. Practicum in Supervision of Marriage and Family Therapy. (1-3) I, II, S. Supervised experience in supervision of marital and family therapy. Consent of instructor required. Pr.: FSHS 985. May be taken for up to 9 hours.

FSHS 987. Advanced Clinical Theory. (3) II, in alternate years. Exploration of marriage and family therapy clinical theories and the process of integrating these theories into a personalized model for utilization in both therapy and supervision. Pr.: FSHS 870 and FSHS 896.

FSHS 988. Conjoint and Group Techniques in Family Counseling. (3) II, S. Advanced theory in marriage and family counseling with emphasis on group techniques. Pr.: FSHS 885 and consent of instructor.

FSHS 990. Dissertation Proposal Seminar. (1) I, II. Presentation and discussion of proposals for dissertation research. Pr.: Six hours of statistics, 3 hours of research design or methods, and consent of major professor.

FSHS 999. Ph.D. Research in Family Studies and Human Services. (Var.) I, II, S. Pr.: Consent of major professor.

Gerontology Courses

Undergraduate and graduate credit.

GERON 600. Seminar in Gerontology. (3) II. An interdisciplinary course organized topically, with students presenting papers on aging-related issues that draw upon the students' previous and concurrent academic experience. Provides supervised independent study and subsequent discussion, allowing students to integrate and order their perceptions about gerontological issues. Pr: Completion of 15 hours of course work in gerontology.

GERON 605. Practicum in Gerontology. (1-3) I, II. Supervised field experience in an aging-related setting as a practical application of gerontological knowledge and skills. Pr.: Consent of instructor.

GERON 610. Seminar in Long-Term Care Administration. (3). (Offered January Intersession only). Administration principles involved in the planning, organizing, and directing of long-term care agencies. Includes in-depth exposure to federal and state standards and regulations governing long-term care.

GERON 615. Long-Term Care Administration Internship. (6). Includes: (a) field experience in the general administration of long-term care programs and/or facilities; planning, budgeting, program management, and service delivery; (b) exposure to federal and state standards and regulations governing long-term care; and (c); professional leadership development. Pr: Junior standing, 15 hours of gerontology, MANGT 420, ACCTG 231, GERON 610, and GPA of 2.5 or above (3.0 or above in long-term care administration coursework).

GERON 620. Problems in Gerontology. (1-3). Independent study of selected problems. Pr: Background of courses required for problem undertaken and consent of instructor.

GERON 630. Mental Health & Aging. (3) II. Introduction to the issues involved in aging and mental health using a systems framework covering the major emotional and psychiatric problems encountered in old age. Includes discussion of personality disorders, dementia, cognitive problems, substance abuse, suicide and barriers to treatment. Pr.: Junior/Senior.

GERON 725. Topics of Gerontology. (2-3) I, II, S. Review of recent research and theory related to specialized issues in gerontology or long-term care. Pr.: Consent of instructor. May be taken more than one semester.

For additional information and application materials please contact:
Graduate Admissions
School of Family Studies and Human Services
College of Human Ecology
Kansas State University
304 Justin Hall
Manhattan, KS 66506-1403
785-532-1473
Fax: 785-532-5505

E-Mail: fshs@ksu.edu
Home Page: http://www.ksu.edu/humec/fshs/fshs.htm

Agriculture, General

Associate Dean:
Larry Erpelding

A graduate degree is not offered in general agriculture. The following courses may be taken for graduate credit in a minor field.

General agriculture courses

Undergraduate and graduate credit in minor field.

GENAG 505. Comparative Agriculture. (1-4) Intersession. A travel-study program which is intended to acquaint students with agriculture of other countries and other parts of the U.S. and how it differs from Midwest-Great Plains agriculture relative to climate, crops, soils, livestock practices, marketing, and cultural attitudes toward agriculture. Pr.: Consent of instructor.

GENAG 515. Honors/Scholars Project. (2) I, II, S. Completion of an independent undergraduate research project or scholarly activity required for the University Honors Program or the College of Agriculture Scholars Program. Oral presentation and written report required. Taken during the semester when the project will be completed. Pr.: Approved project proposal.

GENAG 582. Natural Resources/Environmental Science Project (NRES). (3) I, II. A comprehensive project in NRES. Requires integration of information and understanding acquired in NRES secondary major courses. Students must prepare and present written and oral reports. Three hours rec. a week. Pr.: All writing and oral communications courses required for major. Pr. or conc.: 15 hours of approved courses in NRES secondary major. Cross-listed with DAS 582 and DEN 582.

GENAG 780. Current Topics in Agriculture. (1-3) On sufficient demand. Selected topics studied to provide an in-depth understanding of current agricultural issues. May be repeated with change in topics.

Home Page: http://www.ag.ksu.edu

Genetics

Program overview | Admission | Degree options and requirements | More information

Genetics is an interdepartmental graduate program with faculty participants from many academic departments of the University.

Chair:
Barbara Valent

Graduate faculty:

Guihua Bai, Ph.D., Purdue University.

Susan J. Brown, Ph.D., University of Missouri.

Ming-Shun Chen, Ph.D., Kansas State University.

Rollie J. Clem, Ph.D., University of Georgia.

Gary W. Conrad, Ph.D., Yale University.

John P. Fellers, Ph.D., University of Kentucky.

Carolyn Ferguson, Ph.D., University of Texas, Austin.

Bernd R. Friebe, Ph.D., Free University of Berlin.

Allan K. Fritz, Ph.D., Kansas State University.

Bikram S. Gill, Ph.D., University of California- Davis.

Michael A. Herman, Ph.D., Massachusetts Institute of Technology.

Srinivas Kambhampati, Ph.D., Simon Fraser University (Canada).

Michael Kanost, Ph.D., Purdue University.

John F. Leslie, Ph.D., University of Wisconsin-Madison.

Beth A. Montelone, Ph.D., University of Rochester.

Dan Moser, Ph.D., University of Georgia.

Subbaratnam Muthukrishnan, Ph.D., Indian Institute of Science.

James Clare Nelson, Ph.D., Cornell University.

Yoonseong Park, Ph.D., University of Arizona.

William T. Schapaugh, Jr., Ph.D., Purdue University.

C. Michael Smith, Ph.D., Mississippi State University.

X.Y. Tang, Ph.D., Purdue University.

Harold Trick, Ph.D., Florida State University.

Mitchell Tuinstra, Ph.D., Purdue University.

Barbara Valent, Ph.D., University of Colorado.

Steve Welch, Ph.D. Michigan State University.

Frank F. White, Ph.D., University of Washington.

Anna E. Whitfield, Ph.D., University of Wisconsin.

Jianming Yu, Ph.D., University of Minnesota.

Program overview

The Genetics Graduate Program is sponsored by several departments to offer specialized education in genetics to students in multidisciplines. Graduate work leading to M.S. and Ph.D. degrees in Genetics is administered by the faculty of participating departments. These departments are Agronomy; Animal Science and Industry; Biochemistry; Entomology; Horticulture, Forestry, and Recreation Resources; Plant Pathology; Veterinary Medicine; and the Division of Biology. The genetics program consists of 35 graduate faculty members and about 20 graduate students, in addition to visiting scientists, and postdoctoral fellows. All faculty members direct active research projects, and there is a high degree of interaction and cooperation among researchers in various areas of genetics.

Graduate students are expected to start research in their first year and will receive individual attention and guidance. The objective is to produce graduates with a broad training in genetics, who are able to conduct independent research programs that are creative and productive. The curriculum is broad, including plant, animal, physiological, molecular, microbial, fungal, yeast, population, quantitative and behavioral genetics, as well as cytogenetics, genetic engineering, and biotechnology in general. Students are expected to specialize in one of four areas of genetics for their advanced study: Molecular Cellular and Developmental Genetics; Genetics of Plant-Microbe Interactions; Arthropod Genetics; or Quantitative Genetics.

Original research is a requirement for study in the Genetics Graduate Program. The small size of the research labs, typically three to six students per lab, makes for close interaction within the group. Students are also encouraged to interact with other faculty and students in the program and in the member departments.

Admission

Incoming students generally have degrees in some area of biology. However, the overwhelming considerations are an intensive interest in genetics, and minimum prerequisites for admission into our programs. Application procedures require:

1. A completed application form
2. A statement of professional goals and objectives
3. Transcripts from all colleges and universities attended
4. Three letters of recommendation

Additional Graduate School regulations apply to applicants from outside of the United States. Foreign students are expected to have a TOEFL score of 600 or better; the GRE is desired but not required. Out-of-state tuition is waived for students who are awarded graduate research or teaching assistantships.

Students who consider pursuing graduate careers at Kansas State University are encouraged to visit the university in order to meet with members of faculty and with other students and to form their own impression of the general atmosphere and of the many research possibilities. If that is not possible, students are encouraged to browse the research programs of specific Genetics Faculty (http://www.oznet.ksu.edu/genetics). Research programs that interest prospective students should be listed when applying for admission to the program.

Degree options and requirements

Master of science

A minimum of 30 credits is required with 6 to 8 research hours. Courses must include:

BIOL 705. Eukaryotic Genetics
BIOL 675. Genetics of Microorganisms
A 700 level statistics course
A 500 level biochemistry course
A course in population genetics (700 level or higher)

Doctor of philosophy

A minimum of 90 credits is required, with typical course programs of 25 to 40 credit hours: Courses must include:

BIOL 705. Eukaryotic Genetics
BIOL 675. Genetics of Microorganisms
A statistics course (700 level or higher)
A biochemistry class (700 level or higher)
A course in population genetics (700 level or higher)

Genetics Program students are also required to meet the seminar requirements of the students in thier host departments.

Additional courses required for the PhD degree depend on the emphasis of the degree program:

PhD students in the Molecular, Cellular and Developmental Genetics emphasis must take two or more of the following courses:

BIOL 707	Advanced Cell Biology
PLPTH 880	Plant Molecular Biology
BIOCH 911	Molecular Signal Transduction
BIOL 860	Modern Molecular Approaches
BIOCH 920	Nucleic Acids
PLPTH 911	Plant Tissue Culture and Regeneration
BIOCH 907	Advanced Topics in Biochemistry
BIOL 868	Advanced Cellular and Developmental Biology
BIOL 890	Top/Ecological Genomics

PhD students in Genetics of Plant-Microbe Interactions emphasis must take two or more of the following courses:

PLPTH 635	Introduction to Plant Resistance to Pests
PLPTH 755	Plant Resistance to Diseases
PLPTH 880	Plant Molecular Biology
PLPTH 910	Molecular Plant-Microbe Interactions
PLPTH 927	Fungal Genetics
PLPTH 905	Ecology and Epidemiology of Plant Pathogens
BIOL 802	Advances in Plant Stress Signaling

PhD students in the Arthropod Genetics emphasis must take two or more of the following courses:

PLPTH 635	Introduction to Plant Resistance to Pests
PLPTH 745	Plant Resistance to Insects
ENTOM 910	Insect Genetics
BIOCH 907	Advanced Topics in Insect Biochemistry
ENTOM 799	Molecular Entomology
ENTOM 930	Conceptual Issues in Evolution (co-taught with BIOL 875)
ENTOM 875	Insect Anatomy and Physiology
ENTOM 830	Molecular Entomology

PhD students in the Quantitative Genetics emphasis must take two or more of the following courses:

PLPTH 610/ AGRON 610	Biotechnology
AGRON 630	Principles of Crop Improvement
AGRON 770	Plant Genetics
AGRON 830	Quantitative Genetics in Relation to Plant Breeding
ASI 749	Advanced Animal Breeding
AGRON 860	Applied Plant Breeding
AGRON 910	Topics in Plant Breeding
AGRON 930	Topics in Plant Genetics
AGRON 970	Advanced Plant Breeding I
AGRON 980	Advanced Plant Breeding II
PLPTH 890	Introduction to Genomic Bioinformatics
PLPTH 915	Chromosome and Genome Analysis
ENTOM 930	Conceptual Issues in Evolution (co-taught)
BIOL 870	Advanced Plant Systematics
BIOL 875	Evolutionary Ecology
ASI 655	Behavior of Domestic Animals
PLPTH 905	Ecology and Epidemiology of Plant Pathogens
BIOL 604	Biology of the Fungi
BIOL 890	Top/Ecology of Fungi
BIOL 890	Top/Ecology of Genomics

For more information

For additional information and application materials please contact:
Genetics Program Chairman
4024 Throckmorton Hall
Kansas State University
Throckmorton Plant Sciences Center
Manhattan, KS 66506-5501

Phone: 785-532-6176
FAX: 785-532-5692
E-mail: genetics@ksu.edu
Home Page: http://www.oznet.ksu.edu/genetics

Geography

Overview | Admission procedures and requirements | Financial support | Ph.D. | M.A. | Graduate certificate | Geography courses | More information

Head:
Richard Marston

Graduate program director:
Kevin Blake

Graduate faculty:

Kevin S. Blake, Ph.D., Arizona State University.

Charles E. Bussing, (Emeritus), Ph.D., University of Nebraska.

Deborah Che, Ph.D., Clark University.

Karen J. De Bres, Ph.D., Columbia University.

Douglas G. Goodin, Ph.D., University of Nebraska.

John Harrington, Jr. Ph.D., Michigan State University.

Lisa M.B. Harrington, Ph.D., University of Oklahoma.

J.M. Shawn Hutchinson, Ph.D., Kansas State University.

David E. Kromm, (Emeritus), Ph.D., Michigan State University

Max Lu, Ph.D., University of Indiana.

Richard A. Marston, Ph.D., Oregon State University

Charles W. Martin, Ph.D., University of Kansas.

Kendra Kay McLauchlan, Ph.D., University of Minnesota.

Duane Nellis, Ph.D., Oregon State University.

Charles G. Oviatt, (Ancillary, Geology) Ph.D., University of Utah.

Bimal K. Paul, Ph.D., Kent State University.

David R. Seamon, (Ancillary, Architecture), Ph.D., Clark University.

Huber Self, (Emeritus) M.S., Oklahoma A&M.

H. L. Seyler, (Emeritus) Ph.D., University of Indiana.

William R. Siddall, (Emeritus), Ph.D., University of Washington

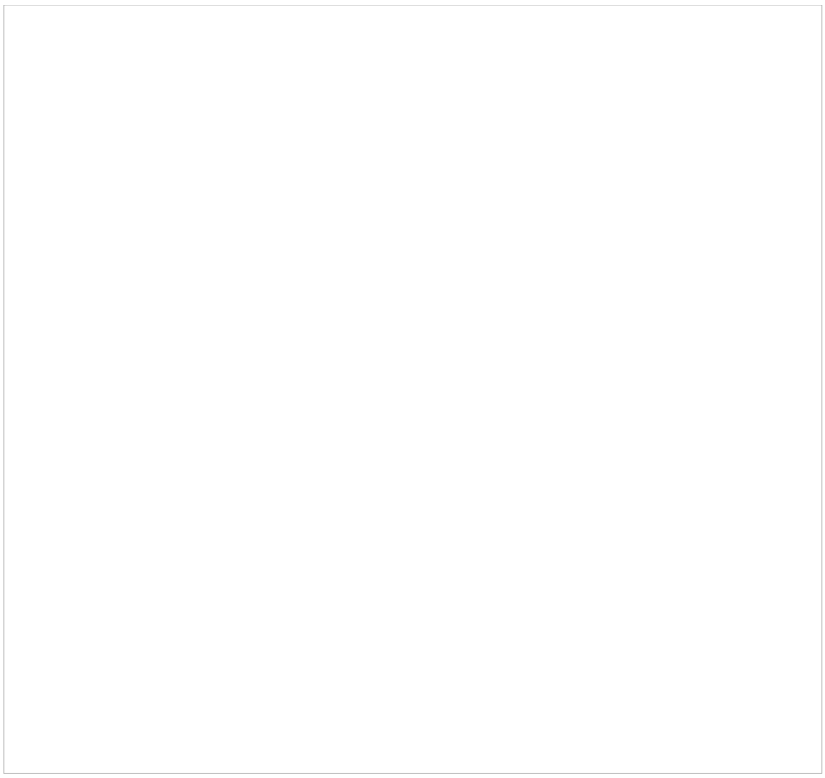
Jeffrey S. Smith, Ph.D., Arizona State University.

Stephen L. Stover, (Emeritus), Ph.D., University of Wisconsin.

Stephen E. White, Ph.D., University of Kentucky.

Overview

The Department of Geography graduate program at Kansas State University offers degrees at both the master's and doctoral levels. Discovery and dissemination of new knowledge are the cornerstones of our mission. Drawing upon the research interests and experience of the faculty, the department's core areas of geographic inquiry are illustrated in the figure below. Much of the research conducted by faculty and graduate students incorporates more than one of these themes, and we accomplish these research activities in an atmosphere of open inquiry and academic freedom.



The department's research mission incorporates:

- Research into human spatial behavior, regional and place identity, and the relationship between humans and the environment, such as societal adjustments to floods, population redistribution in the Great Plains, cultural, social, and ethnic change in the landscape, and assessments of migration decisions associated with residential satisfaction;
- Studies that reinforce the land-grant mandate of the institution, including agricultural water management and rural community development, examination of the role on climatic variability on Great Plains ecosystems, and assessment of changes in stream systems and reservoirs related to human activity;
- Examination of the applicability of new geographic knowledge and the emerging technologies associated with computer cartography, geographic information systems, and remote sensing; and
- A symbiotic relationship among discovery of new knowledge, graduate and undergraduate education, and improvement in the quality of life through research application to societal issues.

In accomplishing the University's instructional mission, we stress quality teaching and advising and strive to provide all students with opportunities to develop the knowledge, understanding, and skills characteristic of an educated person. Our contributions include:

- Providing undergraduate and graduate students with a thorough grounding in the discipline of geography from a liberal arts perspective;
- Teaching service courses that provide students with an opportunity to meet a number of either general education or college distribution requirements with classes and seminars that deal with international awareness, social and cultural diversity, and human interactions with the physical environment;
- Assisting in the training of elementary and secondary teachers so that geographical education programs can be strengthened;
- Preparing students to better appreciate local, regional, and global affairs by promoting attainment of knowledge and modes of thought that will help individuals make meaningful lifetime decisions;
- Educating students so that they are successful in either further academic study or professional employment;
- Offering extracurricular learning experiences, including geographically oriented internships and seminars by internationally renowned geographic scholars, that promote academic excellence and cultural diversity; and
- Using educational approaches that permit the communication and application of basic geographic concepts and techniques that have broad implications for other disciplines.

The benefits of the graduate program at K-State include a balanced curriculum, a broad-based approach to research/scholarship, and a commitment to fieldwork as a component of geographic inquiry. The moderate size of the department fosters an informal, friendly atmosphere with the opportunity to work closely with faculty. Teams of students and faculty frequently collaborate on research and publications. A graduate certificate in GIScience is also available, which can be earned as a stand-alone certificate or in conjunction with a master's or doctoral degree.

The department is centrally located on campus in Seaton Hall, near the libraries, most classrooms, and the Student Union. Departmental resources include the Geographic Information Systems/Spatial Analysis Laboratory (GISSAL), a Remote Sensing Research Laboratory, hyperspectral radiometers, GPS receivers, a GIS/Remote Sensing teaching laboratory, and photogrammetric instrumentation. Software tools for research include a campus site license from ESRI and widely used statistical and remote sensing programs.

Admission procedures and requirements

Regular admission to the Graduate School and the Department of Geography requires a 3.0 grade point average on a 4.0 scale, three letters of recommendation, submission of Graduate Record Exam scores, official transcripts, and a one- to two-page statement of interests and objectives. Ph.D. applicants should have attained a score of at least 1100 of the combined verbal and quantitative components of the GRE. Admission to the graduate program is contingent upon the willingness of a geography faculty member to serve as the student's advisor. The Graduate Program Committee, currently consisting of Drs. Kevin Blake (director), Max Lu, and Bimal Paul, administers the admissions process. Students who have not completed the master's degree by the end of their first semester in the Ph.D. program are subject to dismissal. In some cases applicants with less than a 3.0 grade point average may be admitted to the M.A. program on a probationary basis.

Students applying to the nondegree graduate program may apply at any time. Nondegree applicants need only submit official transcripts and statement of interests and objectives.

Domestic student applicants may submit applications year-round, but applications should be submitted by February 1 for top consideration of fall semester admission and Graduate Teaching Assistantship funding, or November 1 for spring. The application deadline for international student applicants is February 1 for fall or August 1 for spring. The faculty contact for questions about admission is Dr. Max Lu (maxlu@ksu.edu; 785-532-6727).

Financial Support

Several positions as a Graduate Teaching Assistant (GTA) or Graduate Research Assistant (GRA) are available each year on a competitive basis for nine-month appointments; some support may also be available for summer months. Full-time GTAs receive a stipend and a full waiver of tuition. GRAs, supported from geography faculty research grants, receive a stipend and a tuition reduction from out-of-state to in-state rates. A limited number of competitive Timothy R. Donoghue Scholarships may also be available from the Graduate School to enhance graduate stipends; the Department of Geography applies for these on behalf of qualified students.

Graduate assistantships are generally awarded for two years for M.A. students and three years for Ph.D. students, contingent upon satisfactory performance of the GTA or GRA duties and academic progress, including the achievement of a minimum cumulative 3.33 grade point average in graduate studies at Kansas State University.

Graduate Teaching Assistant Guidelines:

- GTA assignments are made by the Department Head in consultation with the Graduate Program Committee and faculty. Tasks generally include teaching lab sections, or grading and providing other assistance for faculty who are teaching large enrollment classes, such as proctoring exams, developing class resources, and other tasks.

Graduate Research Assistant Guidelines:

Hourly break-down:
1/10 = 4 hours/week
4/10 = 16 hours/week
5/10 = 20 hours/week

Responsibilities are determined by the principal investigator but generally include data analysis, report and manuscript writing, preparation of graphics for professional presentations, attending meetings on the research project, and completing hardware and software maintenance.

Career Opportunities

Career opportunities in geography are diverse and employment prospects after receipt of the master's or Ph.D. degree are excellent. Employment opportunities include positions in business, government, and education.

Federal agencies, such as the Environmental Protection Agency, National Imagery and Mapping Agency, Defense Intelligence Agency, Bureau of the Census, and Bureau of Land Management employ numerous geographers each year. State and local agencies employ geographers with specialties in many areas, including environmental geography, physical geography, health, cultural geography, planning, and spatial techniques.

The geographer's training in location analysis, social and environmental problems, and a variety of spatial techniques including remote sensing, geographic information systems, and computer cartography, make the geographer particularly valuable in the private sector. Job titles such as geographic information systems manager, environmental planner, market researcher, and risk analyst are just a few of the varied positions held by geographers in business.

Graduates of the department have also achieved success in teaching and/or research positions at public and private educational institutions. PhD graduates of the department, for example, are employed as professors at a variety of universities, including Auburn University, Fort Hays State University, Kansas State University, Macalester College, Morehead State University, Minot State University, University of North Dakota, and Wayne State University.

General Requirements

Program Advising

Each new graduate student will be assigned an initial graduate advisor to assist in planning the student's graduate program. A student may select another faculty member to become the student's primary advisor at any time, contingent upon the willingness of the faculty member to serve as the advisor. In accordance with Graduate School regulations, a copy of the student's Program of Study together with the names of the major professor and committee members should be filed with the Graduate School after completion of nine graduate hours. (The terms major professor, thesis/report/dissertation supervisor, committee chair, and advisor are used interchangeably.)

The M.A. degree supervisory committee must include a minimum of three faculty members, all of whom may be geographers. The thesis supervisor is typically the graduate advisor for the duration of the program of study. The doctoral supervisory committee must include a minimum of four faculty members, one of whom must be from a department other than geography; i.e., a non-geographer. The Graduate School, based upon a request from the student's committee chair, must approve any committee members from other universities. All members of a supervisory committee must have Graduate Faculty status at Kansas State University; for a list see: http://www.k-state.edu/grad/gspeopleorg/faculty/facultylist.htm.

Graduate Program Meetings

The program meeting is an evaluation of your past academic experiences and discussion about your program objectives. The planning meetings serve as a foundation from which to construct your program of study, obtain recommendations for course work beyond that required in the program of study, and discuss progress toward the degree and completion of the report, thesis, or dissertation. The first semester meeting will be with the student, advisor, and any other faculty invited by the advisor. During each semester thereafter the program meeting will include the faculty on the supervisory committee.

Grade Requirements

Graduate School regulations require students to 1) have a cumulative GPA of 3.0 or higher on graduate course work and on course work in the Program of Study, 2) meet all the requirements of the Graduate School, the student's academic program area, and the student's supervisory committee, and 3) be enrolled during the semester in which the degree requirements are completed. The Department of Geography requires all graduate students receiving funding as a GTA or GRA to maintain a minimum cumulative GPA of 3.33 in coursework at Kansas State University.

Visiting Scholars

In order to broaden the graduate students' experience with various specialties in geography, and various methodological outlooks, the Department invites four or more geographers a year to visit our community. Ordinarily, such a visit will include a public lecture, a departmental seminar, a student luncheon, and an informal evening gathering often at a faculty member's home. Graduate students in residence are expected to attend all departmental speaker events as part of their enrollment in GEOG 800 (Graduate Seminar in Geography). In the event an unavoidable conflict arises regarding attendance at any of the scheduled events, the student should give prior notice to their advisor.

Thesis and Dissertation Proposals

Students will prepare a thesis or dissertation under the direction of a supervising faculty member. The supervisor will certify that a written proposal is acceptable for presentation to the assembled departmental faculty and graduate students. Students in the M.A. thesis option must present a thesis proposal as part of Geographic Research Methods (GEOG 821). In addition, students pursuing the non-thesis option must present a research proposal in Geographic Research Methods. The student's desire to pursue the thesis or non-thesis option must be made known to the faculty before the presentation. Following the presentation, thesis supervisory committee will discuss with the student the necessary proposal revisions, if any, and appropriate next steps in the research. Ph.D. students will complete a written dissertation proposal following successful completion of the preliminary examination. An oral presentation of the proposal will be conducted before the supervisory committee, other faculty, and students.

As regular faculty carry nine-month appointments (mid-August through mid-May), there should be no expectations on the part of the student that members of the faculty will be available during the summer term for presentation of proposals, preliminary exams (either oral or written), final oral exams, or thesis or dissertation defenses. Participation in such activities is voluntary and at the discretion of individual professors.

As a thesis or dissertation topic is developed, the student should consult closely with and seek approval from the major professor. The members of the graduate supervisory committee should be selected based on consultation with the major professor and the department head. The thesis or dissertation supervisor will assume the duties of major professor (advisor) for the remainder of the student's program. Students should work with their advisor to establish a complete committee. It is the student's responsibility to inquire as to whether or not a faculty member is interested in serving on the committee.

Programs of Study

Ph.D. Program

Program Objectives

The geography Ph.D. at Kansas State University is designed to develop and enhance a student's knowledge and ability to conduct original independent research that makes a scholarly contribution to the student's areas of specialization. The Ph.D. program fosters:

- an understanding of scientific inquiry
- knowledge of the structure of the geographic discipline, its history, issues, methods, and trends;
- proficiency in appropriate analytical and technical skills; and
- competency in communicating the results of research

Program Requirements

Applicants to the Ph.D. program are expected to have earned a master's degree with a thesis or equivalent. Students who have not completed a master's degree by the end of their first semester in the Ph.D. program will be subject to dismissal. Students without a previous degree in geography are welcome to apply. Students without previous course work in human geography, physical geography, and spatial techniques, may, however, be required to add hours to their program of study. If a student has not previously taken a course in the history and philosophy of geography, the student will be required to take GEOG 820 as part of the program of study. The addition of hours to a program of study is determined on a case-by-case basis during the program meetings in the student's first and second semester and will reflect the faculty's appraisal of the student's experience and needs. Courses taken to strengthen the student's background in geography may count toward the 30 credit hours of course work required for the Ph.D., but only if approved by the student's graduate committee.

Students will complete a minimum of 60 credit hours beyond the master's degree: at least 30 credit hours of course work and 30 credit hours of dissertation research.

All students seeking the Ph.D. in geography will:

- complete GEOG 830 (Seminar in Rural Geography – 3 credits), and GEOG 900 (Methods, Theory, and Models in Geography – 3 credits). These courses must be taken while in residence.
- complete at least 24 additional credit hours in courses that support the doctoral research objective. Twelve credit hours must be at the 800-level or above. No more than 6 credit hours of 500-level courses are permitted in a Ph.D. program, but no 500-level geography course may appear in the program of study.

Complete two geography research seminars (typically 6 credits) in addition to GEOG 830 and GEOG 900. Both research seminars must be at the 800 or 900 level. These two research seminars may not be used to meet the research tools requirement.

At least three hours must be taken in a department other than geography. Preferably, a course will be taken from a faculty member who will serve as the outside member of the supervisory committee.

Students may not include more than six credits of independent study course work.

- complete the research tools requirement. The student, in consultation with the advisory committee, selects two tool areas and appropriate course work to develop competency in each area. Tool areas include but are not limited to: a foreign language, quantitative methods, GIS, remote sensing, qualitative methods, survey research methods, and field methods.

At least six hours of course work must be in classes that help meet the research tools requirement. For those selecting a foreign language as a research tool, the student must demonstrate a reading knowledge of the foreign language based on standards established by the Department of Modern Languages at Kansas State University. Students whose first language is not English must document that they will be using their native language in their dissertation research if they want to use their native language to help meet this requirement. Fill out and submit the "Documentation of Research Tools Selected for Completing the PhD Requirements" form. This form must be on file with the department prior to taking the preliminary examination. This form is available at: http://www.k-state.edu/geography/academics/Research%20Tools.pdf.

- spend at least one full academic year in residence.
- pass the preliminary examination. Students who have filed their program of study with the Graduate School and have completed at least 21 of the 30 hours of course work with a grade point average of 3.33 or better are eligible to take the preliminary exam. The examination covers the student's fields of specialization as defined by the student's doctoral committee. It will include both a written and an oral portion. Performance on the examination must provide evidence of the student's mastery of the subject in four sub-fields as defined by the supervisory committee, knowledge of related geographic literature, and an understanding of research theory and methods. Successful completion of the preliminary examination is required for the student to become a doctoral candidate. The period of candidacy may last up to five years from the end of the semester in which the preliminary exam was passed. If a student fails to complete both the dissertation and final oral examination within this period, the student will be dropped from candidacy. The Ph.D. Candidate must maintain continuous enrollment (at least 1 hour each spring and fall semester) from the completion of the preliminary exam until the Graduate School accepts the dissertation.
- complete a written dissertation proposal following completion of the preliminary examination. An oral presentation of the proposal will be conducted before the supervisory committee, other faculty, and students. Following the public presentation, the supervisory committee and

the student will discuss the appropriate revisions to the proposal, if any, and the next steps in the research.
- complete 30 credit hours of GEOG 999 (Ph.D. Research in Geography).
- defend the dissertation with a public presentation of the research followed by a final oral examination with the committee.

Dissertation

The dissertation will be a cohesive, original, and independent contribution to scholarship. The research is to be performed under the guidance of the major professor and the supervisory committee and must be acceptable to them and to the Graduate School representative, who chairs the final examination. The dissertation must follow the electronic submission guidelines outlined by the Graduate School.

Dissertation Defense

A final oral examination in defense of the dissertation will be conducted and evaluated by the supervisory committee. Two weeks prior to the dissertation defense copies of the defense draft of the dissertation will be distributed to the committee, and one will be placed in the department office for review by other faculty and graduate students. Other faculty and students are encouraged to attend the public presentation of the defense.

Sample Doctoral Program

1st Semester
GEOG 830
GEOG 800
GEOG 800-level research seminar
Program Meeting with possible committee

2nd Semester
GEOG 900
GEOG 800
GEOG 800-level research seminar
Research Tools course
Form supervisory committee
Program Meeting with committee
Submit doctoral program of study to the Graduate School

3rd Semester
Research Tools course
GEOG 800
700- or 800-level elective
700- or 800-level elective
Program Meeting with committee

4th Semester
700- or 800-level elective
GEOG 800
Independent Study (with the major professor)
Preliminary Exam (early in the semester)
Defend dissertation proposal (late in the semester)

5th Semester
GEOG 800
GEOG 999 Ph.D. Research in Geography
Program Meeting with committee

6th Semester
GEOG 800
GEOG 999 Ph.D. Research in Geography
Defend dissertation (final examination)

M.A. Program

Program Objectives

The Master of Arts degree in geography at Kansas State University is designed to further develop the student's understanding of geographic perspectives and to assist the student in identifying and addressing specific and significant geographic research questions.

Program Requirements

Students without a previous degree in geography are welcome to apply. Students without previous course work in human geography, physical geography, and spatial techniques, may, however, be required to add hours to their program of study. The addition of hours to a program of study is determined on a case-by-case basis during the program meeting in the student's first semester and will reflect the faculty's appraisal of the student's experience and needs. Courses taken to strengthen the student's background in geography may count toward the course work required for the M.A., but only if approved by the student's graduate committee.

All geography candidates for the Master of Arts degree are required to take GEOG 700 Quantitative Analysis in Geography (except students completing the Report Option for Teachers), GEOG 800 Graduate Seminar in Geography (each semester), GEOG 820 History and Philosophy of Geography, and GEOG 821 Geographic Research and Methods. Students may include no more than three credits of independent study coursework on the program of study. No more than 6 credit hours of 500-level courses are permitted, and no 500-level geography course may appear in the program of study.

Students may choose, in consultation with their advisor, one of the three M.A. programs. For most students, the department encourages completion of the thesis option.

Thesis Option

This option requires 30 hours of graduate credit including 6 hours of credit for a thesis. Of the 24 hours of credit required in course work, at least 15 hours must be in geography. Two seminars in geography are required, with at least one at the 800-level (excluding GEOG 800, GEOG 820, and GEOG 821).

Thesis Option Curriculum	Credit hours
800 Graduate Seminar in Geography	0
820 History and Philosophy of Geography	3
821 Geographic Research and Methods	3
700 Quantitative Analysis in Geography	3
Two seminars in geography (at least one seminar must be at the 800 level)	6
899 Master's Thesis	6
Other geography graduate courses	0-9
Other graduate courses	0-9
TOTAL	30

Sample Master's Thesis Program

1st Semester
GEOG 800
GEOG 820
Geography seminar (one of the two geography seminars must be at the 800 level)
Elective course
Program Meeting with possible committee

2nd Semester
GEOG 800
GEOG 821 (develop and present thesis proposal)
GEOG 700
Elective course
Form supervisory committee (early in the semester)
Program Meeting with committee to discuss approval of thesis proposal (end of semester) Submit program of study to the Graduate School

3rd Semester
GEOG 800
Geography seminar
Elective courses
Program Meeting with committee

4th Semester
GEOG 800
GEOG 899
Defend thesis (final examination)

Report Option for Teachers

This option is for students who intend to pursue or continue careers in public school or junior college teaching. It is open to persons who are already certified to teach at the public school or junior college level in any state and to those who will make courses required for such certification an integral part of their program. Thirty-two hours of graduate-level work are required, including a two-credit hour Master's Report (GEOG 898). The master's report shall consist of the design of a teaching syllabus in a sub-field of geography in conjunction with a faculty member in the College of Education, or a research project concerning geographic education. During their residence, students are required to present three lectures in Department of Geography courses, with no more than two of the lectures in the same course. One academic credit (under GEOG 850, 860, or 870) will be awarded for this activity. The student must complete at least one course, which may include independent study, with each member of the supervisory committee. This option is not suitable for any student who may continue for a doctorate degree.

Report Option for Teachers Curriculum	Credit hours
800 Graduate Seminar in Geography	0
820 History and Philosophy of Geography	3
821 Geographic Research and Methods	3
898 Master's Report	2
Other geography graduate courses	12-24
Other graduate level courses	0-12
TOTAL	32

Report Option

This option is a non-thesis program designed for students who have a specific professional goal in mind and who do not intend to continue for a doctorate. A student must consult with their advisor to arrange a program of study that is acceptable to the supervisory committee. Thirty-two hours of graduate-level work are required, including a two-credit hour Master's Report (GEOG 898). Up to twelve hours may be outside the geography department. The student must complete at least one course, which may include independent study, with each member of the supervisory committee. Procedures relating to the preparation of a master's report are almost identical to those relating to the thesis, including the formal proposal of the topic, except that approval of the topic may be given by the individual faculty member supervising the report.

Report Option Curriculum	Credit hours
800 Graduate Seminar in Geography	0
820 History and Philosophy of Geography	3
821 Geographic Research and Methods	3
700 Quantitative Analysis in Geography	3
898 Master's Report	2
Two seminars in geography (at least one seminar must be at the 800 level)	6
Other geography graduate courses	5-17
Other graduate level courses	0-12
TOTAL	32

Final Examination

All master's students will make a public presentation of the thesis or report and take a final oral examination administered by the supervisory committee. Other faculty and students are encouraged to attend the public presentation portion of the final examination.

For students completing the thesis option, the examination consists of a defense of the thesis, including its relationship to geography. Two weeks prior to the final examination a copy of the written thesis will be given to each member of the supervisory committee and a copy will be placed in the department office to be available for review by other faculty and graduate students.

For students completing one of the report options, the examination consists of a defense of the report and a comprehensive examination on the discipline of geography and the student's areas of study.

Graduate Certificate in Geographic Information Science (GIScience)

Program Objectives

Geographic information systems (GIS) are an organized collection of computer hardware, software, geographic data, and people designed and organized to efficiently capture, store, update, manipulate, analyze, and display all forms of geographically referenced information. Effective use of geographic information systems (GIS) has evolved into a requisite skill in most academic research, as well as for agencies in both the public and

private sectors. Graduate students from such varied disciplines as agronomy, biological sciences, economics, engineering, geography, landscape architecture, and sociology benefit from applying GIS and related technologies such as global positioning systems (GPS), remote sensing, geostatistics, and computer programming to input, analyze, model, and display (map) location-based data.

The Geographic Information Science (GIScience) certificate is designed to provide graduate students with the fundamentals necessary to succeed in the rapidly expanding field of GIScience or apply GIScience concepts in their own field of study. Three components comprise the program curriculum: A set of prerequisites to gain entry into the program, core geospatial courses focusing on geographic information systems (GIS) and satellite remote sensing, and a set of elective courses that allow for the exploration of advanced themes in GIScience and/or the application of GIScience in geography or related disciplines. The Graduate Certificate in GIScience may be awarded as a "stand-alone" certificate or in conjunction with the completion of graduate degree requirements in one of the academic units at Kansas State University. The certificate program is administered by the Department of Geography and is supervised by a multidisciplinary group of instructors and researchers from across the K-State campus.

Program Requirements

The course requirements for the Graduate Certificate in GIScience are shown below. The graduate faculty for the program will periodically review the certificate requirements and have the authority to pass modifications to the approved list of courses. A maximum of 6 transfer credits may be used to meet program requirements. Students must earn a minimum GPA of 3.33 in the Geospatial Core to qualify for the Graduate Certificate in GIScience.

Prerequisites

Prerequisite preparation in three general areas provides essential background for participation in the certificate program. Courses may be waived in consultation with the certificate coordinator and academic advisor if the student can demonstrate satisfactory completion of previous coursework or significant professional experience in the area.

- Competency in cartography, thematic mapping, or geodesy (e.g., GEOG 302)
- Competency in basic statistics (e.g., STAT 320, STAT 330, or STAT 350)
- Competency in object-oriented computer programming (e.g., Introduction to Visual Basic)

Geospatial Core (9 credit hours)

Three core geospatial technique courses expose students to the conceptual framework of GIScience and methods of data capture, storage, retrieval, modeling, and digital map display of biophysical and/or cultural geographic phenomena. Students are required to earn a minimum GPA of 3.33 in the following core courses, which must be taken for graduate, rather than undergraduate, credit:

- GEOG 508 Geographic Information Systems I (3 cr)
- GEOG 705 Remote Sensing of the Environment (3 cr)
- GEOG 708 Geographic Information Systems II (3 cr)

Elective Courses - Select Two (minimum of 6 credit hours)

In addition to the geospatial core courses, students enrolled in the Graduate Certificate in GIScience program will take a minimum of 6 additional credit hours of electives consisting of courses in advanced GIScience or applications of GIScience in related fields of study. Elective requirements may be satisfied from the following course list or be met through special topics or independent study courses with significant geospatial content (must be approved by the certificate coordinator).

- AGRON 655 Site-Specific Agriculture (3 cr)
- BAE 690 Non-Point Pollution Engineering (3 cr)
- CE 585 Civil Engineering Project – must have GIScience focus (3 cr)
- CIS 501 Software Architecture and Design (3 cr)
- CIS 560 Database System Concepts (3 cr)
- CIS 635 Introduction to Computer-based Knowledge Systems (3 cr)
- CIS 636 Introduction to Computer Graphics (3 cr)
- DAS/DEN/GENAG 582 Natural Resources/Environmental Sciences Project – must have GIScience focus (3 cr)
- GEOG 610 Geography Internship – must have GIScience focus (2-3 cr)
- GEOG 700 Quantitative Analysis in Geography (3 cr)
- GEOG 702 Computer Mapping and Geographic Visualization (3 cr)
- GEOG 711 Topics in Remote Sensing (3 cr)
- GEOL 560 Field Methods (3 cr)
- LAR 758 Land Resource Information Systems (3 cr)

Additional Certification Criteria

- The Graduate Certificate in GIScience may be awarded as a "stand-alone" certificate or in conjunction with the completion of advanced graduate degree requirements in one of the academic units at Kansas State University.
- To be awarded a graduate certificate in GIScience, the student (1) must not be on probation, (2) must have a cumulative grade point average (GPA) of 3.0 or higher on graduate coursework (if applicable), and (3) must be enrolled during the semester in which the certificate requirements are completed.
- In order to ensure that certificate recipients display a strong command of GIScience, the certificate is granted only to those graduate students who earna minimum cumulative GPA of 3.33 in the geospatial core and elective courses that comprise the Graduate Certificate in GIScience program. The GPA for certificate purposes will be computed in accordance with Kansas State University policy.
- Courses may be waived in consultation with the certificate coordinator and academic advisor if the student can demonstrate satisfactory completion of similar coursework or significant professional experience in the area. If transfer courses are to be used to meet program requirements, the student *must* furnish the program director with a certified university transcript and, in some instances, a copy of the class syllabus. A maximum of 6 transfer credit hours may be used to meet program requirements.
- Upon approval by the certificate coordinator, course credits earned before the student entered the certificate program may be applied to the Graduate Certificate in GIScience. Graduate students, and post-baccalaureate students returning to acquire the certificate, may be asked to repeat any of the prerequisite, geospatial core, and/or elective courses completed more than five years prior to the semester in which the certificate requirements are completed.

Program Administration

The Graduate Certificate in GIScience is coordinated by Dr. Shawn Hutchinson (Department of Geography) and supervised by a multidisciplinary group of graduate faculty from across the K-State campus. Administrative support is provided by the Department of Geography. Questions should be directed to the Certificate Coordinator.

Post-baccalaureate students and graduate students working towards advanced degrees are required to submit a list of courses to be used in meeting certification requirements to the certificate coordinator. Where these courses are included in a program of study for an advanced degree, they should be approved by the student's supervisory committee. Should courses for the certification program not be included in the advanced degree program of study, a supplementary course list should be approved by the student's major professor and the certificate coordinator. Students are required to fill out an enrollment form, which is maintained by the Department of Geography for each student who is in the certificate program. Completed forms should be returned to the Certificate Coordinator via email (shutch@ksu.edu) or campus mail (Department of Geography, 118 Seaton Hall). Please see the certificate web site for more information: http://www.k-state.edu/geography/academics/gis.htm

Geography courses

GEOG 500. Geography of the United States. (3) I. In odd years. A regional analysis of the United States with special attention to the historical, political, economic, and social factors which contribute to areal differentiation within the area.

GEOG 505. South Asian Civilizations. (3) I, in even years. Interdisciplinary survey on the development of civilization in India, Pakistan, Sri Lanka, Bangladesh, Nepal, Bhutan, and Afghanistan, including geography, philosophy, social, economic, political institutions, and historical movements. Pr.: 3 hours of Social Science or junior standing. Same as ECON 505, HIST 505, POLSC 505, SOCIO 505, ANTH 505.

GEOG 508. Geographic Information Systems I. (3) II. Examination of the major concepts, theories, and operations in geographic information systems (GIS). Topics include: the nature of geo-referenced data, data acquisition, and spatial database management, coordinate systems and maps, data structure, and the basic GIS operations that are available for spatial analysis. The course will consist of two hours of lec. and two hours of lab a week. Pr.: GEOG 302 or instructor permission.

GEOG 510. Geography of the American West. (3) II, in even years. A broad survey of the geography of the American West with a focus on the distinctive human and environmental characteristics of the region. Historical, cultural, ethnic, resource, land use, and physical landscape patterns are examined through lectures, readings, videos, and discussions. Pr.: A previous course in geography and sophomore standing.

GEOG 535. Fundamentals of Climatology. (3) II. An examination of climatology on global, regional, and local scales, with emphasis on the physical processes and environmental factors that influence and control climate. Climatic change and its impact on human activities are explored. Pr.: GEOG 321.

GEOG 600. Mountain Geography. (3) I, in even years. A broad survey of the human and physical geography of mountains. The course utilizes lectures, discussion, videos, and photographs to examine the human-environment interactions, cultural symbolism and sacredness, recreation and tourism, and sustainable development of mountain landscapes. The regional focus is primarily on the American West, but other mountains throughout the world will also be studied.

GEOG 610. Geography Internship. (Var.) I, II, S. Faculty-supervised field experience, emphasizing the application of geographical topics and/or techniques. Student projects must be approved by both the on-site director and the faculty supervisor, and a report must be submitted at the end of the semester. Pr.: Permission of the instructor and junior standing in geography is required.

GEOG 620. Geography of Latin America. (3) II, in even years. A broad survey of the physical and human patterns of the Latin American culture area, past and present, with emphasis on the changing landscape features in the successive patterns of human occupancy.

GEOG 640. Geography of Europe. (3) II. People and their environment, their cultures, problems, and prospects in Europe west of the Soviet Union; trends of development as affected by changing political and economic factors.

GEOG 660. Geography of East Asia/China. (3) I, in even years. An introduction to the human and physical geography of East Asia, with emphasis on China. Examines this region's physical, cultural, and socioeconomic patterns and changes, as well as interactions with other parts of the world.

GEOG 650. Geography of Former Soviet Lands. (3) II. In odd years. Physical limitations, resource potentials, economic capabilities, and political and nationality issues, with particular emphasis on agriculture, manufacturing, urbanization, cultural diversity, and regional development. Pr.: Six hours of social science.

GEOG 680. Seminar in Regional Geography. (1-3) Pr.: Consent of instructor.

GEOG 690. Historical Geography of the United States. (3) S. Interpretation and analysis of the American landscape and its regions from c. 1500 to c. 1950, with particular emphasis on landscape as both place and history. Also introduces and examines such current research topics as identity, contested places, landscape-as-text, and cultural politics. This is a seminar course. Pr.: GEOG 100 and one course in American history.

GEOG 700. Quantitative Analysis in Geography. (3) II. Quantitative methods employed in modern geographical research. Applications of both statistical and mathematical approaches will be treated. Emphasis will be placed on interpretation and evaluation of techniques employed in spatial analysis. Pr.: One course in statistics.

GEOG 702. Computer Mapping and Geographic Visualization. (3) II. Basic cartographic principles, advanced methods for representing spatial data, and practical applications of thematic maps, animated and Internet-based maps, and geographic visualization techniques. Students will prepare a series of maps and visualization products using modern cartographic and illustration software. The course will consist of two hours of lec. and two hours of lab a week. Pr.: GEOG 302 or instructor permission and junior standing.

GEOG 705. Remote Sensing of the Environment. (3) I, II. Remote sensing and its application to earth study, especially environmental problems and land use. Course employs both readings and the use of imagery. Two hours lec., two hours lab. Pr.: One course in physical science and one in biological science.

GEOG 708. Geographic Information Systems II. (3) I. Advanced principles of and applications for geographic information systems (GIS). Examines the nature and accuracy of geo-referenced data and methods of data capture, storage, retrieval, modeling, and digital map display. Students will use modern GIS software packages and digital geographic data from physical and/or cultural sources to explore software procedures and techniques of spatial analysis, decision support, and geographic visualization. The course will consist of two hours of lec. and two hours of lab a week. Pr.: GEOG 302 and 508 (or consent of instructor).

GEOG 709. Geography Field Research Techniques. (2-3) S. Explores methods and techniques employed in modern field research. Stresses research design, field data acquisition techniques, and data analysis. Pr.: junior standing and at least 6 hours in geography.

GEOG 711. Topics in Remote Sensing. (3) II. Examination of a selected remote sensing topic in an area of faculty specialization. Repeatable once with change in topic. Pr.: GEOG 705.

GEOG 715. World Population Patterns. (3) I, in even years. Geographical processes that govern population distributions, growth rates, and migrations. Emphasis on international comparisons and implications for world society of continued differential growth rates Pr.: Six hours of social science.

GEOG 718. Geography of Public Lands. (3) II. Overview of public lands systems, including distribution and uses of public lands, with an emphasis on US federal lands. Historic and recent controversies regarding the public lands will be addressed. Seminar course with discussion and independent research components. Pr.: Six hours of social science.

GEOG 720. Geography of Land Use. (3) I, in odd years. Critical factors affecting land use, scarcity, and management examined in a regional, national, and global context; land use classification system and variation of land use patterns. Pr.: Six hours of social science.

GEOG 725. Geography of Water Resources. (3) II, in even years. Interpretation and analysis of the physical geography of water and water as a resource. Evaluation of water, emphasizing quality, hazards, institutions, and selected domestic and global issues. Pr.: Six hours of social science.

GEOG 730. World Agricultural Systems. (3) II, in odd years. Description and analysis of the spatial distribution of farm systems emphasizing traditional resource systems in the third world. The major objective is to analyze the interrelationships between natural and human elements in farm systems in order to gain an awareness and understanding of the complex issues involved in agricultural change and development. Pr.: Six hours of social science.

GEOG 735. Topics in Climatology. (3) I. Examination of a selected climatology topic in an area of faculty specialization. Repeatable once with change in topic. Pr.: GEOG 535.

GEOG 750. Urban Geography. (3) I. A study of geographic principles relating to the distribution, function, and structure of cities: a geographic analysis and classification of urban settlements. Pr.: Six hours of social science or planning.

GEOG 760. Human Impact on the Environment. (3) I. Assessment of human impacts on the natural environment. Surveys changing human impacts on and attitudes towards the environment, and details alteration of water systems, the atmosphere, landforms, plants, and animals. Pr.: Six

hours of social science.

GEOG 765. Geography of Natural Hazards. (3) I. Examines important emergency management issues related to hazard mitigation, preparedness, disaster response, and recovery, including socio-cultural and physical components of disaster process. Assesses human vulnerability and risk to environmental calamities, such as droughts, floods, tornadoes, hurricanes, and earthquakes. Pr.: Nine hours of Social Science.

GEOG 770. Perception of the Environment. (3) II, in odd years. An examination of the way people perceive their geographic environment and the role of perception in spatial behavior. Perceptions of neighborhoods, cities, states, nations, frontier regions, and environmental processes are explored. Pr.: Six hours of social science with one course above the introductory level, and 6 hours of natural science with one course above the introductory level.

GEOG 780. Cultural Geography. (3) II, in even years. A study of the forms of human occupancy of landscapes, with consideration of innovations in the use of landscape, the origins and the dispersals of these innovations, and human attitudes toward the natural environment. Pr.: Six hours of social science.

GEOG 790. Seminar in Geography. (1-3) Pr.: Consent of instructor.

GEOG 795. Topics in Geographic Information Science. (1-3) I, II. Selected geographic information science topic in science topic in an area of faculty specialization. Repeatable once with change in topic. Pr.: GEOG 302 or consent of instructor.

GEOG 800. Graduate Seminar in Geography. (0) I, II. Attendance of presentations and discussion of research procedures, results and philosophies. Required of all geography graduate students in residence. Pr.: Graduate standing.

GEOG 815. Rural Population Geography. (3) I, in even years. An examination of the population dynamics responsible for regional change in rural areas of the United States. Emphasis is placed on migration systems and changing population composition in Appalachia, Great Plains, rural South, and the Midwest. Pr.: STAT 702 or GEOG 700 or equiv., and GEOG 715 or SOCIO 830.

GEOG 820. History and Philosophy of Geography. (3) I. History of geographic thought from ancient to modern times, emphasizing major themes and significant individual contributions. Required for all Master's students in geography. Pr.: Open to all graduate students in social sciences.

GEOG 821. Geographic Research Methds. (3) II. The nature of geographic research and the processes involved in its structuring, development, and articulation. Each student will produce and present a research proposal. Required of all Master's degree students in geography.

GEOG 830. Seminar in Rural Geography. (3). Exploration of rural geography concepts and research. Examines social, economic, cultural and environmental issues for rural areas and small towns, including natural resources and stresses and concerns related to sustainability of rural livelihoods and communities.

GEOG 835. Rural Economic Development. (3) I. Applications of regional and community development models in rural areas of North America. Emphasis is placed on case studies of locational relationships between regional economic profiles, including changes in structure, and indices of betterment. Pr.: GEOG 700 or 700-level statistics course.

GEOG 840. Advanced Environmental Geography. (3) I, in odd years. An examination of post-European settlement land use and climate changes and their impact on rural landform stability. Emphasis is on the response of uplands and river systems to land use and climate change and the techniques for documenting historical landform change. Pr.: GEOG 221; GEOL 520.

GEOG 850. Topics in Environmental Geography. (1-3) I, II, S. Pr.: Consent of instructor.

GEOG 855. The Rural Cultural Geography of the United States. (3) II, in even years. An examination of the development and distribution of the rural cultural landscapes, focusing particularly on elements of the material landscape. Emphasis is placed upon research conducted in the Great Plains. Pr.: GEOG 500.

GEOG 860. Topics in Economic Geography. (1-3) I, II, S. Pr.: Consent of instructor.

GEOG 865. Rural Medical Geography. (3) II, in odd years. Emphasizing the pattern of social and environmental conditions on health and disease, this course examines medical care systems and health issues in rural areas of both developed and developing countries. Pr.: STAT 702 or GEOG 700.

GEOG 870. Topics in Cultural Geography. (1-3) I, II, S. Pr.: Consent of instructor.

GEOG 880. Spatial Data Analysis and Modeling. (3) II. An examination of statistical techniques and models for analyzing spatial data, including global and local measures of spatial association, spatial cluster analysis, spatial autoregressive and geostatistical models, and geographically weighted regression (GWR). Pr.: GEOG 508 and GEOG 700 or equivalents.

GEOG 890. Advanced Spatial Analysis Techniques. (3) II. Integration of spatial analysis techniques and models with tools such as Geographical Information Systems and Remote Sensing as applied to rural resource systems. Explores strategies for adaptation of various types of spatial models into the GIS framework. Sources of data for analysis will be considered with special emphasis placed on use of remotely sensed data. Pr.: GEOG 705 and 708; GEOG 700 or STAT 702.

GEOG 895. Topics in Spatial Analysis. (1-3) I, II, S. Independent advanced study of a selected topic. An example is the use of remote sensing and GIS in environmental modeling. Pr.: Consent of instructor.

GEOG 898. Master's Report. (2) I, II, S. For students enrolled in geography option B. Pr.: Registration in Graduate School, with sufficient training to carry on the line of research undertaken. Consent of instructor.

GEOG 899. Master's Thesis. (6) I, II, S. For student enrolled in geography option A. Pr.: Registration in the Graduate School, with sufficient training to carry on the line of research undertaken. Consent of instructor.

GEOG 900. Methods, Theory, and Models in Geography. (3) I. Comparative analysis of contemporary methodology of geographic explanation showing their development, current status and future trends. Examination of problems and techniques of design, data collection, analysis, and interpretation which accompany particular research themes. Pr.: M.A. and consent of instructor.

GEOG 990. Research Problems in Rural Geography. (Var) I, II. Individual study and research for students admitted to doctoral standing in the graduate school. Pr.: M.A. and consent of instructor.

GEOG 999. Ph.D. Dissertation Research. (Var.)

For more information

For more information

For questions about the application process, please contact:

Dr. Max Lu
Department of Geography
Kansas State University
Manhattan , KS 66506 -2904
Phone: 785-532-3413
Fax: 785-532-7310
E-mail: maxlu@ksu.edu

For general questions about the graduate program, please contact:

Dr. Kevin Blake
Graduate Program Director
Department of Geography
Kansas State University
Manhattan , KS 66506 -2904
Phone: 785-532-3406
Fax: 785-532-7310
E-mail: kblake@ksu.edu

Web Page: http://www.ksu.edu/geography

Geology

Program description | Master of science degree | Doctor of philosphy | Geology courses | More information

Head:
George Clark (interim)

Director of graduate studies:
Charles G. (Jack) Oviatt

Graduate faculty:

Allen W. Archer, Ph.D., Indiana University.

Sambhudas Chaudhuri, Ph.D., Ohio State University.

George R. Clark II, Ph.D., California Institute of Technology.

Robert L. Cullers, Emeritus, Ph.D., University of Wisconsin.

Keith B. Miller, Ph.D., University of Rochester.

Kirsten Nicolaysen, Ph.D., Massachusetts Institute of Technology.

Charles G. Oviatt, Ph.D., University of Utah.

Iris Totten, Ph.D., University of New Orleans.

Matthew Totten, Ph.D., University of Oklahoma.

Ronald R. West, Ph.D., University of Oklahoma.

Program description

The Department of Geology offers a graduate program leading to the M.S. degree in geology. Graduate degrees are essential for those who want careers as professional geologists in business, government, or higher education. The M.S. program in geology at Kansas State University is designed to provide the student with the understanding and ability to apply geological, chemical, physical, biological, and mathematical principles to the solutions of problems related to environmental management, mitigation of natural disasters, and use and management of natural resources. It is also geared to prepare students for further graduate study or professional employment. Students in the program take at least 30 hours of course and research work and complete a master's thesis.

The department has nine full-time graduate faculty members and approximately 15 graduate students. Research emphases include stratigraphy, sedimentary geology, and paleobiology of the mid-continent; subsurface waters and water-rock interactions in aquifers, oil-fields, and ore systems; water quality and contamination assessments; Quaternary Geology and paleoclimatology; structural geology and tectonics of mountain belts; seismology and geophysics geochemical studies of igneous and sedimentary rocks; computer applications in geology; petroleum geology, volcanology and earth-science education.

The Department of Geology has active collaborations with a number of organizations, including K-State's Center for Science Education, the Kansas Geological Survey, the Department of Geology at the University of Kansas, and the U.S. Geological Survey.

The Department of Geology occupies all of Thompson Hall and has the following research equipment and facilities: isotopic geochemistry laboratories; student and faculty computing laboratories; atomic absorption laboratory; rock and mineral preparation facilities; and cathode-luminescence microscope. Electron microscopes, stable-isotope mass spectrometer, scanning electron microscope, X-ray facilities, an ion-coupled plasma emission analysis unit, and a 100-kv nuclear reactor, 4096 multichannel analyzers, and Li-drifted Germanium detectors are in the Departments of Entomology, Biology, Physics, Chemistry, and Nuclear Engineering. The university area contains excellent outcrops and is well situated for field work in sedimentary petrology, geochemistry, stratigraphy, groundwater geology, soils, petroleum geology, midcontinent-type structure, invertebrate paleobiology, and paleoecology. A student computer lab is equipped with Pentium-based PCs and Unix machines, which are Ethernet-connected to the campus UNIX system. All faculty and student computers have full Internet connectivity.

Full-time graduate students in residence are supported for two academic years. Awards include graduate teaching and research assistantships and scholarships. The department also has two endowed, student travel funds. Tuition is waived for graduate teaching assistants.

Application forms for admission and graduate assistantships can be obtained from the Graduate Advisor, Department of Geology, Kansas State University, 108A Thompson Hall, Manhattan, Kansas 66506-3201, or from the department's web site.

Applications to the M.S. program should be accompanied by: (1) college transcript(s), (2) three letters of recommendation, (3) GRE scores, and

(4) a statement of career goals and interests. To ensure consideration, applications for financial assistance should be received by March 1.

Master of science degree

Research leading to the M.S. thesis is the most important part of graduate study in geology at Kansas State University. Students usually select a faculty advisor and develop research and course plans during their first term and begin the research project during their second term. The minimum requirements for the M.S. degree in geology are 30 semester hours of graduate courses under one of the following options:

Option A: thesis option

This option, required of all students entering the graduate program as teaching or research assistants, requires the satisfactory completion of a master's thesis. Six credit hours of GEOL 899 Master's Thesis Research may be included in the 30-hour requirement.

Option B: report option

This option is available to those students who have limited time for completion of a degree and are not contributing to the department's teaching or research efforts. Students choosing this option might include foreign students fully supported by their governments, or military personnel supported by the U.S. government, planning intense courses of study to complete the M.S. degree in the shortest possible time. Other students might include professional educators at the public school or community college level, or professional geologists with full-time employment, planning part-time studies to complete the M.S. degree over a period of years.

Under the report option, students will not complete a thesis but will be required to satisfactorily complete a substantive report, representing a scholarly effort in the research or practice of geology. Two credit hours of GEOL 898 Master's Report Research may be included in the 30-hour requirement.

K-State - KU Joint Ph.D. Program

The Department of Geology cooperates in the Ph.D. program in geology at the University of Kansas. Candidates for the Ph.D. degree who wish to study with a faculty member from Kansas State University are admitted to the degree program at the University of Kansas and spend one year of residence there. The remaining course and research activity is carried out at Kansas State University. Interested students should contact both departments and obtain application materials from: Director of Graduate Studies, Department of Geology, University of Kansas, Lawrence, Kansas 66045-2124.

Geology courses

Undergraduate and graduate credit in minor field

GEOL 501. Independent Study in Geology. (1-3) I, II, S. Independent reading; field or laboratory investigations, or both, of geologic problems. Pr.: GEOL 300 and junior standing.

GEOL 502. Mineralogy. (3) I. Crystallography; physical and chemical properties of minerals; emphasis on mineral identification through laboratory analysis. Two hours lec. and three hours lab a week. Pr.: GEOL 100 and GEOL 103; CHM 110 and CHM 11 or CHM 210.

GEOL 503. Petrology. (3) II. Investigation of physical and chemical processes forming ingeneous, metamorphic and sedimentary rocks. Mircroscopic examination of rock mineralogy and textures. Two hours lec. and three hours lab a week. Pr.: GEOL 502 and CHM 230.

GEOL 506. Environmental Studies. (2) I, II, S. Physical and chemical qualities of natural environments and health from a geologic perspective-detection and prediction of environmental changes, identification of sources of pollutants and their movements in soils, rocks, and waters. Pr.: GEOL 100.

GEOL 510. Geology of Planets. (3) I. Origin, evolution, and surficial geology of the extraterrestrial planets and satellites. Three hours rec. a week. Pr.: GEOL 100.

GEOL 512. Earth Science. (3) I, II. A critical study of the atmosphere, weather, climate, composition, and processes of the earth; also, the interaction of these in producing the pattern of landforms and human activity. Three hours rec. a week. Pr.: GEOL 100 or GEOG 220 or junior standing.

GEOL 515. Geology of the National Parks. (3) On sufficient demand. Stratigraphy, structure, and geological history that produced the scenery of the national parks. Selected national monuments also will be studied. Pr.: GEOL 100 or 105.

GEOL 520. Geomorphology. (3) I, II. Classroom, laboratory, and field studies of landforms and surficial deposits, with an emphasis on earth-surface processes. Classroom lectures and discussions; laboratory exercises; and field investigations. Two hours rec. and three hours lab a week. Pr.: GEOL 100 or GEOG 221.

GEOL 530. Structural Geology. (3) II. Mechanics of the earth's crust; origin and interrelation of structures of the earth. Two hours rec. and three hours lab a week. Pr.: GEOL 503.

GEOL 540. Ice Ages and Environmental Change. (3) I. Studies of the recent geologic past, especially of the last major ice age to the present. Causes of glaciation and climactic change, ways of reconstructing past geologic environmental and geologic environmental changes during the time when human civilization developed, including recent historic time. Three hours rec. a week. Pr.: GEOL 100 or GEOG 221.

GEOL 560. Field Methods. (3) I. Introduction to methods used to collect geologic data in the field. Emphasis is placed on map-reading, rock description, use of aerial photographs, and construction of geologic maps and cross sections. One hour rec., and four hours lab a week. Pr.: GEOL 503.

GEOL 581. Invertebrate Fossils. (3) I. Systematics, biology, ecology, and preservational environment of ancient life, with emphasis on marine invertebrates and calcareous algae. Six hours lab/lecture a week. Pr.: GEOL 502 and junior standing.

GEOL 599. Senior Thesis. (1-3) I, II. Directed research and preparation of a senior thesis. May be repeated once to a maximum of 3 hours credit. Open only to seniors in geology or geophysics.

Undergraduate and graduate credit

GEOL 602. Mineral Exploration. (3) I, II. Geological, geochemical, and geophysical prospecting techniques and their application in the exploration for metallic mineral deposits. Three hours rec. a week. Pr.: GEOL 503.

GEOL 605. Introduction to Geochemistry. (3) II. Introduction to the use of inorganic geochemistry in the investigation of geologic processes in the crust, mantle, and surface environment. Three hours lec. a week. Pr.: CHM 210, CHM 230, GEOL 502.

GEOL 611. Hydrogeology. (3) I, II. Origin, geologic occurrence, and migration of subsurface water; laws governing ground water flow and yield of acquifers. Three hours rec. a week. Pr.: GEOL 520.

GEOL 620. Volcanology. (2) II. Examines processes associated with active volcanoes as revealed by volcanic deposits. Emphasis on influence of volcanoes on human civilizations including economic deposits, climate change, or volcano monitoring. Pr.: GEOL 502.

GEOL 630. Stratigraphy-Sedimentation. (3) I. Description, classification, correlation, chronology, and paleogeography of sedimentary rock systems and the depositional environments in which they formed. Two hours lec. and three hours lab a week. Pr.: GEOL 100 and GEOL 103.

GEOL 640. Introduction to Geophysics. (3) I. Introduction to a broad area of solid earth geophysics and exploration geophysics, such as plate tectonics, earthquake study, structure and dynamics of the Earth's deep interior, and geophysical exploration for natural resources. Two hours rec., and two hours lab a week. Pr.: PHYS 114.

GEOL 642. Field Geophysics. (3) II. Acquisition and computer processing of geophysical data such as those from seismic reflection, seismic refraction, gravity, magnetic and electrical methods. One hour rec. and four hours lab per week. Pr.: GEOL 640.

GEOL 650. Exploration Geophysics. (3) I. Seismic, gravity, magnetic, and electrical methods used in exploration for petroleum accumulations and for mineral deposits. Two hours rec. and two hours lab a week. Pr.: GEOL 640.

GEOL 680. Field Geology. (3) S. Field projects in the Rocky Mountains designed to give students practical experience in apply geologic knowledge and skills. Three six-day weeks in the field. Pr.: GEOL 503, 530, and 560.

GEOL 702. Economic Geology. (3) I. Geology and origin of metallic mineral deposits and of some nonmetallic deposits. Three hours rec. a week. Pr.: GEOL 503.

GEOL 703. Economic Geology Laboratory. (1) I. Laboratory activities related to metallic and nonmetallic mineral deposits, including detailed studies of selected deposits. Pr.: GEOL 702 or conc. enrollment.

GEOL 704. Paleoecology. (3) I. Application of biological, physical, and chemical factors in modern marine environments to the quantitative study of the structure and dynamics of fossil populations and communities. Two hours rec. and three hours lab a week. Pr.: GEOL 581.

GEOL 705. Geobiology. (3) II. Discussion and critique of current and classic research in geobiology. Three hours rec. a week. Pr.: GEOL 581.

GEOL 708. Sedimentary Geochemistry. (3) I, II. Geochemical principles and processes in deposition and diagenesis of sediments; different chemical pathways in the exogenic cycle. Two hours lec. and three hours lab a week. Pr.: GEOL 503 and MATH 220.

GEOL 711. Water Resources Geochemistry. (2) II. Geochemistry of ground and surface waters; emphasis on mineralogic and hydrologic controls on inorganic constituents and properties. Two hours rec. a week. Pr.: GEOL 503 or AGRON 705 or 755.

GEOL 712. Advanced Geochemistry. (3) II. Application of chemical principles to igneous, metamorphic systems; emphasis on equilibria, oxidation-reduction, crystal chemistry, and thermodynamics. Three hours lec. a week. Pr.: GEOL 503 and CH 500 or 585.

GEOL 714. Rock Microstructures and Geologic Processes. (3) I. Examination of mineral shapes, orientations and assemblages (rock fabric) as a record of geologic processes. Two hours lec. and two hour lab. Pr.: GEOL 503 and CHM 230.

GEOL 715. Dating Earth Materials. (3) II. Discusses how ages are measured for rocks, minerals, waters, and sediments by analysis of isotopes produced by radioactive decay or cosmic rays. Pr.: CHM 230, GEOL 503.

GEOL 720. Quaternary Geology. (3) II. Quaternary stratigraphy as the framework for studying the geomorphic, climactic, archaeological, and biological changes of the last two million years, with emphasis on the North American record. Three hours rec. a week and one field trip a semester. Pr.: GEOL 630.

GEOL 730. Petroleum Geology. (3) I, II. Origin, migration, and accumulation of petroleum; stratigraphy and structure of important fields. Three hours rec. a week. Pr.: GEOL 530 and 630.

GEOL 740. Regional Geology. (3) I. Structure and stratigraphy of the major tectonic units of North America. Pr.: GEOL 530, 630.

GEOL 747. Computational Geophysics. (3) II. Computer skills and techniques used in geophysical data processing and analysis such as linear and nonlinear inversion, forward modeling of gravity, magnetic, and seismic data, seismic tomography, seismic anisotropy, and seismic wave attenuation. One hour lec. and four hours lab per week. Pr.: GEOL 640.

GEOL 750. Geologic Evolution of Planet Earth. (3) II. Integration of the various geologic disciplines into a broad-based understanding of the history and dynamics of the earth. Specific regions, such as the western U.S., will be selected each year for detailed study. Guest lectures will make up a significant part of the course. Three hours lec. a week. Pr.: completion of, or concurrent enrollment in, all other courses required for the B.S. or B.A. degree in geology (except summer field courses).

GEOL 770. Subsurface Methods. (3) II. Principles and applications of subsurface geology. Two hours rec. and three hours lab a week. Pr.: GEOL 530 or conc. enrollment.

GEOL 790. Problems in Geology. (Var.) I, II, S. Work is offered in mineralogy, paleobiology, paleoecology, stratigraphy, structural geology, igneous, metamorphic, and sedimentary petrology, geomorphology, planetary geology, hydrogeology, geochemistry, and isotope geology. Pr.: Background of courses needed for problem undertaken.

Graduate credit

GEOL 800. Graduate Seminar in Geology. (Var.) I, II. Topics in geology, geochemistry, and geophysics.

GEOL 801. Advanced Paleobiology. (2) On sufficient demand. Detailed study of the functional morphology, ecology, biogeography, evolution, and classification of selected groups. Pr.: GEOL 704 or 705.

GEOL 804. Igneous and Metamorphic Petrology. (4) On sufficient demand. Selected problems in the petrogenesis of igneous and metamorphic rocks. Three hours lec. and three hours lab a week. Pr.: GEOL 608.

GEOL 805. Advanced Igneous and Metamorphic Petrology. (2) On sufficient demand. Field and laboratory study of selected problems in the origin of igneous and metamorphic rocks. Pr.: GEOL 804.

GEOL 806. Sedimentary Petrology. (4) II. Petrography, classification, and origin of terrigenous and chemical sedimentary rocks. Three hours lec. and three hours lab a week. Pr.: GEOL 608.

GEOL 807. Advanced Sedimentary Petrology. (2) I, II. Field and laboratory study of selected problems in the origin of sedimentary rocks. Pr.: GEOL 806.

GEOL 810. Isotope Geology. (3) I. Principles, techniques, and applications of natural radioactive isotopes to geochronology; application of isotopes to problems of petrogenesis. Three hours rec. a week. Pr.: GEOL 608 or consent of instructor.

GEOL 830. Geotectonics. (3) I. Origin and history of major tectonic elements of the earth, especially their interaction through time. Pr.: GEOL 530.

GEOL 840. Planetology. (3) II. Geologic principles applied to a study of the solar system. Pr.: GEOL 530, 712, or consent of instructor.

GEOL 880. Clay Mineralogy. (3) II. Geologic occurrences, physical properties, atomic structures, and the identification of clay minerals, including thermal analytical methods and the study of X-ray diffraction patterns. Two hours rec. and three hours lab a week. Pr.: GEOL 503 or 711 or AGRON 515.

GEOL 890. Advanced Seismology. (3) On sufficient demand. Mechanics of faulting and earthquakes; seismotectonics; advanced data analysis; seismic wave propagation in three-dimensionally inhomogeneous media; earthquake prediction and hazard analysis. One hour rec. and four hours lab per week. Pr.: PHYS 214; GEOL 640; GEOL 644.

GEOL 898. Master's Report Research. (1-2) I, II, S. Research or practice of geology summarized in a scholarly report. Pr.: Enrollment in geology option B and permission of instructor.

GEOL 899. Master's Thesis Research. (1-6) I, II, S. Research in geology culminating in a master's thesis. Pr.: Enrollment in geology option A and permission of instructor.

GEOL 999. Research in Geology, Ph.D. (Var.) I, II, S.

For more information

For additional information and application materials please contact:
Graduate Advisor
Kansas State University
Department of Geology
108A Thompson Hall
Manhattan, KS 66506-3201

E-mail: mhub@ksu.edu
Home Page: http://www.ksu.edu/geology/

Glossary and Abbreviations

A/Pass/F: An alternative grading option in which a student earning a grade of A in a course will have an A recorded for that course; a grade of B, C, or D will be recorded as a Pass; and a grade of F will be recorded as an F.

Academic load: The total number of semester hours for which a student is enrolled in one semester.

Advanced standing: Having credit awarded for previous work or testing.

Advisor: A faculty member who provides information and makes recommendations on courses, requirements, prerequisites, and programs of study.

Audit: To attend a class regularly without participating in class work and without receiving credit.

B.A.: Bachelor of arts degree. Courses selected from a variety of disciplines although concentrations are in one or two areas. A modern language is required for a B.A. degree.

B.S.: Bachelor of science degree. A specified program of required courses with fewer electives than the B.A. A modern language may be taken but is not required.

Baccalaureate: Refers to the bachelor's degree.

Certificate programs: A non-degree credential designed to provide students with specialized knowledge that is less extensive than, and different from, a master's program. A certificate program represents a focused collection of courses that, when completed, affords the student some record of coherent academic accomplishment in a given discipline or set of related disciplines.

Classification: Level of progress toward a degree with classifications of freshman, sophomore, junior, or senior, depending on the number of semester hours completed.

College: An academic unit of the university. Kansas State University has nine colleges and a Graduate School.

Concurrent enrollment: Taking a course during the same semester as another. Abbreviation: Conc.

Course: A unit of study a student enrolls in during a semester.

Credit by examination: Credit received when a student takes an oral or written examination without registering for a course.

Credit hour: A unit of measurement used in determining the quantity of work taken. Each credit hour is roughly equivalent to one hour of class time per week. For example, a class meeting three hours a week would be a three-credit-hour class. Abbreviation: Cr.

Credit/No Credit: A grading option in which the successful completion of a course is recorded as Credit and failure is recorded as No Credit. No other grades are given for such courses and they are not figured into the grade point average.

Curriculum: A program of courses that meets the requirements for a degree in a particular field of study.

Degree program: Courses required for completion of a particular degree.

Department: A unit within a college representing a discipline.

Discipline: An area of study representing a branch of knowledge, such as mathematics.

Dismissal: A student who neglects his or her academic responsibilities may be dismissed on recommendation of an academic dean.

Double major: Having two programs of academic study.

Drop/Add: Changing the student's course schedule by adding and/or dropping a course, or both.

Dual degree: A student may elect in some cases to earn two degrees at one time.

Ed.D.: Doctor of Education degree. A post-baccalaureate degree awarded upon completion of at least three years of full-time specialized study, together with a major research contribution to the field of education that demonstrates independence as a scholar. The degree culminates with a formal dissertation.

Electives: Courses chosen that are not required for the major or minor. The number of hours of electives required varies according to a student's major.

Enrollment: The process of selecting courses and having courses reserved.

Equiv.: Equivalent.

Extracurricular: Activities such as band or debate for which a student may earn credit toward graduation. Extracurricular activities are counted as electives.

Financial aid: Help for a student who needs assistance to pay for college. Aid is available from grants, loans, scholarships, and work/study employment.

Grade point average (GPA): A measure of scholastic performance. A GPA is obtained by dividing the number of grade points by the hours of work attempted, an A = 4 points, a B = 3 points, a C = 2 points, a D = 1 point, and an F = 0 points.

Graduate certificate: A nondegree credential designed to provide students with specialized knowledge that is less extensive than, and different from, a master's program. A certificate program represents a focused collection of courses that, when completed, affords the student a record of academic accomplishment in a given discipline or set or related disciplines.

Graduate student: A student who has completed a bachelor's degree and has met all the requirements for admission to the Graduate School.

Hour: The unit by which course work is measured. The number of semester hours assigned to a course is usually determined by the number of hours a class meets per week.

Intersession: Courses offered between semesters.

Lec.: Lecture. A class wherein the teaching is done primarily through oration.

M.A.: Master of arts degree. A post-baccalaureate degree awarded upon completion of at least 30 semester hours of graduate credit, usually in the humanities or social sciences. May or may not include research and a thesis, depending on the field of study.

Major: The subject or subject areas upon which a student chooses to place principal academic emphasis.

M.S.: Master of science degree. A post-baccalaureate degree awarded upon completion of at least 30 semester hours of graduate credit, usually in the sciences or professions. Research and a thesis are required in most of the sciences.

Non-Degree seeking student: A graduate student taking courses at K-State but not admitted to a graduate program leading to a degree.

Option: An approved group of courses creating a specialty within a major field of study.

Orientation: Activities and programs designed to help the new student become acquainted with the university.

Ph.D.: Doctor of philosophy degree. A post-baccalaureate degree awarded upon completion of at least three years of full-time specialized study, together with a major research contribution to the discipline that demonstrates independence as a scholar. The degree culminates with a formal dissertation.

Prerequisite: A requirement, usually credit in another course, which must be met before a particular course can be taken. Abbreviation: Pr.

Probation: Probation is an academic warning that a student is in academic difficulty which could lead to dismissal from the university.

Rec.: Recitation. A small section usually taken in conjunction with a lecture.

Scholastic honors: An award an undergraduate receives based on the excellence of K-State academic work.

Secondary major: Interdisciplinary major which must be completed along with a first major course of study.

Transcript: An official copy of a student's permanent academic record.

Transfer student: A student who terminates enrollment in another college or university and subsequently enrolls at K-State.

Undergraduate student: A university student who has not received a bachelor's degree.

V/Var.: Variable. The credits earned in some courses may vary.

Graduate Certificate information is on this page.

Please note: **NONE** OF THE SIDE MENU/OPTION LINKS FUNCTION ON THIS TEST PAGE- ONLY THE FOOTER, HEADER, MAIN TAB, AND SUBTAB LINKS FUNCTION.

Graduate School

GRAD 801. Foundations of Leadership (3) I, II. Study of the key issues in the theory, research, and application of leadership in organizations. This includes defining leadership, understanding situational characteristics that facilitate / hinder effective leadership, understanding effective / dysfunctional leadership, and gaining greater insight into one's own leadership style and functioning.

GRAD 820. Leadership Practicum. (3) I, II. Develops the connections between leadership theory and practice. By conducting a practicum project, students demonstrate the ability to apply concepts and ideas from the study of leadership to a practical leadership problem within an organization. Pr.: GRAD 801

Graduate Study

With 59 master's programs and 42 doctoral programs, Kansas State University offers preparation for a variety of scholarly and research careers as well as for a wide range of professional positions.

Since research is the mode of learning at the limits of knowledge, a common objective of all the graduate programs is to develop the capacities needed for independent study and research. All doctoral programs and most master's programs develop such capacities through both advanced course work and original research under the direction of faculty members who are experts in their fields.

A crucial part of the process involves the preparation and publication of a research study in the form of a thesis or dissertation and a defense of the study before the faculty. Some professional master's programs emphasize preparation for professional practice and consequently offer a nonthesis option, but in these, too, the student should gain a thorough understanding of research and research methodology.

Graduate Faculty | Graduate Council | Master's Degrees | Doctoral Degrees | Certificates

Graduate Faculty

The graduate faculty conduct the graduate degree programs of Kansas State University. Graduate faculty membership is granted by the graduate dean on the recommendation of the Graduate Council based on the candidate's demonstrated independence as a scholar, expertise in the field, and ability to make significant contributions to the body of knowledge in his or her discipline.

Graduate faculty serve as advisors and mentors for graduate students, teach graduate-level courses and participate in the governance process for graduate education throughout the University. In this Catalog, members of the graduate faculty are listed in each graduate program in which they participate, as well as in an alphabetical listing in the last section of the Catalog.

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Graduate Council

The Graduate Council is the chief legislative and policy-formulating body of the graduate faculty. Presided over by the graduate dean and made up of elected graduate faculty from across the university, it formulates policies governing the conduct of graduate study at Kansas State University. The graduate faculty delegates to the Council its authorities over graduate faculty appointments, graduate courses and curricula, and graduate degree standards and requirements. Policies developed by the Council are contained in the Graduate Handbook and form the framework for policies which may be developed by individual graduate programs.

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Biomedical Science

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- Veterinary Physiology (see Anatomy and Physiology)

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- Women's studies
- Youth development administration
- Youth development professional

Grain Science and Industry

Programs | Admissions | Assistantships | Master of science | Doctor of philosphy | Course work | Grain science courses | More information

Head:
Dick Hahn

Director of graduate studies:
David Wetzel

Graduate faculty:

Sajid Alavi, Ph.D., Agricultural Engineering, Cornell University.

Keith Behnke, Ph.D., Grain Science, Kansas State University.

Subramanyam Bhadriraju Ph.D., Entomology, University of Minnesota.

Hulya Dogan, Ph.D., Food Engineering, Middle East Technical University, Turkey.

W. Dale Eustace, Ph.D., Grain Science, Kansas State University.

Jon Faubion, Ph.D., Grain Science, Kansas State University.

Jeffrey Gwirtz, Ph.D., Grain Science, Kansas State University.

Ekramul Haque, Ph.D., Agricultural Engineering, Kansas State University.

Buddi Lamsal, Ph.D., Agricultural Engineering, University of Wisconsin-Madison.

Finlay MacRitchie, Ph.D., Physical Chemistry, University of Sydney.

Ron Madl, Ph.D., Biochemistry, Kansas State University.

Leland McKinney, Ph.D., Animal Nutrition, Oklahoma State University.

Carl Reed, Ph.D., Grain Science, Kansas State University.

Paul Seib, Ph.D., Biochemistry, Purdue University.

Yong-Cheng Shi, Ph.D., Cereal Chemistry, Kansas State University.

Virgil W. Smail, Adjunct, Ph.D., Plant Genetics, Montana State University.

X. Susan Sun, Ph.D., Agricultural Engineering, University of Illinois.

Katherine Tilley, Ph.D., Grain Science, Kansas State University.

Praveen Vadlani, Ph.D., Biochemical Engineering and Biotechnology, IIT Delhi, India.

David Wetzel, Ph.D., Analytical Chemistry, Kansas State University.

Jeffrey Wilson, Adjunct, Ph.D., Grain Science, Kansas State University.

Programs

The Department of Grain Science and Industry offers courses of study leading to degrees of master of science and doctor of philosophy in grain science. Grain science faculty collaborate with the scientists at the USDA Grain Marketing Research Laboratories and the American Institute of Baking and there are graduate programs that are collaborative with those laboratories.

Modern teaching and research facilities include a pilot flour mill, feed mill, bakery, extrusion laboratory, and grain storage and handling facility. In addition, more than 10 cereal chemistry laboratories are equipped with visible and ultraviolet spectrophotometers near infrared analyzers, an infrared microspectrometer, gas chromatographs, liquid chromatographs, ultra centrifuge, freeze drying apparatus, balances, rapid viscosity analyzer, differential scanning calorimeter, thermo-mechanical analyzer, classical rheometer (Instron), dynamic rheometers, gel electrophoresis apparatus, a full array of glassware, rapid analyzers for nitrogen, fiber, and glucose, as well as recording mixers and starch viscometers.

The department has an 86-year history of academic interest in the milling industry with particular emphasis on milling and baking properties of wheat cultivars. The wheat milling facilities range from a bench-scale mill (batch of 0.5 kg of grain) to a pilot mill with a capacity of 6 MT/8h. Specialty dry mills also are available to purify, fractionate, and grind any seed-like material, including all cereals, legumes, pulses, spices, and gums.

Plans for a wet-milling laboratory for grain are progressing.

Another unique feature of the department is its fully functional pilot feed mill for research and development studies by university, industry, and government organizations. The feed mill at Kansas State University is a modern concrete and steel structure on campus which houses the latest in equipment in the feed milling industry. Its capabilities include cleaning and receiving raw materials, classification of raw materials, grinding and pelleting, flaking, or extruding. A premix room for micro-ingredients and a large-scale batching system facilitate accurate proportioning and weighing of feed ingredients. The feed mill is capable of producing nearly all physical forms of formulated animal feeds. Plans for construction of new facilities are in progress.

A food-grade extrusion processing facility, houses a Wenger model X-20 single-screw extruder, a Wenger model TX-52 twin-screw extruder, and a gas-fired belt dryer.

Departmental facilities for research include well-equipped laboratories for all areas of research in cereal chemistry. This includes laboratories equipped for chemical research and special laboratories equipped for studies of the physical properties of flour, doughs and food systems. Pilot bakery facilities provide an excellent environment for teaching and research. A fully-equipped computer laboratory is available to all students.

The Swanson Memorial Resource Room, located in Shellenberger Hall, contains a collection of volumes relevant to the grain science discipline.

Admission

Correspondence and questions regarding Graduate School are handled by the chair of the Graduate Admissions Committee. Write to the department requesting information and application forms.

Applicants need to complete the Graduate School application form, obtain and submit the official transcripts and three letters of recommendation. Send these to the attention of the Chair of the Graduate Admissions Committee. Additionally, applicants should write a well-thought out statement of objectives which should include the discipline area in which the student has an interest and desires to perform research. This information is particularly important in placement within the department with major professors. Applicants should have a B average or better and have completed courses in calculus, physics, organic and biological chemistry and biological science.

All applicants whose native language is not English are required to attain a minimum score of 550 (or 213 if computer-based test) on the Test of English as a Foreign Language (TOEFL) before they are admitted to the Graduate School at Kansas State University. International students must provide a completed financial form and evidence of financial support for their graduate training.

The Graduate Record Exam (GRE) is required, and copies should be submitted with the application. The Department of Grain Science and Industry does not have required minimum GRE scores, but places emphasis on these scores in the evaluation of applicants.

When the application materials are on file, the department's admission committee will evaluate and provide a recommendation of action. Faculty members will then evaluate the applicant information presented and decide whether or not to supervise and to provide financial assistance for the student. A student that is found to be acceptable will then be assigned to a faculty member for supervision. No student will be admitted without a major professor identified. The application is then forwarded to the department head for approval and then to the Graduate School. The Graduate School has the ultimate authority for graduate admission.

Assistantships

Graduate research assistantships in grain science and industry are designed to support the research project areas of the individual faculty members. Those projects may be Kansas Agricultural Experiment Station projects directed by the faculty member or sponsored research projects funded by industrial, state, or federal agencies. In all cases, the decisions regarding support and awarding of assistantships are made on a competitive basis. Funds are not always adequate to award assistantships to all students who would like support. Decisions regarding initial and continuing support are based on both academic performance and research progress. Failure to maintain high quality academic work or research activity can be reason to cancel or discontinue an assistantship. More information about assistantships may be found at our department web site.

Master of science

General requirements

Except under special conditions, candidates for the master's degree are required to spend one academic year in residence.

A committee of at least three graduate faculty members supervises the program of study for the master's degree. The candidate's major professor serves as committee chair. The committee is selected by the student and his or her major professor, with selection of the committee subject to approval by the Graduate School. The supervisory committee's responsibilities include approval of a thesis research proposal, guidance in and approval of a written plan of study which describes course work to be completed, approval of the final copy of the thesis, and administration of a final oral examination.

A master's degree requires a minimum of 30 semester hours of graduate credit including 6 to 8 research credit hours resulting in a thesis.

The student must submit a written plan of study to the Graduate School prior to the end of the second semester that the candidate is enrolled at

Kansas State University.

A candidate will submit the thesis to all committee members before the examination is scheduled. A copy is to be available at the final oral examination.

A final oral examination is required of all students. This must include a defense of the thesis in the grain science department, and may include interpretation of other scholarly work, and testing of the students' understanding of their fields of study.

Doctor of philosophy

The Ph.D. degree normally requires at least three years beyond the master's degree. It is awarded to candidates who have demonstrated unique ability as scholars and researchers and proficiency in communication. The degree also certifies that the candidate has an understanding of the subject matter in the discipline and possesses the ability to make original contributions to knowledge.

General requirements

Graduate study beyond the bachelor's degree equivalent to 90 or more semester hours is required for the doctor of philosophy degree. Those hours include enrollment in at least 30 hours of research and 30 hours earned previously for the master's degree. At least a year in residence at the university is required.

The student and major professor select an advisory committee. Selection of the committee is subject to approval by the Graduate School. The committee consists of the major professor and at least three other members of the graduate faculty. One member of the committee must be a member of the graduate faculty in a department other than that of the major professor.

The duties of the supervisory committee include advising the student on preparation of a plan of study and development of a doctoral research proposal, administration of a preliminary written examination, approval of the final form of the dissertation, and administration of the final oral examination.

It is expected that each graduate student's dissertation or thesis will be published in the scientific literature. Graduate students are expected to prepare draft manuscripts prior to or by the time of their final oral exam. Publication of some items can precede publication of thesis or dissertation but guidance regarding prior publication should be followed.

Course work

Grain science includes the science and technology of cereals and other grains, their basic properties and their utilization in foods, feeds, and other industrial products. Knowledge of chemical, biological, physical, and mathematical sciences is fundamental to grain scientists. As part of their degree programs, students will develop strong written and oral communication skills.

The course requirements for each graduate student in grain science will be drawn from the fields listed above. Specific requirements for each individual will be determined by the major professor and approved by the student's graduate committee, with due consideration given the student's qualifications and professional plans and interests. Students may be required to make up deficiencies in course work in their undergraduate curriculums.

Suggested courses for the M.S. degree

All students:

GRSC 815	Fundamentals of Processing Grain for Food
GRSC 602	Cereal Science
GRSC 900	Seminar or another graduate seminar

A graduate-level grain science course in at least one specialized area (i.e., baking, milling, feed science, extrusion)

A statistics course at the 700 level,

BIOCH 755	Biochem or BIOCH 521 General Biochem
BIOCH 756	Biochem Lab is also suggested

Additional suggested courses for the Ph.D. degree

Graduate level courses in chemistry, biochemistry or other basic science in support of PhD research

BIOCH 755	Biochem I for those in cereal science programs
GRSC 900	Seminar or another graduate seminar

Cereal science programs

10 credit hours of chemistry and/or physics, including an advanced course in biochemistry and an acceptable course in physical chemistry which has calculus as a prerequisite.

Grain science courses

Students without the prerequisite must have the permission of the instructor.

Undergraduate and graduate credit in minor field

GRSC 500. Milling Science I. (4) II. Principles and practices of wheat flour milling with full-scale equipment including grain storage, blending, cleaning, conditioning plant, and a modern pneumatic 240 hundred weight flour mill, with instrumentation and air conditioning, etc. Two hours lec. and six hours lab a week. Rec. Pr.: GRSC 100, 110 and a course in physics.

GRSC 505. Cereal and Feed Analysis. (3) II. Principles and methods of analyzing and testing cereal grains, cereal, and feed products. One hour lec. and six hours lab a week. Pr.: CHM 230 and BIOCH 120.

GRSC 510. Feed Technology I. (4) I. Introduction to the engineering of formula feed manufacture, including principles of conveying, grinding, mixing, pelleting, and the formulation of concentrates, premixes, and rations using a digital computer. Three hours lec. and three hours lab a week. Rec. Pr.: ASI 318 and GRSC 110.

GRSC 540. Engineering Applications to Grain/Food Products. (3) II. Application of grain/food industry analytical processing concepts including mass and energy balances, fluid flow, heat transfer, dehydration, evaporation, separation, thermodynamics, and refrigeration. Three one-hour lectures per week. Pr. MATH 205 or 220, Rec. Pr.: PHYS 113 or 115, BIOCH 265 or CHM 210.

GRSC 541. Engineering Applications to Grain/Food Products Laboratory. (1) II. Laboratory experiments supplementing GRSC 540 Engineering Applications to Grain/Food Products. Pr.: GRSC 540 or conc. enrollment.

GRSC 591. Commercial Feed and Food Manufacturing Internship. (2) I. A practical application of feed and food manufacturing technology during an eight-week summer internship with an active commercial feed and food manufacturing company. The course will stress applied aspects of commercial feed and food manufacturing, which can include, but not be limited to, plant operations, maintenance, personnel and labor relations, business management, warehousing, ingredient procurement, quality assurance, and fleet management. Rec. Pr.: GRSC 500, 510 or 635.

Undergraduate and graduate credit

GRSC 602. Cereal Science. (3) I, II. The characteristics of cereals, legumes, their components and their processing to foods. Three hours lec. a week. Rec. Pr.: BIOCH 265.

GRSC 610. Electricity and Its Control for the Grain Processing Industry. (3) II. Major emphasis will be given to application of electricity to machinery for grain processing and electrical code. Two hour lec., two hour lab. Rec. Pr.: Either GRSC 500, 510 or 635.

GRSC 625. Flour and Dough Testing. (3) I, II. Physical and chemical methods used in evaluating wheat flour and doughs. Two one-hour lectures and one-three lab a week. Rec. Pr.: GRSC 602.

GRSC 630. Management Applications in the Grain Processing Industries. (3) II. This course deals with management principles and their specific application to the processing industries. Industry and allied trade personnel in management positions will give a number of lectures in their field of expertise. Special emphasis is placed on grain industry organizations, labor contracts, supervision, scheduling and planning, regulatory agencies and cost control. Three hours lec. a week, Rec. Pr.: ECON 110; GRSC 510, 500, or 635.

GRSC 635. Baking Science I. (2) I. Introduction to properties of ingredients used in baking, reactions of ingredients during processing into baked products. Two hours lec. a week. Rec. Pr.: BIOCH 265.

GRSC 636. Baking Science I Laboratory. (2) I, II. Laboratory exercises in theory and production of yeast-leavened baked products. Six hours lab a week. Rec. Pr.: 635 or conc. enrollment.

GRSC 640. Advanced Flow Sheets. (2) II. Design of flow diagrams for dry milling processes. Uses a combination of methods that lead to practical applications and analytical techniques. Six hours lab a week. Rec. Pr.: GRSC 500 or 510.

GRSC 651. Food and Feed Product Production. (4) II. Sanitation in relation to processing, handling, and storage of human and animal foods. Emphasis on contaminants, control of causative agents, equipment and plant design, applicable laws and regulations. Three hours lec. and three hours lab a week. Rec. Pr.: Minimum 8 hours biological science.

GRSC 655. Cereal Food Plant Design and Construction. (3) I. Drawing assignments relative to the building, or modification, of cereal mills. Rec. Pr.: GRSC 500 or 510.

GRSC 661. Qualities of Food and Feed Ingredients. (3) I. The course provides an integrated biological, chemical, and physical basis for evaluating the inherent nutritional quality of food and feed ingredients and the scientific literature techniques for obtaining new information. Three hours of lecture a week. Rec. Pr.: BIOCH 265.

GRSC 670. Bakery Layout. (1) I. The layouts of facilities to produce baked goods are studied. Students prepare their own bakery layout. Current problems in a bakery production setting in the baking industry are discussed. Two hour lab. Rec. Pr.: MATH 100, PHYS 113, and GRSC 636.

GRSC 701. Practicum in Bakery Technology (1). One week intensive course during the January Intersession. Lectures and hands-on laboratory experience with commercial production scale baking equipment for breads and rolls, cookies and crackers, and cakes and sweet doughs. Restricted to upperclass bakery science and management majors or permission of the instructor. Rec. Pr.: GRSC 635 and 636.

GRSC 710. Fundamentals of Grain Storage. (2) I. Study of the theory and practice of management of stored grain to maintain grain quality and maximize profits. Subjects include grain quality factors, physical properties of grain, grain masses, and grain storage structures, causes and management of deterioration in grain quality, and regulatory issues related to grain handling and storage. Rec. Pr.: GRSC 602 or 661.

GRSC 712. Vibrational Spectroscopic Analysis and Chemometrics. (1-2) II. Infrared and particularly modern near-infrared spectroscopic "as is" analysis of foods, natural products, and synthetic substances is accomplished with direct sampling and the use of multivariate statistics. This course is intended to enable the student to understand the principles and successfully apply this technology to practical analytical problems with emphasis upon food. Method development will be taught using specific analytes in selected products. Theoretical background, working of modern instrumentation and associated software is presented in support of achieving practical competence. Rec. Pr.: BIOCH 265, or CHM 271.

GRSC 713. Contemporary Chromatographic Analysis of Food. (1) II. High performance liquid chromatography (HPLC) is the primary focus of this course. This will be supported by including treatment of topics in contemporary gas chromatography and supercritical fluid chromatography and extraction. Optimizing chromatographic conditions through knowledge of the column chemistry will be covered in addition to detector options, instrumentation, and sample preparation. Rec. Pr.: BIOCH 265 or CHM 271.

GRSC 720. Extrusion Processing in the Food and Feed Industries. (4) II. The course is designed to provide the student with an understanding of extrusion technology and the ability to apply it to product development and production through a "hands-on" approach. Major emphasis is on laboratory exercises in which students will operate pilot scale extrusion equipment to produce readily-recognizable commercial products such as cheese curls, breakfast cereals, pasta, pet food, etc. Emphasis will also be placed on process and product development, analysis, and problem solving techniques. Three hours lec. plus one three-hour lab a week. Rec. Pr.: STAT 320 and GRSC 602.

GRSC 725. Feed Manufacturing Processes. (3) II. Study of the technical phases of formula feed manufacturing, equipment design and function, effect of processing and ingredients on nutritional acceptability of feeds and quality control. Two hours lec. and three hours lab a week. Rec. Pr.: MATH 100, MATH 150 and ASI 318.

GRSC 730. Milling Science II. (2) I. Advanced study of the entire gradual reduction system of wheat flour milling and the many unit process systems that constitute the milling system. The theory and practice of mill control are studied in detail. Processing of other cereal grains and oil seeds are covered as well as general mill management. Two hours of lecture a week. Rec. Pr.: GRSC 730 or conc enrollment; STAT 320, PHYS 113 and MATH 205.

GRSC 731. Milling Science II Laboratory. (2) I. The processes for milling other grains such as corn, oats, sorghum, different classes of wheat, and rye are studied in the laboratory and by practice on small scale milling units. Concepts of material handling properties of grain products and material handling equipment in dry milling operations will be presented. Concepts of statistical process control and spread sheet modeling in the decision making process will be introduced. Six hours lab a week. Pr.: GRSC 730 or conc. enrollment, STAT 320, PHYS 113, and MATH 205.

GRSC 734. Milling Processing Technology Management. (3) II. A capstone course for grain science and industry students. The objective is to familiarize students with the structure of the U.S. flour milling industry, the managerial and processing operations involved in the management of a flour mill, modeling simulation techniques for flour milling operations and investment projects and evaluation of new milling technologies. Two hours lec. and three hours of lab per week. Rec. Pr.: GRSC 730.

GRSC 737. Baking Science II. (3) II. Course includes study of physical, chemical, and functional properties of ingredients and processes used in production of bakery products, including cakes, cookies, doughnuts, breads and related products. Shelf-life control and packaging of baked products is also discussed. Total quality programs, specification programs and management of distribution and purchasing systems will also be included in lectures. Three hours of lecture a week. Rec. Pr.: GRSC 635.

GRSC 738. Baking Science II Laboratory. (1) II. A laboratory course to accompany Baking Science II (GRSC 737). Exercises and experiments in production of chemically-leavened and yeast-leavened bakery foods including various cakes, cookies, doughnuts, bagels, icings, and fillings. Three hours of lab a week. Rec. Pr.: GRSC 737 or concurrent enrollment.

GRSC 740. Biomaterials Processing. (3) I, in even years. This course is designed for students who are interested in plant biomaterials processing. This course will teach technologies of biobased materials processing including starch extraction (wet milling), plant oil extraction and refining, plant protein extraction and processing, cellulose processing, biofuel production, chemicals bioconversion, and drying technologies of biomaterials. Three hrs. lec. a week. Same as BAE 740. Pr.: BAE 575 or GRSC 602.

GRSC 750. Feed Technology II. (4) I. Advanced study of engineering principles applicable to flour and feed plant operations, materials handling, equipment selection, and processing systems. Three hours of lecture per week and three hours of laboratory per week. Separate laboratory sessions are conducted for flour and for feed students. Rec. Pr.: GRSC 510 or 500, PHYS 114 or 214, and a course in statistics and computer applications.

GRSC 751. Air Handling in Grain Processing. (3) II. Emphasis is given to pneumatic conveying, exhaust systems, and air handling in the grain processing industry. Two hours lec. and three hours lab a week. Pr.: MATH 210 and PHYS 213.

GRSC 785. Advanced Flour and Feed Technology. (3) II. Design and use of exhaust systems, pneumatic conveying systems, bins and hoppers, and the practical applications of electrical interlocking, instrumentation, and microprocessors to automatic mill control. Also other

subjects such as sound measurement and explosion detection and prevention are covered. Two hours lec. and three hours lab a week. Rec. Pr.: GRSC 730 or 750.

GRSC 786. Particle Technology for Grain Processing Industries. (3) I. Properties of cereals in particulate state, such as flour, starch, and feeds. Technology of particle size designation and particle statistics, particle size distributions, particle rheology, measurement methods, and size analysis. Three hours lec. a week. Rec. Pr.: STAT 320, GRSC 500, or graduate student status.

GRSC 790. Grain Science Problem. (Var.) I, II, S. Pr.: Consent of staff.

Graduate credit

GRSC 805. Nutritional Properties of Cereals and Legumes. (3) II. Special emphasis is given to the nutritional properties of grains and legumes and their processed products. Rec. Pr.: BIOCH 521, GRSC 602, or conc. enrollment.

GRSC 811. Principles of Food Analysis. (3) II. Principles of instrumentation and analysis, with emphasis on applications to quality control and research in the food industry. Rec. Pr.: CHM 271 or GRSC 505 and BIOCH 265.

GRSC 815. Fundamentals of Processing Grains for Food. (3) I. Unit processes in the receiving and storing of grains; grinding, sifting, mixing, conveying, cooling, drying air qualities, air flow, compaction, extrusion, etc. This course is not open to undergraduate majors in the department. Two hours lec. and three hours lab a week. Rec. Pr.: PHYS 114.

GRSC 820. Advanced Extrusion Processing. (4) II. Advanced study of the engineering principles of extrusion forming and cooking with a detailed focus on scale-up. A variety of extrusion systems will be studied in lab with associated group projects. Three hrs. lec. and three hrs. lab a week. Rec. Pr.: GRSC 720 or previous extrusion experience.

GRSC 825. Novel Uses of Biopolymers. (2) I. Teach existing value-added technology of cereal polymers, and explore new processes and utilization in non-traditional food/feed and in non-food/feed. Two hours lec. a week. Rec. Pr.: BIOCH 521 and PHYS 115.

GRSC 830. Physical Properties of Cereal Polymers. (3) II, in even years. Physical properties of cereal polymers include physical attributes, rheological, mechanical, thermal, electrical, and optical properties. Thermal analysis methods will be taught. Thermal analysis include glass transition, gelatinization, denaturation, and thermal softening and settings of cereal polymers. Rheological properties associated with these thermal transitions will be discussed. Applications of thermal analysis in cereal chemistry, processing, and product quality control will be discussed. Two hours lecture and discussion, and two hour lab. Rec. Pr.: GRSC 602.

GRSC 840. Advanced Grain Processing Technology. (3) II. An overview of unit operations used in the grain/food processing industry will be given. Specific applications of the unit operations will be covered in detail for dry and wet milling (wheat/corn/sorghum), masa manufacturing, oilseed processing, rice milling, and packaging systems. A term project, which will include an applied research component will be developed by each student. Three hours of lecture a week. Pr.: Graduate Student Standing.

GRSC 880. Advanced Processing Series: Breakfast Cereal Technology. (3) I, in odd years. The breakfast cereal industry, from product development to production to marketing, with emphasis upon biochemical factors during processing this class of cereal grain based foods. Chemical and physical changes during processing and shelf life will be covered, including protein, starch, and lipid changes. Two hours of lecture and 1 activity session per week. Rec. Pr.: GRSC 602.

GRSC 885. Advanced Processing Series: Pasta and Noodle Technology. (3) I, in even years. The alimentary pasta industry, from product development to production to marketing, with emphasis upon the changes occurring to the starch, protein, and lipids during processing of these cereal grain based foods. The unit operations involved in converting raw materials to product on the shelf will be covered, including milling, blending, forming, and drying, as well as instant pasta and noodle technology. Two hours of lecture and 1 activity session per week. Rec. Pr.: GRSC 602.

GRSC 899. Research in Grain Science. (Var.) I, II, S. Research may be used as basis for the M.S. thesis. Pr.: Consent of staff.

GRSC 900. Graduate Seminar in Grain Science. (1) I, II. Discussion of technical problems in the cereal industry. One hour lec. a week. Attendance required of all graduate students in grain science.

GRSC 901. Starch Chemistry and Technology. (2) II, in even years. Chemical and physical properties of cereal and legume starches. Isolation, structure, assay methods, and properties in solution. Methods of modifying starches for industrial use, including chemical, physical, and enzymic modification. Rec. Pr.: BIOCH 521, GRSC 602.

GRSC 902. Carbohydrates in Food. (2) II, in odd years. Structure and properties of food carbohydrates, including sugars, oligosaccharides, and polysaccharides, and methods of their modification and analysis. Rec. Pr.: CHEM 350 or BIOCH 521.

GRSC 905. Enzyme Applications. (2) I. Theories of enzyme action and function; commercial methods of manufacture and industrial uses, with special emphasis on the role of enzymes in the food industries. Two hours lec. a week. Rec. Pr.: BIOCH 521 and 522.

GRSC 906. Food Proteins. (2) II. Practical aspects of properties and functions of plant, animal and non-conventional proteins in food systems. Rec. Pr.: BIOCHEM 521 and 522.

GRSC 910. Topics in Grain Science. (Var.) I, II, S. Discussions and lectures on important areas and contributions in the field of grain science not currently covered in present courses. Pr.: Consent of instructor.

GRSC 915. Advanced Cereal Chemistry. (3) II. The chemistry of cereal components at the molecular level. The role and interactions of the various constituents, their functionality in producing an end product, and their influence on nutritional properties. Three hours lec. a week. Rec. Pr.: BIOCH 521 and 522.

GRSC 999. Research in Grain Science. (Var.) I, II, S. Research may be used as basis for Ph.D. dissertation. Pr.: Consent of staff.

For more information

For additional information and application materials please contact:
Director of Graduate Studies
Kansas State University
Department of Grain Science and Industry
201 Shellenberger Hall
Manhattan, KS 66506-2201

785-532-6161
Fax: 785-532-7010
Home Page: http://www.grains.ksu.edu

Horticulture, Forestry and Recreation Resources

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Head:
Stuart Warren

Director of graduate studies:
C. B. Rajashekar

Graduate faculty:

Charles J. Barden, Ph.D., Pennsylvania State University.

Dale J. Bremer, Ph.D., Kansas State University.

Ted T. Cable, Ph.D., Purdue University.

Edward E. Carey, Ph.D., University of Illinois.

Gregory L. Davis, Ph.D., Kansas State University.

Jack D. Fry, Ph.D., Colorado State University.

Wayne A. Geyer, Ph.D., University of Minnesota.

Jason Griffin, Ph.D., North Carolina State University.

Rhonda R. Janke, Ph.D., Cornell University.

Steven J. Keeley, Ph.D., Colorado State University.

Houchang Khatamian, Ph.D., University of Guelph.

Richard H. Mattson, Ph. D., University of Minnesota.

Sunghun Park, Ph. D., Texas A&M University.

C. B. Rajashekar, Ph.D., Colorado State University.

Candice A. Shoemaker, Ph.D., Michigan State University.

Kimberly A. Williams, Ph.D., North Carolina State University.

Programs

The Department of Horticulture, Forestry, and Recreation Resources offers graduate programs in horticulture leading to master of science and doctor of philosophy degrees in horticulture. The department has 23 faculty involved in teaching, research, and extension, and maintains a horticulture research facility of 57 acres and a turfgrass research farm of 7 acres near the campus. In addition, the department operates an 80-acre experimental field in Wichita, an 80-acre pecan experimental field near Chetopa, and a vegetable research field of 10 acres in eastern Kansas near DeSoto. Excellent greenhouse and controlled environmental facilities of nearly 25,000 square feet are available for teaching and research. Research in basic and applied areas of horticulture is supported by modern and well equipped field and laboratory facilities. Research labs support a wide range of studies in the areas of crop production/improvement/adaptation, horticultural therapy, in vitro culture, biotechnology, plant-environment interactions, stress physiology, and molecular biology. The department is located on the east wing of Throckmorton Plant Sciences Center with new state-of-the-art research and teaching facilities.

Graduate students participate in activities of the Graduate Club, the American Horticultural Therapy Association, the American Society for Horticultural Science, and Pi Alpha Xi (national honorary in floriculture, landscape and ornamental horticulture).

Degrees

K-State offers master of science and doctor of philosophy degree programs in a diverse number of horticultural commodity and discipline areas. Specializations at masters and doctoral levels include ornamental horticulture, floriculture, turfgrass, vegetable crops, fruit crops, horticultural therapy, and horticultural disciplines including environmental stress physiology, molecular biology, tissue culture, and plant growth regulators.

The graduate faculty participate in training graduate students to excel in research, teaching, and extension activities. Independent and original research is an important part of the graduate program and forms a basis for a graduate thesis. Research can be conducted within the department or in other cooperating departments.

Requirements

Students seeking admission into the horticulture graduate program must have a degree in horticulture, botany, biology, or related agricultural science; those specializing in horticultural therapy may have degrees in horticultural therapy, plant sciences, education, medicine or social/behavioral sciences. All graduate students must have adequate background in horticulture, plant physiology, mathematics, and physical sciences.

The completed application materials should be received by February 1 (international students) or July 1 (U.S. students) for fall admission; Augurst 15 (international students) or December 1 (U.S. students) for spring admission; December 1 (international students) or May 1 (U.S. students) for summer admission. The application package must contain the following:

(1) completed Application and Information form,
(2) a statement of graduate study goals and objectives including the specific area of research interest in horticulture,
(3) undergraduate and graduate transcripts,
(4) three letters of recommendation preferably from academic or professional sources,
(5) recent Graduate Record Exam scores,
(6) Test of English as a Foreign Language scores for students whose native language is not English,
(7) Affidavit of Financial Support for international students ($18,925), and
(8) an application fee of $55.00 (U.S. currency) for international students in the form of money order or international cashier's check (no personal checks) and an application fee of $30.00 for domestic students.

Financial support

A limited number of assistantships are available to qualifying students. The assistantships are awarded based on students academic standing (GPA and GRE scores). The application for assistantships should be made before February 1 along with application materials for fall admission. Please check www.oznet.ksu.edu/dp_hfir for availability.

Horticulture courses

Undergraduate and graduate credit in minor field

HORT 508. Landscape Maintenance. (3) I. Fundamentals of maintaining ornamental plant materials such as trees, shrubs, turf, annual color, perennials, vines and roses in residential, commercial, and golf course landscapes. Two hours lec. and two hours lab a week. Rec. Pr.: HORT 201; or and HORT 374 or HORT 375.

HORT 510. Horticultural Design. (3) II. Reinforcement of the horticultural design process as applied to the use of native and introduced plant materials. Emphasis on functional and aesthetic arrangement of plants in small scale design to meet site design objectives and adaptation to microclimates. Two three-hour studio periods per week. Pr.: HORT 275 and two plant materials courses.

HORT 515. Turfgrass Management. (3) I. Turfgrass identification and adaptation; establishment and maintenance of lawn and recreational turf areas; turfgrass pests and their control. Two hours rec. and two hours lab each week. Rec. Pr.: HORT 201 and AGRON 305.

HORT 517. Golf Course Operations. (3) II. Strategies involved in golf course operation, including development of cultural practices, adherence to environment regulations, personnel management, and budgeting. Two hours lec. and two hours lab. a week. Pr.: HORT 515.

HORT 519. Turfgrass Pest Management. (3) I. Biology, diagnosis and integrated control of turfgrass diseases, insect pests, and weeds. Two hours lec. and two hours lab a week. Rec. Pr.: HORT 515 and one of the following: AGRON 330, ENTOM 320, or PLPTH 500.

HORT 520. Fruit Production. (3) II, in even years. Principles and practices of cultivating fruit and nut crops commercially and in the home grounds. Laboratory offers experiences in pomological practices. Two hours rec. and two hours lab a week. Pr.: HORT 201 or equiv. and HORT 350.

HORT 525. Horticulture for Special Populations. (3) I. An intensive study of the concepts and methods of using plants and gardening as therapeutic activities with developmentally disabled, geriatric, economically and socially disadvantaged, emotionally disturbed, or educationally deprived clients. Two hours rec. and two hours lab a week.

HORT 530. Horticultural Therapy Case Management. (1) II. Guest lecturer and student presentations of topics relating to professionalism, current issues, or goals of horticultural therapy. The course is intended to help students focus expectations and assumptions about a professional career in horticultural therapy and to give them practice in articulating their understanding of the field. Client case management is used as part of career practice. One hour rec. a week.

HORT 535. Horticultural Therapy Field Techniques. (3) I, II. Students under supervision will plan, conduct, and evaluate horticultural therapy activities at Manhattan institutional sites selected according to student's interest. A weekly discussion session addresses evaluation and issues of professionalism. Two hours rec. and two hours lab a week. Pr.: HORT 525.

HORT 540. Horticultural Therapy Field Experiences. (3 or 6) I, II, S. Supervised training at institutions with horticultural therapy programs

to gain experience in the application and use of horticultural activities for special populations. Six months (1,000) hours continuous internships required in psychiatric and correctional programs. Two 3-month (500 hours) internships may be completed at different sites. Students are required to complete 6 credits of field experience before graduation.

HORT 545. Computer Applications in Horticultural Design. (3) I. Introduction to a variety of computer software packages which students may encounter in the nursery/garden center environment. These include planning, routing, and estimating packages. One hour rec. and four hours lab per week. Pr.: HORT 510, or instructor permission.

HORT 550. Landscape Irrigation Systems. (3) I. Application of the principles and practices of landscape irrigation which involve sprinkler system installation, maintenance and scheduling, electrical troubleshooting, basic hydraulics, and drip irrigation as these topics pertain to residential and commerical landscapes and golf courses. Two hour lec. and two hours lab a week. Rec. Pr.: MATH 100; HORT 201 or BIOL 210; and AGRON 305.

HORT 551. Landscape Contracting and Construction. (3) II. The use, interpretation, and development of planting plans (including contracting, construction, and specifications) as applied to landscape horticulture. Two hours rec. and two hours lab a week. Rec. Pr.: HORT 275.

HORT 555. Landscape Irrigation Design and Contracting. (3) II. This course is intended for students with limited knowledge of irrigation design and contracting with the goal of stimulating further interest in these areas. Major topics: Design techniques and drawing presentation; plans and specifications; basic hydraulics; estimating and bidding; and the principles of good business practices. Two hours lec. and two hours lab per week. Pr.: HORT 550 or two years of irrigation experience related field work approved by the instructor.

HORT 560. Vegetable Crop Production. (3) II, in odd years. Study of production principles and cultural practices involved in the growing of vegetable crops. Two hours lec. and two hours lab or field trips a week. Pr.: HORT 201.

HORT 570. Greenhouse Operations Management. (3) I. Greenhouse systems operations and management including greenhouse layout; structures; glazing materials; heating, ventilation, irrigation, lighting, benching, growing medium handling, and fertilization systems; traffic flow; crop handling, processing and shipping. Two hours rec. and two hours lab a week. Pr.: HORT 201.

HORT 575. Nursery and Garden Center Operations. (3) II. A study of the various practices and methods of operating a commercial nursery for the production of ornamental woody plants used for landscaping purposes. Garden center layout, pricing, mark-up, inventory, plant maintenance, and financing will be discussed. Two hours rec. and three hours lab a week. Rec. Pr.: BIOL 210, HORT 350 and AGRON 305.

HORT 580. Advanced Horticultural Design. (3) II. Emphasis is on horticultural design projects with clients, working with the design process, design articulation and communication with the clients. By appointment. Pr.: HORT 510.

HORT 582. Horticultural Pest Management. (3) II. Strategies involved in horticultural pest management including types, calibration and operation of application equipment, pesticides, legal and safety issues, and non-pesticide control methods. Two hours lec. and three hours lab. a week. Rec. Pr.: HORT 201 or BIOL 210, MATH 100, and an entomology, plant pathology, or weed science course.

HORT 585. Arboriculture. (3) II. Principles and practices of maintaining shade and ornamental trees under urban environments. Two hours lec. and three hours lab a week. Rec. Pr.: HORT 201; and HORT 374 or FOR 330.

HORT 590. Horticulture Internship. (2-5) I. Principles of commercial or public horticulture activity including exposure to multiple phases of the working horticulture operation. Students will be placed according to specific interest. Required for horticulture majors after having completed 60 hours. Rec. Pr.: HORT 190, HORT 201, and one 500-level horticulture commodity course.

HORT 599. The Horticultural Professional. (0) I, II. Completion of horticulture program assessment tools. Completion of modules associated with professional development during careers in horticultural disciplines, including diversity and ethics in the workplace, job search skills, and providing leadership in the profession.

Undergraduate and graduate credit

HORT 625. Floral Crops Production and Handling. (4) II. The principles and commercial practices for producing floral crops emphasizing the physical responses of plants to their environment. Aspects of postharvest physiology are also covered. Three hours lec. and three hours lab a week. One Saturday field trip will be taken. Rec. Pr.: BIOL 500, HORT 350 and HORT 570.

HORT 640. Horticultural Problems. (Var.) I, II, S. Problems and reports in floriculture, olericulture, ornamental horticulture, pomology, turfgrass and horticultural therapy. Pr.: Consent of instructor.

HORT 706. Turfgrass Science. (3) II, in even years. Water, temperature, light, soil, and management stresses affecting turfgrass growth; cultural practices that reduce injury. Three hours lec. a week. Pr.: HORT 515.

HORT 725. Postharvest Technology and Physiology of Horticultural Crops. (3) I, in even years. A study of the principles and practices involved in the harvesting, handling and storage of horticultural products. The relationship of plant structure and physiology will be emphasized in discussing effects of postharvest handling and storage to maximize quality and shelf life of products. Three hours lec. a week. Pr.: One horticulture commodity course and BIOL 500.

HORT 751. Human Issues in Horticultural Therapy. (3) I, in odd years. New developments and applications of gardening or horticultural activities for special populations will be emphasized. Procedures for management of horticultural therapy programs, designing therapeutic or rehabilitation activities, and evaluation methods will be discussed. Reading of selected research publications relating to horticultural therapy will be assigned. Three hours rec. a week. Rec. Pr.: A course in research methods and a course in statistics.

HORT 775. Plant Nutrition and Nutrient Management. (3) II, in even years. Focuses on the macro and micronutrient elements and their function in the growth and development of plants. Emphasis will be placed on the roles of single elements, interactions/balances between elements, and nutrient deficiency/toxicity symptoms as they affect the physiology of the whole plant and management of nutrient applications. The relationships between crop nutrition and production and environmental considerations (yield, drought, temperature, pests) will be explored. This course will utilize instructional technologies which may include electronic chat rooms, satellite video, compressed video, and other technologies. Two hours lec. and two hours discussion a week. Rec. Pr.: AGRON 305 and BIOL 500.

Graduate credit

HORT 800. Horticultural Physiology. (3) II. Discussions of recent advances in horticultural crop plant physiology, including improvements in horticultural crops resulting from applications of molecular biology and biotechnology. Three hours rec. a week. Pr.: BIOL 800.

HORT 846. Plant Research Methods. (3) I. Review of history and forms of plant science literature. Discussion on selecting experimental procedures, interpreting data, and reporting results. Two hours rec. and two hours lab a week. Pr.: One statistics course or consent of instructor.

HORT 880. Topics in Horticulture. (Var.) I, II, S. Discussion and lectures of important papers and contributions in this field. Pr.: Consent of instructor.

HORT 898. Master's Report. (Var.) I, II, S. Investigations in pomology, olericulture, floriculture, ornamental horticulture, turfgrass, or horticultural therapy for preparation of master's report. Pr.: Consent of instructor.

HORT 899. Research-M.S. (Var.) I, II, S. Investigations in pomology, olericulture, floriculture, ornamental horticulture, turfgrass, or horticultural therapy for preparation of master's thesis. Pr.: Consent of instructor.

HORT 940. Plant Regulators in Horticulture. (3) I, in even years. A study of synthetic plant regulators used to initiate, induce, promote, inhibit, or alter characteristics of horticultural plants and crops. Included are kinds and types of exogenous plant regulators used on crops, their activity, plant responses, benefits and problems, and application technology. One hour lec. and two hours rec. a week. Pr.: BIOCH 510 or BIOL 500, and one graduate plant commodity course.

HORT 951. Horticulture Graduate Seminar. (1) I, II. Student presentations and discussion of investigational works in the various branches of horticulture.

HORT 960. Environmental Plant Stress. (3) I, in odd years. Physiological, biochemical and morphological factors involved in stress development and resistance will be discussed. Pr.: BIOL 800.

HORT 970. Topics in Horticultural Therapy. (V) I, II, S. Discussion and lectures on important papers and contributions in horticultural therapy. Pr.: Permission of instructor.

HORT 999. Research in Horticulture, Ph.D. (Var.) I, II, S. Investigations in pomology, olericulture, floriculture, ornamental horticulture, and turfgrass. Data collected may form basis for a thesis or dissertation. Pr.: Consent of instructor.

Forestry courses

Undergraduate and graduate credit in minor field

FOR 510. Forestry for Park Managers. (3) I. Principles and practices of managing forest resources in the park setting. Special emphasis will be given to tree management in high use areas such as parks where human visitors present special problems for tree survival and development. Two hours lec. and two hours lab a week. Rec. Pr.: BIOL 210, FOR 330, and FOR 340.

FOR 520. Urban Forest Administration. (3) II. This course is a study of urban and community forest administration. It considers the urban forest ecosystem involving an in-depth look at ownerships. composition, distribution, benefits, values, and administrative operation. The policies and politics of successful administration will be emphasized. Three hours lec. a week. Pr.: FOR 510.

Undergraduate and graduate credit

FOR 641. Forestry Problems. (1-3) I, II, S. Work is offered in various fields of forestry. Pr.: Consent of instructor.

FOR 643. Agroforestry Systems. (2) II. Study of the woody and non-woody components of the land use management systems used in much of the world. Topics will include international agriculture and forestry covering the interaction of crops, livestock, and woody plants. The agroforestry concept, classification of systems, practices used worldwide, and the contribution of agroforestry to local economies of lesser developed countries will be examined. Two hours lec. a week. Field trip required. Rec. Pr.: BIOL 201 or BIOL 210 or HORT 201.

Recreation resources courses

Undergraduate and graduate credit in minor field

RRES 520. Research Methods in Parks and Recreation. (3) I. A study of basic research techniques and the application of specific methodologies in the analyses of recreation and park problems. Three hours lec. per week. Pr.: STAT 330 or 340.

RRES 575. Management of Water Resources for Leisure. (3) II. A study of the management of water resources for leisure time uses. The course investigates the use of rivers, lakes, reservoirs, and marine resources. Management considerations, including agency policy formation, legal rights, use conflicts, and use valuation are covered.

RRES 590. Park and Facilities Maintenance. (1) I. Planning, execution, budgeting and supervision of maintenance operations for public and private recreation agencies. Two hours lab a week. Pr.: Junior standing.

Undergraduate and graduate credit

RRES 635. Methods of Environmental Interpretation. (3) II. This course focuses on principles and techniques necessary to communicate environmental and cultural values to visitors in park areas. The philosophy, theory, design, and application of interpretive media to communicate information about the environment is studied. Two hours rec. and three hours lab a week. Field trips required. Rec. Pr.: RRES 210 and 310.

RRES 640. Advanced Environmental Interpretation. (3) II. This course builds on the principles and interpretive techniques which are introduced in RRES 635. Specifically, labs emphasize development of personal interpretive skills and students are introduced to interpretive media not covered in RRES 635 (e.g., video equipment, computers, etc.). The lecture and readings focus on the philosophy of interpretation and the theoretical framework for designing and evaluating interpretive strategies. One hour lec. and four hours lab a week. Field trips required. Pr.: RRES 635.

RRES 690. Parks and Recreation Administration. (4) II. This course will introduce students to the use of specific practices to effectively manage a contemporary leisure service enterprise. Special emphasis is placed on financial management, human resource management, policy development, risk management and general administrative operations. Four hours lec. a week. Pr.: Junior standing or instructor permission.

RRES 705. Parks and Recreation Theory and Policy. (3) I, II. On sufficient demand. An analysis of the values, principles, theories, and processes of public policy development as it applies to the park and recreation profession. Three hours lec. a week. Pr.: RRES 489.

RRES 799. Problems in Parks and Recreation. (Var. 1-3) I, II, S. A special investigation of a problem in parks and recreation normally requiring a combination of experiential work, research, and writing. Pr.: RRES 520 or 590.

For more information

For additional information and application materials please contact:
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History

Overview | Degrees | Admission | Financial support | History courses | More information

Department Chair:
Sue Zschoche

Director of graduate studies:
Michael Ramsay

Graduate faculty:

Louise Breen, Ph.D., University of Connecticut.

Marsha L. Frey, Ph.D., Ohio State University.

David A. Graff, Ph.D., Princeton University.

Albert N. Hamscher, Ph.D., Emory University.

Derek S. Hoff, Ph.D., University of Virginia.

Michael Krysko, Ph.D., Stony Brook University.

Robert D. Linder, Ph.D., University of Iowa.

Bonnie Lynn-Sherow, Ph.D., Northwestern.

Brent E. Maner, Ph.D., University of Illinois at Urbana-Champaign.

Heather L. McCrea, Ph.D., SUNY-Stony Brook.

John M. McCulloh, Ph.D., University of California-Berkeley.

Donald J. Mrozek, Ph.D., Rutgers University,

Mark P. Parillo, Ph.D., Ohio State University.

Michael A. Ramsay, Ph.D., Queen's University.

Charles Sanders, Ph.D., Kansas State University

James E. Sherow, Ph.D., University of Colorado.

David Stone, Ph.D., Yale University.

Lou Falkner Williams Ph.D., University of Florida.

Sue Zschoche, Ph.D., University of Kansas.

Overview

The Department of History offers well-prepared students an exceptional opportunity to work closely with an unusually productive and well regarded faculty. The department aims to help students find and develop their talents fully and to establish themselves as independent scholars, teachers, and other historical professionals.

The department offers programs of study leading to the master of arts and doctor of philosophy degrees in selected traditional and innovative fields. In addition to various American and European fields and modern South Asia, the department's strengths include areas such as social and cultural history, religious history, history of sport, the American West, and twentieth-century United States history. An area of particular emphasis at Kansas State University is military history.

The university's Hale Library has a number of large, specialized collections. In addition, nearby are several excellent research facilities: the Eisenhower Presidential Library in Abilene, with outstanding holdings relating to the Eisenhower administration and recent military history; the Kansas State Historical Archives in Topeka; the Truman Presidential Library in Independence, Missouri, with valuable collections on the Truman administration, the history of the American presidency, and foreign policy; the Linda Hall Library, in Kansas City, Missouri, emphasizing materials pertaining to science and the history of science; and the regional Federal Records Center in Kansas City, currently rich in military and civilian records and eventually to have a microfilm duplication of the main holdings of the National Archives in Washington.

The history department encourages its students to engage in broad professional activities. Many students publish in historical journals, present

papers at conferences, and speak to off-campus groups while completing their degrees. The history department also has an active internship program. Graduate students can gain valuable "hands-on" experience in institutions such as the Riley County Historical Museum, the Fort Riley Cavalry Museum, the Kansas State Historical Society, and the Dwight D. Eisenhower Library.

Graduate degrees in history have traditionally led to positions in higher education, and students earning the Ph.D. at Kansas State University have effective preparation for careers as teachers and scholars. But a high percentage of history graduate degree holders also enter archival or museum work, historical publishing, governmental official history programs, historical research for private businesses, and professional service as military officers. The history faculty regards such non-traditional careers as legitimate first choices for its students and works with the students to define programs that accommodate these varied objectives.

Degrees

The master of arts requires a minimum of 30 hours beyond the baccalaureate degree, and the program offers three options: 24 hours of course work plus a thesis (6 research hours); 28 hours of course work plus a report (2 research hours); or 30 hours of course work. All candidates for the M.A. must take a course in historiography. Those who write a thesis or report must take two seminars or topics courses and pass an oral or written final examination that centers on the student's research. Those who take the nonthesis, nonreport degree must take three seminars or topics courses and pass a written final examination over their coursework.

The doctor of philosophy requires completing 30 hours of course work beyond the master's, satisfying the language requirement, passing the qualifying examination, and writing a sound dissertation based on original historical research that is approved by the student's committee. The qualifying examination includes separate examinations in a geographically and chronologically defined general field (medieval, early modern, or modern Europe; United States; or modern South Asia) and three special fields, one of which must offer a mode of understanding that is significantly different from the dissertation field or be from outside history.

To satisfy the language requirement for the Ph.D., the student must demonstrate either a reading, writing, and speaking knowledge of one foreign language at the "intermediate-mid" level or a reading knowledge of one foreign language at the "advanced-plus" level as these terms are defined in the American Council of Teachers of Foreign Language guidelines. All Ph.D. students must complete the foreign language requirement prior to the taking of the qualifying examination. Students whose specializations in history require skills in more than one foreign language may be required by their supervisory committees to demonstrate such proficiency.

Admission

Applicants to graduate programs at Kansas State University must submit an application for admission and provide official copies of transcripts of record from each college or university attended. In addition all applicants to the programs in history must complete a statement of purpose and a supplementary information form and provide three letters of academic reference. Applicants should also submit scores from the Graduate Record Examination general test (the advanced test in history is not required) or the Miller Analogies Test.

International students must provide evidence of financial support as required by the Graduate School, and those whose native language is not English must present a score of 600 or better on the Test of English as Foreign Language for admission.

Financial support

Outstanding graduate students in history qualify for fellowships granted by the Graduate School, and some students may be appointed to graduate research assistantships funded by the University or by money from external grants.

The Department of History also offers graduate teaching assistantships to qualified students on a competitive basis. For 2000-2001 the stipend for graduate students holding GTA positions was $7,560 for nine months. GTAs also receive a full fee waiver. Beginning GTAs work as graders or discussion leaders, and experienced assistants are frequently assigned independent sections of survey courses. Prospective students wishing to be considered for graduate teaching assistantships must complete their applications for admission by January 15.

Prospective students may apply simultaneously for admission to the graduate program and for a GTA. Anyone wishing to be considered for an assistantship should indicate in the blank provided on the supplementary information form, no additional application form is required.

Continuing students who do not already hold a GTA must write to the department head or the director of graduate studies as the head's representative to apply for an assistantship, and they must present a letter of recommendation from a member of the faculty, who is normally the student's major professor. These applicants are reviewed on the basis of their entire record, which includes all of the materials supplied for admission plus their grades and other evidence of their performance in our program, including the required letter of recommendation.

Students who hold an assistantship and seek to have it renewed for another year are likewise expected to apply for consideration, providing a letter of recommendation from the major professor and, for those who have assisted a faculty member, a letter from the supervising instructor. GTAs seeking renewal of their appointment must also present a copy of an application for a fellowship or grant, which they have filed with some external funding agency.

All applications are reviewed by the graduate admissions and awards committee. The committee considers first the requests for renewal. Master's students may hold an assistantship for a maximum of two years and doctoral students for a maximum of three years, and students who finish an M.A. here and proceed to the Ph.D. program may qualify for a maximum total of four years. To merit renewal, the holders of assistantships are

expected to demonstrate satisfactory performance of their duties as GTA and satisfactory progress toward their degrees.

History courses

Undergraduate and graduate credit in minor field

HIST 502. Off-Campus American Studies. (2-3) Summer session or intersession only. Short-term, intensive, and in-depth study of selected topics in American history that will supplement readings, lectures, discussions and other traditional classroom assignments with on-location activities. Pr.: Instructor permission.

HIST 503. Historical Study in International Setting. (2-3) Summer session or intersession only. Course work that enhances the experience of international travel and study. Requires an historical engagement with the travel experience through readings, lectures, discussion, and written work. Pr.: Instructor permission.

HIST 504. Intellectual History of Early China. (3) In alternate years. Introduction to the development of Chinese thought during the period from about 1200 BC to 100 BC, with emphasis on the foundational ideas of Confucianism, Daoism, and Legalism and their incorporation within the emerging imperial order. Pr.: Sophomore standing.

HIST 505. South Asian Civilizations. (3) I, in even years. Interdisciplinary survey of the development of civilization in India, Pakistan, Sri Lanka, Bangladesh, Nepal, Bhutan, and Afghanistan, including geography, philosophy, social, economic, political institutions, and historical movements. Pr.: 3 hours of Social Science or junior standing. Same as GEOG 505, ECON 505, POLSC 505, SOCIO 505, ANTH 505.

HIST 506. Modern India and South Asia. (3) The history of India, Pakistan, and Bangladesh since 1500, beginning with Mogul rule adn continuing through European colonialism, the anti-imperial struggle, and the troubled transition to independence.

HIST 507. China Since 1644. (3) I, in even years. China from the founding of the Manchu Qing dynasty to the present. Includes the western imperialist challenge in the nineteenth century, the Revolution of 1949, and the post-Mao Reforms. Emphasis on social, political and intellectual changes in the context of increasing contact with western nations and Japan. Pr.: Sophomore standing.

HIST 508. Introduction to Modern East Asia. (3) In alternate years. The history of China, Japan, and surrounding countries including the arrival of Europeans in the sixteenth century, reactions to Western imperialism, the rise of nationalism, and revolution. The impact of the two world wars, the era of post war developments, communism in China, democracy in Japan, and the end of Western colonialism are also examined. Pr.: Sophomore standing.

HIST 509. Japan Since 1550. (3) I, in alternate years. Japan from reunification in the sixteenth century through the Tokugawa and Imperial eras to the postwar recovery. Emphasis on understanding modern Japan as the product of traditional culture, the Meiji Restoration, and World War II. Pr.: Sophomore standing.

HIST 510. World War I. (3) I, in alternate years. Examines the origins, events and consequences of the "war to end all wars." The impact and influence of the war on colonialism, imperialism, and popular culture will be discussed. Pr.: Sophomore standing.

HIST 511. Environmental History. (3) I, in alternate years. An introduction to environmental history as an academic specialization through selected reading and topical lectures. The course emphasizes the study of people in nature through time; it stresses people's response to environmental change through three broadly defined periods: pre-industrial, modern industrial, and contemporary. Pr.: Sophomore standing.

HIST 512. Women in European History. (3) I, in alternate years. A study of women in primitive European societies, in preindustrial times, and in the industrial era. Emphasis will be upon the position and role of women within the society. Pr.: Sophomore standing.

HIST 513. Battles and Leaders. (3) I, in alternate years. The course will emphasize military organization, tactics and strategy, generalship and grand strategy, manpower and logistics, and the wartime ramifications of war on land, at sea, and in the air. Pr.: Sophomore standing.

HIST 514. World War II. (3) I, in alternate years. Origins, conduct, and consequence of World War II. Films from the TV series "The World at War" form an integral part of the course. Pr.: Sophomore standing.

HIST 515. History of Sport. (3) In alternate years. The historical development of sport (especially in Europe and North America) including the growth of competition, the rise of mass spectator sports, elitism, and the changing function of sport. History of sport as business and history of the relationship between sport and other institutions. Same as PE 515. Pr.: Sophomore standing.

HIST 516. History of Science I. (3) I, in alternate years. Scientific activity and thought from antiquity to the end of the sixteenth century, with emphasis on Greek, late medieval, and Renaissance science. No background in science required. Pr.: Sophomore standing.

HIST 517. History of Science II. (3) II, in alternate years. Science in the seventeenth and eighteenth centuries, with emphasis on Galileo, Newton, philosophies of science, scientific societies, and developments in the physical, biological, and earth sciences, including the relations of science with technology, medicine, religion, exploration, and the enlightenment. No background in science required. Pr.: Sophomore standing.

HIST 518. Science in the Modern Age. (3) I, in alternate years. Science since the eighteenth century, including major developments in the physical, biological, and earth sciences, and the relations of science to scientific societies, technology, medicine, exploration, religion, and archaeology. No background in science required. Pr.: Sophomore standing.

HIST 519. Science in America. (3) I, in alternate years. A survey of American science from the colonial era to the present, with special attention to the historical context and the role of institutions and government. Some attention to the social problems faced by scientists and their responses to them. Pr.: Sophomore standing.

HIST 520. Death and Dying in History. (3) I, II, in alternate years. Examines European and American attitudes toward death and dying in various historical periods. Topics include: death and dying in the European Middle Ages and in nineteenth and twentieth century America, the impact of the Nazi Holocaust on modern opinions about death, suicide as a historical problem, the fear of cancer in modern times, and others. Pr.: Sophomore standing.

HIST 521. History of Christianity. (3) I, in alternate years. A history of the Christian religion from the era of Jesus Christ to the present with special emphasis on people and ideas. Pr.: Sophomore standing.

HIST 522. Religion in American History. (3) II, in alternate years. A study of the impact of religion on American culture and of American culture on religion, the Social Gospel and related issues, and the interrelationship of Christianity and politics. Pr.: Sophomore standing.

HIST 523. A History of the Occult and Witchcraft. (3) In alternate years. A study of the history of the occult and witchcraft in Western civilization with special attention to religious, intellectual, and social issues and influences. Pr.: Sophomore standing.

HIST 524. The History of Baseball in American Culture. (3) In alternate years. The history of baseball from its origins in the early nineteenth century to the present, with emphasis on the major leagues and their collateral organizations but also with attention to semi-pro and amateur baseball and to the old Negro Leagues. The history of the game will be examined in the context of American history with special reference to social issues, politics, religion, literature, music, and the medial. Pr.: Sophomore standing.

HIST 525. Colonial America. (3) In alternate years. About 1450 to 1763. Includes the European background of North American colonization, the rivalry for new world empire, seventeenth century English colonial foundations, and development of the various colonial societies. Pr.: Sophomore standing.

HIST 526. The American Revolution. (3) In alternate years. Eighteenth century colonial background of the Revolution and the revolutionary era itself, 1763-1789. Stresses ideological and other causes of the Revolution, the course of the war, its social results, the Confederation and its demise. Pr.: Sophomore standing.

HIST 527. The Early National Period. (3) In alternate years. Foundations of the new nation from the adoption of the Constitution to the conclusion of the War of 1812, approximately 1789-1815. Stresses the contest between Hamiltonians and Jeffersonians for philosophical dominance of institutions; other topics include diplomacy, westward expansion, military developments, the social and intellectual life of the era. Pr.: Sophomore standing.

HIST 528. America in the Age of Jackson. (3) In alternate years. A survey of the Age of Jackson, opening with Jackson's election as America's seventh president in 1828 and closing in 1850 as the tumultuous debates over the expansion of slavery tear the country apart. Pr.: Sophomore standing.

HIST 529. Civil War and Reconstruction. (3) I, in alternate years. 1848-1877. Examination of the sectional controversy, the failure of the political system to resolve peacefully the conflict between North and South, the resort to arms, the nature of the post-war settlement. Emphasis is on the attempt of mid-nineteenth-century American leaders to deal with the complex problems of slavery and race. Pr.: Sophomore standing.

HIST 530. United States in the 19th Century. (3) In alternate years. Explores the history of the United States during the 19th century and traces the transition of the country from a fragile, uncertain republic to a robust imperial power standing in the first rank of the world's nations. Pr.: Sophomore standing.

HIST 531. The United States in the Twentieth Century. (3) in alternate years. Examines the creation of modern America, 1890 to the present. Emphasis on the social and cultural roots, and political consequences, of Progressivism, World War I, the Great Depression, World War II, the Sixties, and Post-Vietnam America. Pr.: Sophomore standing.

HIST 532. History of American Criminology and Penology. (3) II, in alternate years. The course traces the history of American criminology and penology from colonial times to the present, including the origins of criminology in the Enlightenment, the rise of the penitentiary, nineteenth- and twentieth-century prison reform, the invention of juvenile delinquency, the evolution of criminology from the classical and positive schools to the present, the rise and fall of the medical treatment model for criminals, crime and punishment of women and minorities, the relationship between prisons and schools as institutions of social control, and the debate over capital punishment in America. Pr.: Sophomore standing.

HIST 533. Topics in the History of the Americas. (1-3) In alternate years. Provides instructor and students the opportunity to investigate in detail a particular theme, event, or problem in the history of North, Central, or South America. Topics vary. May be repeated for credit. Pr.: Sophomore standing.

HIST 534. Social History of Medicine. (3) In alternate years. An exploration of the development of American social thought and practices regarding health care from colonial times to the present. The course stresses changing cultural attitudes toward disease as well as alterations in social practices and institutions related to healing. Special emphasis is given to the insitutional development and professionalization of modern medicine. Pr.: Sophomore standing.

HIST 535. Science and Religion in America. (3) II, in alternate years. Explores the interaction between scientific thought and religious belief in

America from colonial times to the present. Major topics considered include the European background to the American experience; the Puritan outlook on scientific thought in the colonial period; the American enlightenment and revival experience; the reception of evolutionary thought and the rise of social Darwinism; the impact of social science and the social gospel; the relationship between science and fundamentalism in the twentieth century; and the new physics and new cosmology. Pr.: Sophomore standing.

HIST 536. The American West. (3) I, in alternate years. Primary emphasis on the nineteenth century when Americans were rapidly spreading across the continent. Also examines the earlier developments of the frontier and considers the twentieth century role of the trans-Mississippi region. Pr.: Sophomore standing.

HIST 537. History of the Indians of North America. (3) In alternate years. A discussion of Indian-white relations from 1492 to the present. Special emphasis given to federal government policy and the cultural decline of the native people of North America. Also includes an examination of Indian reservations and urban Indians.

HIST 539. African-American History. (3) In alternate years. An overview of the African-American experience from the seventeenth century through the civil rights movement. Emphasizes social, legal, economic, political, and intellectual aspects of black history as well African-American contributions to American life and culture. Pr.: Sophomore standing.

HIST 540. Women in America, 1600 to the Civil War. (3) II, in alternate years. An overview of the history of American women from the beginning of the European colonization to the Civil War. Women's changing social role and its relation to the major transformations in American culture and society during this period is stressed. Special emphasis is given to ethnic, racial, and class variations among women. Pr.: Sophomore standing.

HIST 542. Women in America, Civil War to the Present. (3) II, in alternate years. An overview of the history of American women from the end of the Civil War to the present. Examines women's changing role in modern industrial society with special emphasis upon the women's rights movement of both the nineteenth and twentieth centuries. Pr.: Sophomore standing.

HIST 543. The United States and World Affairs, 1776-Present. (3) I, in alternate years. History of U.S. foreign policy since 1776. Stresses the continuity and intellectual foundations of foreign policy. Emphasizes territorial and foreign commercial expansion and America's response to war and revolution in the twentieth century. Pr.: Sophomore standing.

HIST 545. War in the Twentieth Century. (3) In alternate years. Considers the military theory and practice, the technology, and the political and ideological constraints of World Wars I and II, the Spanish Civil War, the Korean War, and the Indo-chinese wars. Students are to gain an understanding of the varieties of military experience in the twentieth century, including civil wars, "total war,"and guerrilla warfare. Pr.: Sophomore standing.

HIST 546. History of American Military Affairs. (3) In alternate years. Deals with the development of military institutions in colonial America and the United States, civil-military relations and conflicts between political constraints and strategic demands, popular attitudes toward the military, and the rise of the military-industrial complex. Pr.: Sophomore standing.

HIST 551. History of Family Violence. (3) Intersession only. Explores the history of family violence in America as a social, cultural, legal, and public policy issue from colonial times to the present. Stress is placed upon the cultural roots and evolution of domestic law. The development of state-controlled social welfare agencies as well as the emergence of the "battered women's movement" is particularly emphasized. Pr.: Sophomore standing.

HIST 553. History of American Culture. (3) II, in alternate years. Main emphasis is on political, religious, and social thought and ideology, 1620 to present. Pr.: Sophomore standing.

HIST 554. History of the South. (3) II, in alternate years. Topical analysis of important issues in Southern history. Compares the plantation myth of popular films with interpretations by important historians. Emphasis on plantation agriculture, slavery, race relations, class, and gender in the Old South. Post-Civil War topics include federal Reconstruction efforts, segretation, economic reform, and the modern Civil Rights movement. Pr.: Sophomore standing.

HIST 555. American Constitutional History. (3) II, in alternate years. Survey of constitutional and legal development from colonial times to the present. English constitutional ideas and the common law in the American colonies, formation of the Constitution, the role of the Supreme Court, development of the modern American legal system, growth of the legal profession, the problem of civil liberties. The course offers insight into the relationship of constitutional-legal institutions to American society. Pr.: Sophomore standing.

HIST 556. Bill of Rights in American History. (3) This course provides a topical survey of the American Bill of Rights from the colonial era to the present. It begins with the origins of American rights in England and colonial America. An analysis of the need for a Bill of Rights at the founding and Supreme Court interpretations in 1835 and during the Reconstruction era follow. The bulk of the course is concerned with the nationalization and expansion of the Bill of Rights in the twentieth century and its meaning in the everyday lives of American citizens.

HIST 557. History of American Agriculture. (3) In alternate years. Concentrates on the period since 1850 in an attempt to acquaint the student with the political and economic history of American agriculture. No attempt will be made to present the scientific or technological side of agriculture in detail, but agriculture will be shown in relation to the life of the entire United States. The life of the farmer and his family, the relationship between agricultural changes and other parts of the economy will be part of this course. Special attention will be paid to agriculture in Kansas and the Great Plains. Pr.: Sophomore standing.

HIST 558. History of Kansas. (3) I, II. Land, people, and cultural developments in Kansas, from the earliest written records to the present. Provides the student with an intimate understanding of the state of Kansas. Pr.: Sophomore standing.

HIST 560. Latin American Nations. (3) In alternate years. Survey of economic, social, and political developments of the Latin American nations from independence to the present decade with emphasis on Argentina, Brazil, Peru, Chile, and Mexico. Stresses reform and revolution of the last 50 years. Pr.: Sophomore standing.

HIST 561. Colonial Hispanic America. (3) In alternate years. Iberian and indigenous American background, exploration, conquest, settlement, and development of Latin America. Stresses growth of mestizo culture, colonial styles of living, and wars of independence. Pr.: Sophomore standing.

HIST 562. Modern Mexico. (3) In alternate years. Brief survey of lines of national development, 1821-1910, and major emphasis on the twentieth-century revolution and its reforms (1910-1940) as well as its subsequent implications. Pr.: Sophomore standing.

HIST 563. Topics in Comparative History. (1-3) In alternate years. Investigation in detail of a particular theme, event, or problem in comparative history. Topics vary. May be repeated once for credit. Pr.: Sophomore standing.

HIST 565. History and Culture of Greece. (3) In alternate years. The rise of civilization in the ancient Near East, the migrations of the Greeks and the Heroic Age, the Greek city-states, commerce and colonization, the Persian invasion, Athens' leadership of Greece, the war between Athens and Sparta, Alexander the Great, and the total Hellenic achievement. Pr.: Sophomore standing.

HIST 566. History and Culture of Rome. (3) In alternate years. Examines the various theories of Rome's origin, the causes, problems, and influences upon the republican government, political and economic problems of Roman expansion, and the Roman world. Various reforms including those of the Gracchi, Caesar, and Augustus. Contact with Greece and the older areas of civilization. The Roman imperial system, the many causes of Rome's fall, and Rome's role as a synthesizer of the ancient classical culture. Pr.: Sophomore standing.

HIST 567. Europe in the Middle Ages. (3) In alternate years. Europe from the fall of the Roman Empire to the thirteenth century. Investigates the conflict and interaction of Roman, Christian, and Germanic ideals and attitudes in the early Middle Ages, and the increasing complexity and sophistication of society, culture, religion, and government of the high Middle Ages. Pr.: Sophomore standing.

HIST 568. The Renaissance. (3) In alternate years. The Italian Renaissance as a major phase in the history of Western civilization and its spread to northern Europe. Pr.: Sophomore standing.

HIST 569. The Reformation. (3) In alternate years. A study of the Protestant, Catholic, and Radical Reformations with special attention to Luther, Calvin, the origins of the Church of England and the Presbyterian Church, the Anabaptists, the Puritans, and Roman Catholic Reform, and the impact of religious developments on the politic al, economic, social, and intellectual history of the Western world. Covers the period from approximately 1500 to 1660. Pr.: Sophomore standing.

HIST 570. Europe in the Seventeenth Century. (3) I, in alternate years. Surveys the economic, social, political and intellectual history of western Europe in the seventeenth century, a period marked by economic depression, international conflict, and domestic revolutions as well as by cultural achievement. Emphasizes the complex interaction among social groups; the rise of a European state system; the development of constitutional monarchy in England and absolute monarchy in France; and the change in values generated by the scientific revolution. Pr.: Sophomore standing.

HIST 571. Revolutionary Europe. (3) In alternate years. Europe from the death of Louis XIV in 1715 to the fall of Napoleon in 1815. The origins and development of the French Revolution and the Napoleonic legacy, also examines reform and counter-revolutionary movements in England, Italy, Russia, Poland, and the Germanies. Pr.: Sophomore standing.

HIST 572. Nineteenth Century Europe. (3) In alternate years. The history of Europe from the French Revolution to the end of the first World War. Major topics covered will include the rise of conservatism as an ideology and its application in practice, the nature of liberalism and socialism, the impact of science and technology, the origins and course of World War I. Pr.: Sophomore standing.

HIST 573. Twentieth Century Europe. (3) In alternate years. Examines the political, social, and intellectual developments of Europe in the period of the two world wars. Emphasis on the failure of democracy and the rise of competing antidemocratic and nondemocratic mass movements and ideologies. The course will also deal with the attempted system of collective security, its failure, and the origins and course of World War II. Pr.: Sophomore standing.

HIST 574. Europe since World War II. (3) In alternate years. Postwar European society, politics, economy, and culture. The effects of total war on the population; restoration and reconstruction. The influence of the U.S. and U.S.S.R. on Europe. Capitalism, socialism, and communism in technological society. European unity movements and their conflicts with traditional values.

HIST 576. European International Relations to 1815. (3) In alternate years. The nature, evolution, and function of the diplomatic system for the Ancient World to 1815. Analyzes the Greek and Roman diplomatic tradition, international relations during the Medieval, Renaissance, and Early Modern periods, and the works of various theorists. Sophomore standing.

HIST 577. European International Relations Since 1815. (3) II, in alternate years. The nature, evolution, and functions of the European diplomatic system from 1815 to the present. Focuses on the Vienna settlement, the Eastern Question, the Crimean War, Italian and German unification, origins of World War I, international developments between the two world wars, the cold war, and the post-cold war era. Includes

analysis of major theorists. Sophomore standing.

HIST 578. Central Europe, 1500-1914. (3) In alternate years. The diplomatic, military, political, cultural, and social aspects of the Hapsburg empire in Central Europe from its foundation to its dissolution in the twentieth century. Pr.: Sophomore standing.

HIST 579. The British Isles to 1603. (3) In alternate years. English, Scottish, and Irish culture in the medieval and pre-modern periods. Early folk societies, feudalism, the church in society and politics, the origins of representative institutions and the religious reformations are studied topically. Pr.: Sophomore standing.

HIST 580. The British Isles Since 1603. (3) In alternate years. English society and politics in modern times with reference also to Scotland and Ireland. Emphasis on topics such as the three orders of society (king, lords, and commons), the churches and religion, the appearance of parliamentary sovereignty, the industrial revolution, and the extension of democratic institutions. Pr.: Sophomore standing.

HIST 582. Eastern Europe Since 1914. (3). The growth of nationalism, the formation of nation-states after World War I, the devastation of World War II, the establishment of Soviet rule, the dramatic revolutions of 1989, and Yugoslavia's ethnic wars. Pr.: Sophomore standing.

HIST 583. History of France, 1400-1715. (3) In alternate years. France from the conclusion of the Hundred Years War to the death of Louis XIV. French economy, society, and royal administration, and the changes generated in these areas by significant events: the Reformation and the Wars of Religion; the rise of France to world power; peasant uprisings and constitutional crisis; and the reforms of Richelieu, Colbert, and Louis XIV. Trends in art, architecture, and philosophy. Pr.: Sophomore standing.

HIST 584. History of France since 1715. (3) In alternate years. France from the death of Louis XIV to the present. The impact of the French Revolution and the Napoleonic system on the agrarian economy and aristocratic society of the eighteenth century; the evolution of liberalism, socialism, and colonialism; the development of parliamentary democracy and the impact of the Industrial Revolution; the French response to the devastation of World War I, the humiliation of World War II, and the colonial wars of the De Gaulle era. Pr.: Sophomore standing.

HIST 585. Medieval Religion and Politics. (3) In alternate years. The interrelationship of religion and politics from the late Roman Empire to the Conciliar Epoch. Christianity in the Roman Empire and the barbarian kingdoms, the development of royal theocracy, the rise of the papacy, the conflict of church and state, the secularization of government, the Avignon papacy, the Great Schism, and conciliarism. Pr.: Sophomore standing.

HIST 586. Junior Seminar. (3) I, II. An undergraduate seminar that focuses on the intellectual principles of the historical discipline as well as the fundamental research techniques and writing skills used by historians. Each section of the Junior Seminar will center on a particular topic or historical problem. The students will prepare a research paper on a relevant subject of their choice. All history majors must take this seminar to complete the requirements for their degree.

HIST 587. Nineteenth-Century Imperial Germany. (3) In alternate years. Central Europe in the French Revolutionary era, the revolutions of 1848, German unification, imperial Germany, emphasizing social changes, especially the transition from agrarian to industrial society. Pr.: Sophomore standing.

HIST 588. Rise and Fall of Nazi Germany. (3) In alternate years. Examines the political, social, economic, and intellectual developments in Germany from World War I to the end of World War II. The establishment of the Weimar republic, the nature of its democratic system, the flourishing of cultural activities and the attack on democratic theory and practice leading to the establishment of a totalitarian dictatorship. National Socialism and its leader and alternative interpretations of National Socialism. Pr.: Sophomore standing.

HIST 591. The Russian Empire. (3) I, in alternate years. Imperial Russia from the earliest Slavic tribes through 1881, with emphasis on Russia's heritage as a multi-ethnic state and the phenomenon of Russia's revolutional intellectuals. Pr.: Sophomore standing.

HIST 592. Twentieth Century Russia. (3) II, in alternate years. The turbulent history of modern Russia, including the upheaval of the Russian Revolution and Civil War, Stalin's transformation of Soviet society, World War II, failed attempts to transform the Soviet system, and the fall of the Soviet Union. Pr.: Sophomore standing.

HIST 593. The Vietnam War. (3) In alternate years. This course examines the origins, actions, and consequences of the Indochina wars fought by the French, Japanese, and Americans during the last century. Particular emphasis is placed on America's experience in Southeast Asia. Videos from the PBS series, "Vietnam: A Television History," are used in the course. Pr.: Sophomore standing.

HIST 596. Holocaust: The Destruction of the European Jews. (3) I, in alternate years. Analysis of the attempts by the National Socialist government of Germany to exterminate the Jewish population of Europe. Major issues discussed will include: nineteenth-century antidemocratic and antisemitic movements; Hitler's concept of antisemitism and personal sources of Hitler's genocidal policy; evolution of the genocidal policy and its implementation; Jewish resistance and collaboration; long-range consequences of the Holocaust. Pr.: Sophomore standing.

HIST 597. Topics in European History. (1-3) In alternate years. Provides instructor and students the opportunity to investigate in detail a particular theme, event, or problem in European history. Topics vary. May be repeated for credit. Pr.: Sophomore standing.

HIST 598. Topics in Non-Western History. (1-3) On sufficient demand. Provides instructor and students the opportunity to investigate in detail a particular theme, event, or problem in non-Western history. Topics vary. May be repeated for credit. Pr.: Sophomore standing.

Undergraduate and graduate credit

HIST 650. Internship in History. (3) I, II, S. Practical professional experience involving at least three weeks in an archive, museum, historical library, or business. Student projects must be approved in advance and a report submitted at the end of the work period. May be repeated once for credit. Pr.: Junior standing.

HIST 703. Overseas European Studies. (2-3) Intersession only, in alternate years. Short-term, intensive, and in-depth study of various aspects of European history and culture with readings, lectures, discussions, and on-the-spot experiences which will relate historical events to the places visited. Pr.: Senior or graduate standing.

HIST 798. Readings in History. (1-3) Students will read on a central theme, attend weekly discussions, and write a final report.

HIST 799. Problems in History. (Var.) Intensive study of a particular phase of history. Students will attend weekly discussions and write a major research paper on their findings.

Graduate credit

HIST 801. Historiography. (3-4) Main currents in historical research, the writing of history, and the influence of the great historians from Herodotus to the present. Required of all graduate students in history.

HIST 812. Foundations of Security Studies. (3) I, II, S. An interdisciplinary introduction to the major historical developments and scholarly approaches in the fields of military history, international relations, and security studies. Same as POLSC 812.

HIST 815. Research Design and Methodology in Security Studies. (3) II. An exploration of rigorous interdisciplinary methods in history and political science culminating in a piece of original research in security studies. Same as POLSC 815. Pr.: HIST 812/POLSC 812.

HIST 850. History and Security: East Asia. (3) II, alternate years. An examination of the major historical problems and literature relating to national and international security in East Asia. Pr.: HIST 801 or HIST 812/POLSC 812 or concurrent enrollment.

HIST 851. History and Security: Latin America. (3) II, alternate years. An examination of the major historical problems and literature relating to national and international security in Latin America. Pr.: HIST 801 or HIST 812/POLSC 812 or concurrent enrollment.

HIST 852. History and Security: the Middle East. (3) I. An examination of the major historical problems and literature relating to national and international security in the Middle East. Pr.: HIST 801 or HIST 812/POLSC 812 or concurrent enrollment.

HIST 853. History and Security: Russia/Central Asia. (3) II, alternate years. An examination of the major historical problems and literature relating to national and international security in Russian and Central Asia. Pr.: HIST 801 or HIST 812/POLSC 812 or concurrent enrollment.

HIST 911. Historical Approaches to Security. (3) I. Examination of theories and approaches to military history and the history of international relations.

HIST 912. Historical Methods in Security Studies. (3) II. Training in primary-source research in military history, foreign policy, and international relations.

HIST 899. Master's Research in History. (Var.)

HIST 901. Advanced Historiography. (1-4) Advanced work offered on demand and by arrangement, in main currents in historical research, the writing of history, and the influence of great historians.

SURVEYS
Hist 903-909: The following survey courses are intended to introduce students to the most important themes and issues in their respective fields. They aim to put the historical literature in broad context to help students prepare for teaching and for their general field exams.

HIST 903. Renaissance and Reformation Europe. (3) In alternate years. An examination of the major historical problems and literature.

HIST 904. Early Modern Europe. (3) In alternate years. An examination of the major historical problems and literature.

HIST 905. Nineteenth-Century Europe. (3) In alternate years. An examination of the major historical problems and literature.

HIST 906. Twentieth-Century Europe. (3) In alternate years. An examination of the major historical problems and literature.

HIST 907. Colonial/Revolutionary America. (3) In alternate years. An examination of the major historical problems and literature. Pr.: HIST 801 or concurrent enrollment.

HIST 908. Nineteenth-Century America. (3) In alternate years. An examination of the major historical problems and literature. Pr.: HIST 801 or concurrent enrollment.

HIST 909. Twentieth-Century America. (3) In alternate years. An examination of the major historical problems and literature. Pr.: HIST 801 or concurrent enrollment.

SEMINARS

HIST 919-979, 990-992: The following seminars are courses in which students are expected to study the primary source material for particular topics within a general area of study and to write a paper based on research using such sources. These courses are intended to develop graduate students' skills in the use of research tools and methods, ability to conceptualize and organize an argument, and facility in presenting research findings. Within the general areas listed below, these courses may focus inter alia upon political, diplomatic, social, religious, intellectual, or environmental history. Specific topics will be listed in the class schedule for the semester in which they are offered.

HIST 919. Seminar in History of Christianity. (3)

HIST 920. Seminar in American Social History. (3)

HIST 921. Seminar in Latin American History. (3)

HIST 922. Seminar in American Diplomatic History. (3)

HIST 923. Seminar in the History of the American West. (3)

HIST 924. Seminar in Colonial America. (3)

HIST 926. Seminar in American Economic History. (3)

HIST 927. Seminar in American Science and Technology. (3)

HIST 928. Seminar in American History. (3)

HIST 930. Seminar in Modern European History. (3)

HIST 931. Seminar in German History. (3)

HIST 932. Seminar in French History. (3)

HIST 933. Seminar in European Diplomatic History. (3)

HIST 935. Seminar in Modern Russian History. (3)

HIST 936. Seminar in Renaissance and Reformation. (3)

HIST 937. Seminar in British History. (3)

HIST 950. Seminar in South Asian History. (3)

HIST 979. Seminar in the History of Science. (3)

TOPICS COURSES

HIST 980-984: The following topics courses are designed through reading and discussion to acquaint students with the literature in various fields or areas of history. They are also intended to familiarize students with major substantive areas of dispute and historical debate within a field of study. Within the general areas listed below, these courses may focus inter alia upon political, diplomatic, social, religious, intellectual, or environmental history. Specific topics will be listed in the class schedule for the semester in which they are offered.

HIST 980. Topics in European History. (1-3)

HIST 981. Topics in Third World History. (1-3)

HIST 982. Topics in the History of Science. (1-3)

HIST 983. Topics in Military History. (1-3)

HIST 984. Topics in American History. (1-3)

HIST 985. Readings in History. (1-3)

HIST 986. Problems in History. (1-3)

HIST 987. Topics in History of Publishing. (3) A historical introduction and training in the central means by which historical knowledge is transmitted in written format. Pr.: Graduate standing.

HIST 990. Seminar in Military History. (3) I, alternate years. Discusses such problems as command, the military and diplomacy, the officer corps, training, and women in the military. Pr.: HIST 801 or concurrent enrollment.

HIST 991. Seminar in American Military Affairs. (3) II, alternate years. Studies the great writers of American military history and emphasizes student research into such topics as the War for American Independence, limited wars, the Civil War, the role of the President as commander in chief, and the militia. Pr.: HIST 801 or concurrent enrollement.

HIST 993. History of Military Thought. (3) II, alternate years. The History of Military Thought from Machiavelli to the Present. Pr.: HIST 801 or concurrent enrollment.

HIST 999. Ph.D. Research in History. (Var.)

For more information

For additional information please contact:
Lou Williams
Director of Graduate Studies

For application materials please contact:
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Hotel, Restaurant, Institution Management and Dietetics

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Head:
Deborah D. Canter

Graduate program director:
Deborah D. Canter

Graduate faculty:

Ki-Joon Back, Ph.D., Pennsylvania State University.

Betsy Barrett, Ph.D., Kansas State University.

Deborah D. Canter, Ph.D., University of Tennessee.

Rebecca A. Gould, Ph.D., Texas Woman's University.

Soocheong Jang Ph.D., Purdue University.

Cristian Morosan, Ph.D., Iowa State University.

Chihyung Ok, Ph.D., Kansas State University.

Carol W. Shanklin, Ph.D., University of Tennessee.

Program description

The Department of Hotel, Restaurant, Institution Management and Dietetics offers a master of science degree in Foodservice and Hospitality Management and Dietetics Administration. The department participates in the College of Human Ecology doctor of philosophy program with a specialization in foodservice and hospitality management. Graduates are prepared for management and academic careers in the hospitality industry (foodservice and lodging) and dietetics. Courses are being developed for distance delivery.

Students may focus their study on issues related to hospitality management, foodservice, lodging, and dietetics. Graduate students have diverse academic and work experience backgrounds, including foodservice management, dietetics, hotel and restaurant management, tourism business, and social sciences.

Graduate faculty and students collaborate to conduct applied research and disseminate findings through scholarly publications and presentations. Flexibility in planning the program of study allows students to meet personal and professional objectives while enhancing knowledge of the discipline. Supportive faculty and peer relationships foster an environment where students may gain the knowlege, skills, and confidence needed for leadership positions in their chosen field.

Facilities

Research opportunities are available in the K-State residence halls and Student Union, area hospitals, school foodservices, restaurants, and hotels. Graduate students are provided with work space and have access to computers in the department.

Admission

Admission to a graduate program in the Department of Hotel, Restaurant, Institution Management and Dietetics requires a bachelor's degree for the masters and a masters degree for the doctoral from an accredited institution. Regular admission requires a grade point average of 3.0 on a 4.0 scale. Prerequisite requirements include: management concepts, financial accounting, marketing, food production management, food safety, and 400 hours of industry experience. Students interested in hospitality management also will need prerequisite knowledge of hotel operations. All applicants are required to take the Graduate Record Examination or the Graduate Management Admission Test. International applicants are required to submit results from the Test of English as a Foreign Language. A TOEFL score of 570 (230 CB) is required for admission to M.S. and 600 (250 CB) to Ph.D. programs.

M.S. program

Application materials required include: application form; official transcript of all completed academic work; GRE or GMAT scores and TOEFL scores, if applicable; statement of objectives; resume; and three letters of recommendations. Application materials are reviewed by graduate faculty and recommendations forwarded to the Graduate School.

Ph.D. program

Students desiring to apply for the Ph.D. submit the above materials to:

Judy Jensen, Graduate Program Admission Coordinator
Kansas State University
Department of Hotel, Restaurant, Institution Management and Dietetics
104 Justin Hall
Manhattan, Kansas 66506-1404

The deadline for admission is February 1 for fall semester and August 1 for spring semester.

Program requirements

Master of science

Individual programs of study for the master of science degree are planned according to the background and interests of students. Students may choose one of the following plans:

30 hours of graduate credit consisting of 24 hours of graduate course work and 6 hours of research for a thesis, or 36 hours of graduate course work and a written comprehensive examination and oral defense.

Required course work for master of science

HRIMD 805	Food Production
	or
HRIMD 664	Lodging Management Theory
HRIMD 810	Research Techniques for Foodservice and Hospitality
HRIMD 885	Seminar in Foodservice and Hospitality Management
HRIMD 890	Administration of Foodservice and Hospitality Organizations
HRIMD 895	Cost Controls for Foodservice and Hospitality Management

Graduate statistics course
Minimum 3 additional hours in HRIMD

Doctor of philosophy

The Ph.D. requires a minimum of 90 semester hours of credit beyond the bachelor's degree, including dissertation research for at least 30 hours. The number of hours from a previously completed master's degree which may be counted toward the 90 hour requirement is decided upon by the student's supervisory committee and reviewed by the chair of the College of Human Ecology Coordinating Committee and the Graduate School. A maximum of 30 hours may be transferred from a completed master's degree and a maximum of 9 credit hours can be transferred from graduate work completed after the master's degree at another university. Doctoral students are required to take written and oral preliminary examinations prior to admission to candidacy.

Required course work for Ph.D.

All required courses listed for master of science

HRIMD 980	Administration of Dietetics and Hospitality Programs
HRIMD 990	Dissertation Seminar
HRIMD 995	Grantsmanship and Publication
HRIMD 999	Research in Foodservice and Hospitality Management (30 minimum)

Statistics course(s) including analysis of variance, regression, and correlation
Experimental design course
See the Human Ecology section of this catalog for further information on the Ph.D. program.

Graduate assistantships

The department offers several graduate teaching and research assistantships. The Department of Housing and Dining Services cooperates with the HRIMD department and offers several graduate assistantships for students to work as managers in residence hall foodservice.

Students are selected based on academic standing and prerequisite skills required for the assignment. Students on assistantship are required to take

a minimum of 6 and no more than 12 credit hours per semester and must maintain a 3.0 GPA on all undergraduate and graduate course work. Reappointment is based on maintaining a 3.0 or higher GPA and performance in the position during the previous semester. The level of support for students ranges from $700 to $900 per month. Students on four-tenths or higher assistantship are assessed fees at the in-state rate in accordance with Graduate School policy.

Hotel, restaurant, institution management and dietetics courses

Undergraduate and graduate credit

HRIMD 510 Introduction to Clinical Dietetics. (1) I, II**.** Preparation for entrance into the clinical supervised practice experience. Review of medical record content; current practice protocols in clinical dietetics; practice case studies. Pr.: Admission into the Coordinated Program in Dietetics; concurrent enrollment in HRIMD 521.

HRIMD 515. Counseling Strategies in Dietetic Practice. (3) II. Application of interviewing, counseling, and educational techniques in dietetics, including individual and group methods. Three hours lecture per week. Pr.: PSYCH 110; HN 450 or concurrent enrollment. HN 610. Enrollment restricted to: dietetics majors, nonmajors completing ADA requirements, or consent of instructor.

HRIMD 516. Communication Competencies in Dietetics Practice. (1) I, II for CP students. (1) II for DPD students. Distance only. Assessment of audiences and development of effective food/nutrition messages in community settings. Required course for Coordinated Program in Dietetics students. Pr: Admission into the Coordinated Program in Dietetics, concurrent enrollment in HRIMD 521 or admission into the Didactic Program in Dietetics, HRIMD 515 or concurrent enrollment.

HRIMD 517. Communication Competencies in Dietetics Practicum. (1) I, II**.** Application of principles learned in HRIMD 516 Communication Competencies in Dietetics Practice to the development, implementation, and evaluation of a community project under the guidance of a community preceptor. Pr.: Admission into the Coordinated Program in Dietetics; concurrent enrollment in HRIMD 516 and HRIMD 521.

HRIMD 520. Applied Clinical Dietetics. (3) I, II. Application of clinical nutrition principles through case studies, independent research, discussion, groups, and oral presentations. Case studies will focus on medical nutrition therapy and education of persons throughout the life cycle and nutrition intervention for individuals with multiple disease states in various healthcare settings. Pr.: Admission to the coordinated program in dietetics.

HRIMD 521. Clinical Dietetic Practicum. (1-6) I, II. Supervised clinical/community experience in the nutritional care of patients/clients. Practicum experiences are arranged with participating healthcare facilities. Successful completion of 6 credit hours of Clinical Dietetics Practicum is required in the coordinated program in dietetics. Consent of instructor is required for enrollment in fewer than 6 credit hours per semester. May be repeated for a maximum of six credit hours. Pr.: Must be taken conc. with or following HRIMD 520; and admission to the coordinated program in dietetics.

HRIMD 560. Management in Dietetics. (3) I, II, S. Management and leadership in dietetic practice. Discussion of current issues affecting practice including human resources, outcomes management, accreditation/quality assurance, entrepreneurship, and the impact of managed health care. Pr.: HRIMD 422.

HRIMD 561. Management in Dietetics Practicum. (6) I, II. Supervised practice experience in the application of management principles in foodservice operations or other dietetics practice settings. Pr.: Admission to CP, DPD.

HRIMD 562. Management in Dietetics Practicum Recitation. (1) I, II.Focused discussion of significant occurrences during the supervised practice experience and the application of management principles in foodservice operations or other dietetic practice settings. Behavior-based assessment and progression is utilized to encourage self-development and entry-level competence in dietetics practice. Pr.: Admission to the Coordinated Program in Dietetics; concurrent enrollment in HRIMD 561.

HRIMD 570. Professional Practice in Dietetics. (2) I, II**.** Current issues and trends in dietetics practice. Preparation for entrance into the profession including portfolio development, professional association issues and involvement, and career development. Pr.: Admission into the Coordinated Program in Dietetics; concurrent enrollment with HRIMD 561, Management Practicum in Dietetics.

HRIMD 621. Hospitality Law. (3) I. Legal aspects of managing hospitality operations and responsibilities for the operations, patron civil rights, governmental regulations, franchising, and commercial transactions. Pr.: 60 hours or more.

HRIMD 624. Procurement in the Hospitality Industry. (2) I. Principles and theories of procurement of food and supplies for hospitality operations. Includes management, financial, safety and ethical considerations in the procurement process. Pr.: HRIMD 342.

HRIMD 635. Foodservice Equipment and Layout. (2) I, II. Factors affecting the selection and arrangement of equipment in foodservice systems. Field trip required. Pr.: HRIMD 342.

HRIMD 640. Entrepreneurship in Hospitality Management and Dietetics. (3) II, in even years. Development and management of small businesses or private practice within the dietetics or hospitality industry. Business plan development, marketing, cost considerations. Overview of consulting to healthcare and hospitality operations and examination of skills required for success. Pr.: ACCTG 231.

HRIMD 664. Lodging Management Theory. (3) II. Application of management theories to the lodging industry including yield management,

multicultural issues, marketing strategies, environmental issues, and future trends. Pr.: HRIMD 361 and HRIMD 422.

HRIMD 665. Casino Management. (3) II. Investigation of the histories and overall operations of casino properties and their impacts on the foodservice and hospitality industry from the social, economical, political and environmental perspectives. Pr.: Junior standing, 60 hours or more.

HRIMD 705. Computer Implementation in Foodservice and Hospitality Operations. (3). S, in alternate years. Review of computer development in foodservice and hospitality operations; development of criteria for implementation of a computer system; analysis of foodservice and hospitality hardware and software. Pr.: CIS 101; and HRIMD 480 or 560 or MANGT 420.

HRIMD 710. Readings in Foodservice and Hospitality Management. (1-3) I, II, S. Directed study of current literature in foodservice and hospitality management and related areas. Pr.: HRIMD 480 or 560 or MANGT 420.

HRIMD 720. Administration of Health Care Organizations. (3) II. Comprehensive review of current health care institutions and their response to the economic, social/ethical, political/legal, technological, and ecological environments. Three hours lec.

HRIMD 785. Practicum in Foodservice Systems Management. (1-6) I, II, S. Professional experiences in approved foodservice organization as a member of the management team under faculty supervision. Pr. or conc.: HRIMD 342; and HRIMD 480 or 560 or MANGT 420.

Graduate credit

HRIMD 805. Food Production Management. (3) II, in alternate years. Production planning and controls in foodservice systems analysis in foodservice systems. Decision optimization and systems analysis in foodservice organizations. Consideration of various types of foodservice systems. Pr.: HRIMD 342; and HRIMD 480 or 560 or MANGT 420.

HRIMD 810. Research Techniques for Foodservice and Hospitality Management. (3) II. Survey and application of research methodology in foodservice and hospitality management. Pr.: STAT 702 or STAT 703.

HRIMD 820. Problems in Hotel, Restaurant, Institution Management and Dietetics. (Var.) I, II, S. Individual investigation of problems in foodservice and hospitality management. Conferences and reports at appointed hours. Pr.: HRIMD 342; and HRIMD 480 or 560 or MANGT 420.

HRIMD 885. Seminar in Foodservice and Hospitality Management. (1) I, II, S. Discussions of research related to foodservice and hospitality management. Pr.: Consent of instructor.

HRIMD 890. Administration of Foodservice and Hospitality Organizations. (3) I. Advanced study of management applied to foodservice and hospitality organizations. Pr.: HRIMD 480 or 560 or MANGT 420.

HRIMD 895. Cost Controls in Foodservice Systems. (3) I. Review of the components of cost control systems; analysis of financial data for foodservice operations; techniques for budget planning and control. Pr.: ACCTG 260; HRIMD 342; and HRIMD 480 or 560 or MANGT 420.

HRIMD 899. Research in Foodservice or Hospitality Management. (Var.) I, II, S. Individual research which may form the basis for master's report or thesis. Pr.: Consent of instructor.

HRIMD 980. Administration of Dietetics and Hospitality Programs. (3) II, in alternate years. An in-depth study of the development of dietetic and hospitality education and influence of the professional associations. Assigned observations and limited participation in administration of coordinated dietetics and hospitality management programs. Pr.: EDCEP 927 and consent of instructor.

HRIMD 985. Advances in Foodservice and Hospitality Management. (3) I, in alternate years. Analysis of selected topics and research in foodservice and hospitality management. Pr.: HRIMD 810 and consent of instructor.

HRIMD 990. Dissertation Proposal Seminar. (1) I, II, S. Presentation and discussion of proposals for dissertation research. Pr.: Six hours of statistics, 3 hours of research design or methods, and consent of major professor.

HRIMD 995. Grantsmanship and Publication. (3) I, even years. Grant writing, identifying external funding, managing grants, preparing manuscripts for peer-reviewed publication, and preparing papers and poster for presentation at professional meetings. Pr.: HRIMD 810.

HRIMD 999. Research in Foodservice or Hospitality Management. (Var.) I, II, S. Research in foodservice or hospitality management for the doctoral dissertation. Pr.: Consent of major professor.

For more information

For additional information and application materials please contact:
Deborah D. Canter
Graduate Program Director
Department of Hotel, Restaurant, Institution Management and Dietetics
Kansas State University
104 Justin Hall
Manhattan, KS 66506-1404

785-532-5507
E-mail: canter@ksu.edu
Home Page: http://www.humec.ksu.edu/hrimd/

Human Ecology

Family life education and consultation | Foodservice and hospitality management | Life span human development | Marriage and family therapy | Apparel and textiles | Programs of study | Human ecology courses | More information

Indepartmental graduate program

Graduate faculty:

Ki-Joon Back, Ph.D., Penn State University.

Betsy B. Barrett, Ph.D., Kansas State University.

M. Betsy Bergen, MS, Ph.D., Kansas State University.

Stephan R. Bollman, Ph.D., Iowa State University.

Deborah D. Canter, Ph.D., University of Tennessee.

Linda K. Crowe, Ph.D., Louisiana State State University A&M.

Mary De Luccie, Ph.D., Kansas State University.

Bronwyn Fees, Ph.D., Iowa State University.

Barbara Gatewood, Ph.D., Purdue University.

Briana S. Nelson Goff, Ph.D., Texas Tech University.

Rebecca A. Gould, Ph.D., Texas Woman's University.

Sherry Haar, Ph.D., Virginia Tech.

Janice E. Huck, Ph.D., Kansas State University.

Anthony P. Jurich, Ph.D., Pennsylvania State University.

Carol E. Kellett, Ph.D., University of Missouri-Columbia.

Melody L. A. LeHew, Ph.D., University of Tennessee.

Elizabeth A. McCullough, Ph.D., University of Tennessee.

William H. Meredith, Ph.D., University of Nebraska.

Deborah J. C. Meyer, Ph.D., Iowa State University.

Virginia M. Moxley, Ph.D., Kansas State University.

Ann D. Murray, Ph.D., Macquarie University.

John P. Murray, Ph.D., The Catholic University of America.

Karen S. Myers-Bowman, Ph.D., Purdue University.

Charlotte S. Olsen, Ph.D., Kansas State University.

Gita Ramaswamy, Ph.D., Mississippi State University.

Candyce S. Russell, Ph.D., University of Minnesota.

Rick J. Scheidt, Ph.D., University of Nebraska.

Walter R. Schumm, Ph.D., Purdue University.

Carol Shanklin, Ph.D., University of Tennessee.

Charles A. Smith, Ph.D., Purdue University.

Farrell Webb, PhD., University of Minnesota.

Mark B. White, Ph.D., Kansas State University.

The Ph.D. program in human ecology presents the opportunity for specialized study in one of five areas. The Ph.D. program is offered by the graduate faculty members of the Departments of Apparel, Textiles, and Interior Design; Hotel, Restaurant, Institution Management and Dietetics; and the School of Family Studies and Human Services. A separate Ph.D. program is offered by the Department of Human Nutrition. Each student must identify a specialization when applying.

The following specializations are offered:

Apparel and textiles

The apparel and textiles specialization focuses on the historic, sociopsychological, economic, chemical, or functional design aspects of apparel and textiles. Research problems are approached from a systems perspective incorporating human and environmental factors. The specialization prepares students for positions in higher education, business, industry, extension, museums, and/or government.

Family life education and consultation

The family life education and consultation specialization prepares candidates to conduct, administer, and evaluate programs for enhancing the quality of family life. This specialization requires course work in human development, family studies, family life education, research methods, evaluation, and applied practice in family and community service organizations. Graduates are qualified for positions in colleges and universities, cooperative extension, human service agencies, and similar professions.

Foodservice and hospitality management

The foodservice and hospitality management specialization integrates management and behavorial sciences concepts into the provision of quality food and services in diverse settings. Graduates are prepared with a knowledge base and skills to assume leadership roles in foodservice and hospitality management education, research, and practice.

Life span human development

The life span human development specialization emphasizes the growth and development of the individual over the course of a lifetime, the varying contexts of human development, and the processes underlying development throughout the life cycle. The program encompasses theory and research in child and adolescent development, adult development, gerontology, family studies, and thanatology. Graduates may prepare for careers in research, applied human services, or academic positions.

Marriage and family therapy

The marriage and family therapy specialization prepares professionals to conduct and critically evaluate therapy with marital and family groups. Students pursue a program of study that includes human development, family studies, marital and family therapy, statistics, and research methods. The doctoral program in marriage and family therapy is accredited by the Commission on Accreditation for Marriage and Family Therapy Education.

Programs of study

Each student, with the guidance of an advisor and a graduate committee, prepares an individualized program of study. Programs of study include a minimum of 90 credit hours beyond the bachelor's degree, with at least 30 hours course work in the major area, 30 hours in dissertation research, and the remainder in supporting courses. Inquiries should be directed to: Chair, Ph.D. Coordinating Committee, 119 Justin Hall, College of Human Ecology, Kansas State University, Manhattan, Kansas 66506-1401.

Human ecology courses

Areas of specialization and graduate faculty who support the Ph.D. program in human ecology are listed in the section on interdisciplinary programs. The following courses are offered by the College of Human Ecology but are not associated with a department.

DHE 615. Long-Term Care Administration Internship. (6) Includes field experience in the general administration of long-term care programs and/or facilities; planning, budgeting, program management, and service delivery; exposure to federal and state standards and regulations governing long-term care; and professional leadership development. Prior or conc. enrollment in GERON 610 Seminar in Long-Term Care Administration is also required. Pr.: Junior standing, completion of 15 hours of gerontology course work, MANGT 420 and ACCTG 231, and a GPA of 2.5 or above (3.0 and above in long-term care courses).

GNHE 780. Problem in General Human Ecology. (Var.) I, II, S. Individual investigation into work in general human ecology. Pr.: Consent of the instructor.

For more information

For additional information and application materials please contact:
Elizabeth McCullough
Human Ecology Graduate Program
Kansas State University
225 Justin Hall
Manhattan, KS 66506-1405
Home Page: http://www.humec.ksu.edu/

Human Nutrition

Programs | Admission | Research facilites and opportunities | Human nutrition courses | More information

Head:
Denis Medeiros

Director of graduate studies - Sensory Analysis and Consumer Behavior Area:
Edgar Chambers IV

Director of graduate studies - Nutrition Area:
Mark Haub

Graduate faculty:

Koushik Adhikari, Ph.D., University of Missouri.

Richard Baybutt, Ph.D., Penn State University.

Delores H. Chambers, Ph.D., Kansas State University.

Edgar Chambers IV, Ph.D., Kansas State University.

Soonsil Chun, Ph.D., Bukyung National University.

Chun-Yen Chang Cochran, Ph.D., Kansas State University.

Sandria L. Godwin, Ph.D., Adjunct, Kansas State University.

Katharine K. Grunewald, Ph.D., R.D., University of Kentucky.

Mark D. Haub, Ph.D., University of Kansas.

Mary L. Higgins, Ph.D., R.D., Iowa State University.

Carol Ann Holcomb, Ph.D., C.H.E.S., Oregon State University.

Tandalayo Kidd, Ph.D., Kansas State University.

Denis M. Medeiros, Ph.D., R.D., Clemson University.

Tonatiuh Melgarejo, Ph.D., Purdue University.

Paula K. Peters, Ph.D, Ohio State University.

Richard Popper (Adjunct), Ph.D, Columbia University.

Sandra B. Procter, Ph.D, Kansas State University.

Valentina M. Remig, Ph.D., R.D., Ohio State University.

Weiqun (George) Wang, Ph.D., Nanjing Agricultural University.

Ancillary graduate faculty (from Department of Kinesiology)

Thomas Barstow, Ph.D., University of California-Davis.

David Dzewaltowski, Ph.D., University of Iowa.

Paul Estabrooks, Ph.D., University of Western Ontario.

Nancy C. Gyurcsik, Ph.D., University of Waterloo.

Craig Harms, Ph.D., Indiana University.

Richard McAllister, Ph.D., SUNY Health Science Center, Syracuse.

Mary McElroy, Ph.D., University of Maryland.

David Poole, Ph.D., University of California-Los Angeles.

Stewart Trost, Ph.D., University of South Carolina.

Adjunct graduate faculty

Christina Khoo, Ph.D., Adjunct, University of Florida.

Barbara Lohse Knous, Ph.D., R.D., University of Wisconsin-Madison.

Robert Wildman, Ph.D., R.D., Ohio State University.

Programs

The department offers M.S. and Ph.D. degrees in human nutrition. Students may emphasize one of the various food or nutrition sciences. Additionally, the department participates in the interdepartmental food science graduate degree program. Students in this program earn, M.S. and Ph.D. degrees in food science.

The M.S. requires 30-35 credits for the thesis (6-8 credits), report (2 credits), and coursework-only options. The Ph.D. requires 90 credits, including a minimum of 30 credits for the Ph.D. dissertation. No foreign language is required.

Programs of study are developed according to the interests, backgrounds, and career goals of the students. In addition to graduate human nutrition courses and the requirements listed above, students often include courses from other departments such as animal sciences and industry; grain science and industry; biochemistry; chemistry; anatomy and physiology; kinesiology; psychology; and biology; from the Colleges of Business Administration and Education; and from interdisciplinary international courses.

The department participates in the University wide Master of Public Health (MPH) degree program. This is a professional degree requiring 36 hours of course work plus thesis or field experience, plus a core of required courses.

Admission

Entering students are expected to have a bachelor's degree from an accredited institution. Admission to graduate study at Kansas State University is granted on three bases: full standing, provisional, or probational. Recommendations concerning an applicant's qualifications and admission are made to the dean of the Graduate School by the department. The final decision regarding admission of an applicant is made by the dean of the Graduate School.

Admission in full standing requires a minimum grade point average of 3.0 (B average) in the last two years of undergraduate work in an institution whose requirements for the bachelor's degree are equivalent to those of Kansas State University. Applicants with grade point averages below 3.0 will be considered for probational admission provided there is evidence that the applicant has the ability to do satisfactory graduate work. Provisional admission may be granted to applicants who have subject deficiencies in undergraduate preparation or if there is uncertainty in evaluating the transcript. Normally, deficiencies will be made up by enrolling in courses for undergraduate credit. Entering students should have had college algebra, biology, organic chemistry, a junior/senior level course in human nutrition, and other prerequisites for human nutrition courses.

Other admission requirements include a minimum GRE score of 1000 (verbal and quantitative); copies of transcripts; 3 letters of recommendation; application; and statement of objectives. TOEFL scores (≥550) are required of all international applicants.

Applications are evaluated by the admissions committee. If the minimum requirements for admission are met applications are reviewed by graduate faculty.

A faculty member must agree to be an applicant's advisor before a recommendation can be made to the Graduate School that the applicant be admitted. The files of all applicants will be considered for institutional or departmental awards and graduate assistantships.

A limited number of 0.4 time teaching (GTA) and research (GRA) assistantships are available. In addition, Nina Browning Fellowships, scholarships and others are awarded to outstanding students in various amounts each year.

GTAs are appointed for nine months and GRAs for 9 or 12 months. Graduate assistants may enroll in 12 credit hours per semester and 6 credit hours per summer session. Applications for admission will be considered for both fall and spring semesters and summer session.

If an applicant is awarded a fellowship, a temporary advisor is assigned until a permanent advisor is chosen by the student during the first semester in residence. Fellowship awardees will be expected to participate in research or teaching during the term of the fellowship.

Funds for graduate students who are not on fellowships are primarily from ongoing research projects. The principal investigator (faculty member responsible) for each project selects graduate research assistants best suited for the specific project.

Research facilities and opportunities

Laboratory facilities

The Department of Human Nutrition has approximately 20,000 square feet for office, instruction, and research. Research laboratories and service areas comprise approximately 9,000 square feet. The department has a 1,500-square-feet animal laboratory that is fully accredited by the American Association for Accreditation of Laboratory Animal Care. In cooperation with the College of Veterinary Medicine, animals housed and maintained in our laboratory receive veterinary care to comply with the current NIH guidelines. A nutritional status assessment laboratory and human performance adn metabolism laboratory are used for both teaching and research activities and includes facilities for physical and dietary assessments. Facilities for basic research are up-to-date.

Sensory Analysis Center
The Sensory Analysis Center provides professional sensory panel services to researchers at K-State, industry, and government, and conducts numerous assessments with consumers around the world. Students are encouraged to become involved in projects of the Sensory Analysis Center to gain practical knowledge for conducting sensory tests. The center uses both highly trained/experienced panelists and consumers, depending on the test objectives. Graduate students research projects conducted through the center include a variety of food, beverage and other consumer products such as toothpaste and fragrances. In addition studies of consumption behavior, dietary methods assessment, and nutrition education materials are conducted.

Career opportunities
Graduate study in the human nutrition program prepares students for various academic, industry, and government positions. Graduates from our program are employed by universities and colleges as teachers and researchers; by government agencies as extension specialists, nutritionists, and nutrition education coordinators; by hospitals and community organizations as dietitians or nutrition consultants; and in the industry as directors of food product development and sensory evaluation divisions, senior food scientists, managers of quality assurance and test kitchens, directors of consumer services, and technical representatives.

ADA qualification
The Department has an approved Didactic program to meet minimum academic requirements of the American Dietetic Association (ADA). After completing academic requirements, students may apply for a qualifying work experience, which is an approved internship or preprofessional program at one of over 250 sites around the U.S.

Human nutrition courses

Undergraduate and graduate credit in minor field

HN 510. Life Span Nutrition. (3) II. Physiological and environmental influences on nutritional requirements; nutritional problems and eating patterns of age groups throughout the life cycle. Pr.: BIOL 340 and HN 400.

HN 520. Topics in Human Nutrition. (1-3) On sufficient demand. May be taken more than once for a maximum of 6 hours. Pr.: Junior standing and consent of instructor.

HN 530. Nutrition Education in Extension. (1) II. The process of and strategies for providing nutrition education outreach to diverse community audiences, including those with limited resources. Pr.: Any college-level nutrition course and junior or senior standing.

HN 535. Energy Balance. (2) I. This course will cover metabolic principles as they relate to energy intake (diet) and expenditure (exercise). Specific topics will include: obesity, anorexia/bulimia, bioenergetics, substrate selection/regulation (especially exercise and diabetes), body composition; methodology to assess each; and metabolism related disease. Pr.: HN 400

HN 551. Evaluation of Athletic Injuries of the Extremities. (3) I. This course is designed to familiarize the student athletic trainer with the principles of orthopedic assessment and to apply these principles to specific regions of the body. Knowledge gained in this course may be applicable to other individuals interested in health related professions which require systematic examination of the body. Pr.: HN 320 with a "B" or better and BIOL 340.

HN 552. Emergency Procedures and Evaluation of Core Athletic Injuries. (3) II. This course is designed to familiarize the student athletic trainer with the procedures of emergency management of athletic injuries and to apply these procedures both on the field and off the field. The student athletic trainer will become familiarized with the principles of orthopedic and emergency medical assessment and to apply these principles to the core of the body. Knowledge gained in this course may be applicable to other individuals interested in health related professions which require systematic examination of the body in emergency settings. Pr.: HN 320 with a "B" or better and BIOL 340.

HN 553. Pharmacology in Athletic Training. (1) I, Study of medications commonly encountered in the practice of athletic training. Includes categories of drugs, generic and trade names of common drugs, the use, effects and precautions for common drugs and drug-interactions. Focuses on how various drugs affect the patient response to activity, exercise and other therapeutic interventions. PR: BIOL 340 or equivalent.

HN 554. General Medical Conditions in the Athlete. (2) II, Course covers the recognition, evaluation, management, and prevention of the most common medical conditions that affect athletic participation. Emphasis placed on the appropriate history, physical exam, indications for referral, and treatment for each condition. PR: BIOL 340, HN 551 and HN 552.

HN 555. Therapeutic Modalities in Athletic Training. (3) II. The theory and application of the various energy systems used in the treatment of athletic injuries. Practical experiences will be emphasized. Pr.: HN 320 with a "B" or better, PHYS 115, and BIOL 340.

HN 556. Rehabilitation and Conditioning for Athletic Injuries. (3) II. A study of applied rehabilitation and conditioning techniques used by

athletic trainers. Pr.: HN 551, KIN 330, and junior standing.

HN 557. Administration of Athletic Training Programs. (3) II. A study of issues affecting athletic trainers in their roles as administrators in the areas of role delineation, budget designs, legal aspects of sport, facility design, and drug testing and drug education. PR.: HN 320 with a "B" or better.

HN 583. Practicum I in Athletic Training. (1). (Second year, first semester). A supervised, clinical experience at approved clinical settings. The athletic training student will apply principles taught in HN 320. Pr.: HN 320 and BIOL 340 or concurrent enrollment.

HN 584. Practicum II in Athletic Training. (1). (Second year, second semester). A supervised, clinical experience at approved clinical settings. The athletic training student will apply principles taught in the classroom and practiced in the lab throughout the curriculum program. Pr.: Concurrent enrollment in HN 552 and successful completion of HN 583 Practicum I with a grade of "C" or higher.

HN 585. Internship in Athletic Training. (1) (Third year, first semester). A supervised clinical experience at approved clinical settings. The athletic training student will apply principles taught in the classroom and practiced in the lab throughout the curriculum program. Pr.: Concurrent enrollment in HN 551 and successful completion of HN 584 Practicum II with a grade of "C" or higher.

HN 586. Practicum IV in Athletic Training. (1). (Third year, second semester). A supervised, clinical experience at approved clinical settings. The athletic training student will apply principles taught in the classroom and practiced in the lab throughout the curriculum program. Pr.: Concurrent enrollment in HN 555 and/or HN 556; successful completion of HN 585 Practicum III with a grade of "C" or higher.

HN 587. Practicum V in Athletic Training. (1). (Fourth year, first semester). A supervised, clinical experience at approved clinical settings. The athletic training student will apply principles taught in the classroom and practiced in the lab throughout the curriculum program. Pr.: Concurrent enrollment in HN 557 and successful completion of HN 586 Practicum IV with a grade of "C" or higher.

HN 588. Practicum VI in Athletic Training. (1). (Fourth year, second semester). A supervised, clinical experience at approved clinical settings. The athletic training student will apply principles taught in the classroom and practiced in the lab throughout the curriculum program. Pr.: Completion of Athletic Training Curriculum courses or concurrent enrollment in HN 556; successful completion of HN 587 Practicum V with a grade of "C" or higher.

Undergraduate and graduate credit

HN 600. Public Health Nutrition. (3) I. Public health nutrition issues for various segments of the population; nutritional components of community assessment; program planning and evaluation; and policy issues pertaining to the nutritional status of the population. Pr.: HN 450.

HN 620. Nutrient Metabolism. (4) I. Basic concepts of the mechanisms of actions, interactions, and the processes of cellular assimilation and utilization of nutrients in humans. Emphasis on the coordinated control of nutrient utilization among the major organs. Pr.: HN 400; BIOL 340; and BIOCH 521.

HN 630. Clinical Nutrition. (5) II. Nutrition in disease including physiological and biochemical basis of nutritional care, effects of disease on nutrient metabolism, diet therapy, nutritional assessment and nutrition counseling. Pr.: HN 450 and HN 620.

HN 635. Nutrition and Exercise. (3) I. The interrelationships among diet, nutrition, and exercise. Topics covered include physical fitness, weight control, nutrient metabolism during exercise, and athletic performance. Pr.: HN 132 or HN 400 and a grade of C or higher in KIN 310 and 335. Cross-listed with KIN 635.

HN 644. Women, Aging and Health. (3) II. Risk factors for acute and chronic diseases, health concerns and interests, barriers to obtaining health care, public policies, and future research on women's health issues. Pr.: BIOL 198 and senior standing.

HN 650. Practicum in Human Nutrition. (Var.) I, II, S. Supervised professional field experience. Pr.: HN 450 and HN 600 and consent of instructor. May be taken more than once for a maximum of 6 hours.

HN 660. Nutrition and Food Behavior. (3) I, in even years. Focus on the physiological, environmental, cultural, and economic factors that influence the use of food. Identification of appropriate methodology to study these factors as well as programs to modify food behavior. Pr.: PSYCH 110 or SOCIO 211 or ANTH 200; and HN 400.

HN 701. Sensory Analysis. (3) I. Sensory analysis of appearance, texture, aroma, flavor; physiology of sensory receptors; laboratory and consumer panels; and interpretation of data. Two hour rec. and three to six hours lab a week. Pr.: STAT 320 or 330 or 340.

HN 702. Nutrition in Developing Countries. (3) I, in odd years. Nutritional problems in developing countries, including an analysis of factors which contribute to malnutrition, effects of undernutrition, methods for assessing nutritional status, and interventions to combat nutrition problems. Pr.: HN 503 or 610.

HN 718. Physical Health and Aging. (3) II, alternate odd years. Focus is on the physiological theories of aging, the relationship between normal aging processes, and the major chronic and acute diseases of the elderly, and community health promotion/maintenance programs for older adults. Pr.: BIOL 198 and senior standing.

HN 735. Advanced Energy Balance. (3) I. Lifestyle, metabolic, and endocrine factors affecting energy balance and the development of obesity.

Research methods to assess and apply energy balance data will also be discussed. Pr.: HN 620 or 635.

HN 841. Consumer Response Evaluation. (3) II in even years. Evaluation of consumer attitudes and perceptions of products to provide quantitative and qualitative information for research guidance. Design and implementation of consumer questionnaires and development of guides for focus groups and interviews. Two hours lecture and four hours lab a week. Pr.: HN 701.

HN 780. Problems in Human Nutrition. (Var.) I, II, S. Supervised individual project to study current issues. Pr.: Senior standing or consent of instructor.

HN 782. Topics in Human Nutrition. (1-3) On sufficient demand. May be taken more than once for a maximum of 6 hours. Pr.: Senior standing and consent of instructor.

Graduate credit

HN 800. Nutrition Education and Communication. (3) II. Apply principles of communication and learning technologies to nutrition education reseach and practice. Pr.: HN 610, HRIMD 515, and a statistics course with a grade of C or better; or consent of instructor.

HN 810. Advanced Macronutrient Metabolism. (5) II. Dietary, metabolic, and endocrine factors regulating food intake and selection, and the absorption, function, metabolism, and interrelationships of macronutrients under varying nutritional conditions, with emphasis on recent advances in macronutrient nutrition. Pr.: BIOCH 521 and HN 620.

HN 812. Advanced Micronutrient Metabolism. (3) I, in even years. Nutritional roles and metabolism of vitamins and minerals. Functions, biological availability, hormonal regulation, requirements, deficiency and toxicity signs, and interrelations with other nutrients. Pr.: HN 810.

HN 815. Molecular Basis of Nutrient Function. (3) II. The course is designed to explore the role that certain nutrients have at the gene and molecular levels in terms of their mechanism of action. The physiological consequences of nutrient gene-interaction from a tissue, organ and organism level, as well as the subcellular levels, are to be considered. Pr.: HN 620 and BIOL 450.

HN 819. Food Systems. (3) II. Chemical and physical principles and interactions of food components; functionality of proteins, lipids and carbohydrates in emulsions, foams and gels; processing and preservation effects on food components. Three hours lec. a week. Pr.: BIOCH 521 and HN 501.

HN 820. Functional Foods for Chronic Disease Prevention. (3) I. Integrate and evaluate the regulatory principles, food science, nutrient science and nutritional metabolism for the development of funtional foods, nutraceuticals, and dietary supplements for chronic disease prevention. Pr.: HN 400, HN 413, BIOCH 521.

HN 831. Descriptive Sensory Analysis. (3) II, in even years. Flavor and texture profiling and other descriptive techniques for use in product development, research, and quality control. Practical experiences in conducting tests and leading panels. Two hours lec. and two hours lab a week. Pr.: HN 701.

HN 832. Practicum in Sensory Analysis. (3) I, II, S. Individual experiences applying sensory testing. Twelve hours of lab per week. May be taken more than once for a maximum of 6 hours. Pr.: HN 741 or HN 831, and consent of instructor.

HN 840. Public Health Field Experience. (3-6) I, II, S. Supervised field experience in an international, state, local, or district health agency or other appropriate health agency. May be taken more than once, but only 6 hours may be applied toward the MPH degree. Pr.: Consent of instructor.

HN 844. Nutritional Epidemiology. (3) On sufficient demand. Methods and issues involved in understanding and conducting studies on the relationship between human diet and disease. Pr.: HN 400 and STAT 702 or 703.

HN 851. Sensory Analysis Applications of Statistics. (3). I, even years. Application of statistics to sensory data. Emphasis on appropriate analyses, software use, interpretation of data, and reporting. Pr: HN 701, STAT 720 or STAT 722, STAT 730.

HN 880. Graduate Seminar in Human Nutrition. (1) I, II. Discussion of current research.

HN 898. Master's Report. (Var.) I, II, S. Survey in depth of the literature.

HN 899. Master's Thesis. (Var.) I, II, S. Research in area of specialization.

HN 911. Advanced Nutrition: Contemporary Issues. (1-3), on demand. Contemporary concerns in health and disease from an advanced nutrition perspective. Pr.: HN 810.

HN 995. Grantsmanship and Publication. (3) I, even years. Grant writing, identifying external funding, managing grants, preparing manuscripts for peer-reviewed publication, and preparing papers and poster for presentation at professional meetings. Pr.: STAT 720 or a graduate level research methods course.

HN 999. Doctoral Research. (Var.) I, II, S.

For more information

For additional information and application materials please contact:
Department of Human Nutrition
Kansas State University
212 Justin Hall
Manhattan, KS 66506-1407
785-532-5508
Fax: 785-532-3132
E-mail: nutrgrad@ksu.edu
Home Page: http://www.k-state.edu/humec/hn

Interior Architecture and Product Design

Master of Interior Architecture and Product Design |
Program requirements | Courses | More information

Head:
Lorraine Cutler

Director of graduate studies:
Neil Hubbell

Graduate faculty:

Vicky Borchers, M.Arch, Texas A&M University.

David Brown, M. of Product Design, North Carolina State University.

Robert Bullock, MFA, Michigan State University.

Lorraine Cutler, MA, University of Phoenix

Allan Hastings, BPA Industrial Design, Art Center College of Design.

Gary Haycock, M.Arch, University of Oregon.

Neal Hubbell, M.Arch, University of Texas at Austin.

Fayez Husseini, MFA, Kansas State University.

Stephen Murphy, (Emeritus) M. of Design Education, University of Missouri, Columbia.

Katrina Lewis, MRCP, Kansas State University.

Gwen Owens-Wilson, (Emeritus) PhD, U. of Tennessee.

Carolyn Thompson, M.Arch, Columbia University.

Rodney Troyer, M.IntArch, University of Oregon.

Introduction
The Department of Interior Architecture and Product Design offers a first-professional Master of Interior Architecture and Product Design (M.IAPD) degree. The program consists of a four-year and a summer course of study following the one-year Environmental Design Studies Program. The Department's five year plus program of studies is one of the first curricula in this profession to be recognized and accredited by the Council for Interior Design Accreditation (formerly FIDER) in the United States. The program is also accredited by the National Association of Schools of Art and Design (NASAD).

The curriculum in interior architecture and product design is structured for students who plan a professional career in space planning in commercial, institutional, and industrial interior design. The learning experience is gained through the focus placed upon the department's educational programs in interior architectural space planning, furniture, and product design. After an introduction to basic interior space planning, students undertake studio exercises that include programming and designing of spaces. Special emphasis is placed on spatial organization, behavior analysis, space component design, furniture design and construction, product and exhibit design, the integration of environmental systems, building rehabilitation, and the preparation of working drawings and contract documents.

Computers in the studio
The department provides a supportive and integrated studio beginning with the fourth semester where students can bring their own CAD- capable computers. The department provides cabinets, peripheral equipment, and a secure environment with updated electrical and data connections. Use of the computer and appropriate software is integrated into all the departmental courses from this point on. Computers are the tool of choice in today's design offices, and the department strives to fully prepare students for their responsibilities.

Internship program
A 16-week, full-time, paid internship is an available option for the fourth year students during the spring semester. Another option is the 10 week, full-time, paid summer internship taken after the third or fourth year. Students may apply their skills in a professional design environment while receiving either the 7 credit hours for summer, or the semester long program for 14 credit hours.

Study abroad
During their fourth year, interior architecture students may participate in the semester long exchange program between K-State and the interior architecture and product design programs at Trier, or at Coberg, Germany. This program is on a space available basis only. Other study abroad options exist with the college's Italian Studies Program in Castiglion Fiorentino and Orvieto and the university’s student exchange program’s in the

Czech Republic, Denmark, and Australia. The Italian studies program allows students from the three professional programs in the college to participate in an interdisciplinary learning experience in the hill town of Santa Chiara. Students may also choose to participate in summer study abroad option in the summer between their fourth and fifth years. Students may earn 14 hours of credit while overseas for the semester long program or 7 hours for the summer.

General education philosophy
The responsibilities of the interior architect / designer encompass all spaces within environments built for human habitation. Our goal is to develop creative professionals who can analyze problems and synthesize information from many perspectives. New technologies affect the skills and knowledge required for designers. The best preparation for the future is an education that enables graduates to adapt to a changing world. Adaptation to change requires that the graduate draw on history and on experience of many cultures and apply the theories of empirical investigation. A sound curriculum for professional interior architectural education balances the broad cultural aspects of general education and the specialized practical content integral to the profession.

The department requires a minimum of 18 university general education elective credits, of which at least six (6) must be in courses numbered 300 or above. At least 15 credits must be in courses outside the college. No more than two university general education courses may be taken in a single discipline.

Interior Architecture and Product Design Program Requirements

Once students are accepted into the College of Architecture, Planning and Design they begin their education by enrolling in the Environmental Design Program (ENVD). The ENVD Program provides a common first year curriculum for all students enrolled in the college. Early in the second semester of their first year each student then decides which of the four programs that he or she wishes to apply for entrance into starting in the fall semester of their second year. Students in Interior Architecture and Product Design will then apply for acceptance into the Graduate School for entry into the M.IAPD Program during the spring semester of their third year. Minimum requirements for acceptance into the M.IAPD Program are:

- 3.00 - 4.00 GPA - Regular Admission
- 2.75 - 2.99 GPA - Probationary Acceptance
- 2.50 - 2.74 GPA - Probationary Acceptance by Departmental Request

GPA is based on the last 60 Hours of credit earned at the time you are considered for admission to the Graduate School.

Graduate courses in Interior Architecture and Product Design begin in the fall of the student's fourth year. Refer to the departmental website (http://www.arch.ksu.edu/iar) for current information regarding this program. The program is subject to constant review and change without notice..

Total undergraduate credits required for graduation - 138
Total graduate credits required for graduation - 31
Total hours required for graduation - 169
For the curriculum requirements for the first two semesters, refer to the Environmental Design Studies, earlier in this section. Courses in bold indicate graduate coursework.

Third semester

IAPD 307	Interior Arch Design Studio I	5
IAPD 248	Building Science	3
ARCH 350	Hist. Of Design Environ. III	3
IAPD 430	Visual Communication	2
ARCH 348	Structural Systems in Arch I	3
		16

Fourth semester

IAPD 320	Interior Arch Design Studio II	5
IAPD 410	IAPD Microcomputer	3
ARCH 413	Environ. Systems in Arch I	4
ARCH 449	Structural Systems in Arch II	3
IAPD 476	Theory of Product Design	2
		17

Fifth semester

IAPD 435	IAPD Design Studio III	5
IAPD 409	Materials and Finishes	3
IAPD 416	History of Furniture	3

ARCH 433	Bldg Const Systems in Arch I	3
	University Gen. Ed	3
		17

Sixth semester

IAPD 440	IAPD Design Studio IV	3
IAPD 407	Design Workshop I	3
IAPD 412	Design Workshop I Studio	1
ARCH 514	Environ Systems in Arch II	3
ENGL 200	Expository Writing	3
	University Gen Ed	3
		16

Seventh semester

IAPD 801	**IAPD Design Studio V**	5
ARCH 515	Environ. Systems in Arch III	3
IAPD 802	**Design Workshop II**	3
IAPD 803	**Design Workshop II Studio**	1
IAPD 628	Bldg Const Systems IA	3
	University Gen Ed	3
		18

Eighth semester

	On Campus or Study Abroad	
IAPD 606	Interior Arch Design Studio VI	5
	Free Electives	9
		14
	OR	
IAPD 644	Interior Arch Internship	11
IAPD 645	Interior Arch Internship Report	3
		14

Summer options

IAPD 664	IAPD Summer Internship	6
IAPD 665	IAPD Summer Internship Report	1
		7
	Or	
IAPD 668	IAPD Summer Study Abroad	7
		7
	Or	
	University Gen Ed	6
IAPD 406	Problems IAPD	1
		7

Ninth semester

IAPD 810	**IAPD Capstone Design Studio**	6
IAPD 813	**Furniture Des Workshop Studio**	1
IAPD 814	**Furniture Des Workshop**	3
IAPD 815	**Advanced Studio Programming**	3
IAPD 391	Contemporary Design	3
		16

Tenth semester

IAPD 822	**Adv. Product Design Studio**	6

	Or	
IAPD 823	**Adv. IA Design Studio**	6
	Or	
IAPD 824	**Adv. Furniture Studio**	6
IAPD 853	**Professional Practice**	3
	Electives	6
		15

Interior architecture and product design courses

Undergraduate and graduate credit

IAPD 520. Design Graphics Workshop. (3) I, II, S. A course in the use of colored pencils, to render and present form and space using different techniques. Emphasis on the visual perception and composition of elements in design drawings and presentation. Pr.: Soph. standing.

IAPD 600. Design Studio IV Lecture. (1) I. Lecture must be taken concurrently with IAR 602, Design Studio IV. Covers design-related issues and conditions associated with design applications specific to contemporary large-scale office planning and instructs in the use of the students' personal computers for specific office-systems software and presentation; systems software utilized in IAR 602, Design Studio IV. To drop this course you must also drop IAR 602. Pr.: IAR 410, IAR 404, and IAR 403; not more than one "D" in an IAR design studio course.

IAPD 602. Design Studio IV. (4) I. Must be taken concurrently with IAR 600 Design Studio IV Lecture. This course is directed towards the unique programming and design related issues and conditions associated with contemporary large-scale office space planning. Emphasis is placed on the nature of the office work environment, and the linking together of various architectural systems. Heavy emphasis is placed on using students' personal computers to design and prepare presentations. Another component of this course is the application of the computer to resume writing and portfolio preparation using printed materials as well as CD's and videos. To drop this course you must also drop IAR 600 Design Studio IV Lecture. Pr.: IAR 410, IAR 404, and IAR 403; not more than one "D" in an IAR design studio course.

IAPD 606. Design Studio 6. (5) II. This semester of study provides an option for an interdisciplinary collaborative studio course oriented towards replicating the learning experience and interactive activities that takes place in the modern multidisciplinary professional office. OR a validated equivalent studio completed in an approved study program. Pr.: IAPD 801, ARCH 433, no grade lower than a C in any IAPD studio course, and approval by the foreign studies coordinator if studying abroad.

IAPD 607. Design Studio V Lecture. (1) II. Lecture must be taken concurrently with IAR 606 Design Studio V. Covers design-related issues and conditions associated with the design applications specific to the community-based projects selected for a given semester. Projects which include commercial buildings, historic preservation, competitions in the design professions, and collaborative studio experience, replicate the learning experience and interactive activities that take place in the modern multi-disciplinary professional office. Students from Architecture, Interior Architecture, and Landscape Architecture may enroll. To drop this course you must also drop IAR 606. Pr.: IAR 600 and IAR 602; not more than one "D" in an IAR design studio course.

IAPD 622. Building Construction Systems in Interior Architecture. (2) I, II. The course focuses on developing an understanding of the integration and coordination of building components in the interior environment. Strategies and techniques of construction are studied through the production of a set of construction documents for a building interior. Issues addressed include the selection and assemblage of materials and/or products, building codes, accessibility, and methods of construction. Pr.: Concurrent enrollment in IAPD 600 and 602.

IAPD 625. Lighting in Interior Architecture. (2) I, II. An examination of design and technical issues related to luminous environments in building interiors. Topics include color and light, vision, light sources, luminaire selection and design, and the evaluation of lighting solutions. Pr.: ARCH 413, ARCH 514, and IAPD 404 and IAPD 405 or approval of instructor.

IAPD 628. Building Construction Systems IA. (3) I. A technical capstone course that demonstrates student comprehension of previously learned material through exercises culminating in a construction document set including information about structural, mechanical, electrical, plumbing systems, and millwork details, construction details, codes and the American with Disabilities Act with appropriate drawings illustrating ways in which they come together. Pr.: IAPD 440. Coreq.: IAPD 801.

IAPD 644. Interior Architecture Internship. (11) II. Sixteen weeks off-campus work study in professional offices specializing in interior architecture: field and office experience. Pr.: IAPD 801, ARCH 433 and no grade lower than a C in any IAPD studio course. Coreq.: IAPD 645.

IAPD 645. Interior Architecture Internship Report. (3) II. The purpose is to develop the student's communication skills and awareness of the importance of written communication and record keeping in interior architectural office practice. The required report will provide a detailed documentation of the student's experiences encountered during internship. Coreq.: IAPD 644

IAPD 646. Interior Architecture Foreign Studies. (11) II. This course allows the student to study outside of the United States for one semester. The semester will expand their global perspective of design professions, cultural, political, and economic views. One semester studying interior architecture in a foreign university. Pr.: IAR 603, ARCH 433, not more than one grade of D in an interior architecture design studio and approval by the foreign studies coordinator.

IAPD 647. Interior Architecture Foreign Studies Reports. (2) II, S. Taken in conjunction with IAR 646. The purpose is to develop the student's written communication skills as well as increase awareness of written communication and record keeping in interior architecture office practice. The report will provide detailed documentation of the student's experiences during the Foreign Studies Program. Pr.: Conc. enrollment in IAR 646.

IAPD 664. Interior Architecture Summer Internship. (6) S, intersession. Ten weeks off-campus work study in professional offices specializing in interior architecture: field and office experience. Pr.: IAPD 606, ARCH 433 and no grade lower than a C in any IAPD studio course. Coreq.: IAPD 665.

IAPD 665. Interior Architecture Summer Internship Report. (1) S, intersession. The purpose is to develop the student's communication skills and awareness of the importance of written communication and record keeping in interior architectural office practice. The required report will provide a detailed documentation of the student's experiences encountered during internship. Coreq.: IAPD 664.

IAPD 668. Study Abroad Experience. (Var.) S. Courses taken from a university in an approved foreign studies program.

IAR 704. Product Design Studio II. (5) I, II. Advanced design projects involving products related to the interior environment. Synthesis of the design, materials, construction and finishing of prototype products relevant to human use. Pr.: IAR 605 or IAR 644 and IAR 645, or IAR 646 and IAR 647; not more than one "D" in an interior architecture design studio course.

IAPD 705. Design Studio VI. (4) I,II. Must be taken concurrently with IAR 708 Design Studio VI Lecture. Pursues and extends the architectural knowledge gained in all previous studios. Emphasis is on understanding large-scale buildings in terms of structure, systems, materials and environment; also addresses the built environment, utilizing existing large-scale buildings to explore architectural renovation, rehabilitation, restoration and preservation. Students from Architecture, Interior Architecture, and Landscape Architecture may enroll. Pr.: IAR 606 and 607, or IAR 644 and IAR 645, or IAR 646 and IAR 647; not more than one "D" in an IAR design studio course.

IAPD 706. Product Design Studio II. (4) I, II. Must be taken concurrently with IAR 707 Production Design Studio II Lecture. Advanced design projects involving products related to the interior environment. Synthesis of the design, materials, construction, and finishing of prototype products relevant to human use. To drop this course, you must also drop IAR 707. Pr.: IAR 606 and 607, or IAR 644 and 645, or IAR 646 and IAR 647; not more than one "D" in an IAR design studio course.

IAPD 707. Product Design Studio II Lecture. (1) I, II. Lecture must be taken concurrently with IAR 706 Production Design Studio II. Emphasizes technical information about product design, materials, and construction and finishing of prototype products relevant to human use; also provides the information base for the studio applications and product design process. To drop this course, you must also drop IAR 706. Pr.: IAR 606 and 607, or IAR 644 and IAR 645, or IAR 646 and 647; not more than one "D" in an IAR design studio course.

IAPD 708. Product Design Studio VI Lecture. (1) I, II. Lecture must be taken concurrently with IAR 705 Design Studio VI. Emphasizes technical instruction about structures, systems, materials, and environment as related to existing large-scale buildings and groups of buildings to explore architectural renovation, rehabilitation, restoration, and preservation. Stresses programming and decision-making when working with community-based projects or with civic, governmental, or charitable groups. Students from Architecture, Interior Architecture, and Landscape Architecture may enroll. To drop this course, you must also drop IAR 705. Pr.: IAR 606 and 607, or IAR 644 and 645, or IAR 646 and 647; not more than one "D" in an IAR design studio course.

IAPD 710. Advanced 3-D Computer Modeling. (3) I. Lighting, materials, animation, advanced modeling techniques, sound, and storyboarding are methodologies required to successfully build a digital presentation for projection in a two dimensional, or 3-dimensional environment using the vision domes. Projects that utilize these topics will include an introduction to 3D modeling, animation, sound, titling, lighting, and a material editor. Pr.: IAPD 410.

IAPD 756. Theory of Product Design. (2) II. History and design theory related to analysis materials and construction in product design. Pr.: IAR 420

IAPD 760. Interior Architecture Seminar. (V) I, II. Readings and discussion of contemporary thought and movements within the field of interior architecture with special emphasis on the societal factors that produce and effect change. Pr.: IAPD 705 or graduate standing.

Graduate credit

IAPD 801. **IAPD Design Studio 5.** (5) I. This semester of study provides an option for an interdisciplinary collaborative studio course oriented towards replicating the learning experience and interactive activities that takes place in the modern multi-disciplinary professional office. Pr.: IAPD 440 and no grade lower than a C in any IAPD studio course. Coreq.: IAPD 628

IAPD 802. Design Workshop II. (3) I, S. Design Workshop II is intended to further develop the student's understanding of the three dimensional design process through research, design, prototype construction, evaluation, and redesign. Enhance and increase the student's understanding of the structural characteristics of materials and increase their proficiency at communicating ideas through working and presentation drawings. Pr.: IAPD 407, IAPD 412, and no grade lower than a C in any IAPD studio course. Coreq.: IAPD 803.

IAPD 803. Design Workshop II Studio. (1) I, S. Studio component of Design Workshop II. Pr.: IAPD 412, IAPD 407 and no grade lower than a C in any IAPD studio course. Coreq.: IAPD 802

IAPD 810. IAPD Capstone Studio. (6) I, S. Students are to pursue design projects that encompass their previous educational experience

validating their knowledge of the IAPD program studies. The project will be based on extensive research and review. The project presentation will suggest unique and applicable solutions with clearly identified methodology of implementation. Pr.: IAPD 606 or IAPD 644 and IAPD 645.

IAPD 813. Furniture Design Workshop Studio. (1) I, S. Studio component of IAPD 714 Furniture Design Workshop. Pr.: IAPD 706. Coreq.: IAPD 814.

IAPD 814. Furniture Design Workshop. (3) I, S. Design, construction, and finishing of contemporary furniture and accessories. Pr.: IAPD 803 and IAPD 606. Coreq.: IAPD 813

IAPD 815. Advanced Studio Programming. (3) I, S. Research of programming methodologies culminating in a programmatic document used as the basis for the design project in IAPD 822, 823, or 824. Pr: IAPD 606.

IAPD 820. Advanced Seminar in IA. (Var.) I, II. Advanced readings and discussions of environmental issues related to the practice of interior architecture. Readings, discussions, reports.

IAPD 821. Advanced IAPD Design Studio. (Var) II, S. Advanced study of interior space planning, product design, and interior design.

IAPD 822. Advanced Product Design Studio. (6) II. Students explore projects programmed under the previous semester IAPD 815 programming course. Projects may be client or manufacture based with design analysis, directed research and concept formulation and proposed manufacturing processes including cost and marketing analysis. An exhibition of the student's work will be required at the completion of the course. Pr.: IAPD 810 and IAPD 815.

IAPD 823. Advanced IA Design Studio. (6) II. Utilizing a client-based design project, the student works directly with clients to produce a completed moderately scaled design project. Students must demonstrate knowledge of interior specificion writing, materials selection, and advanced presentation techniques. An exhibition of the student's work will be required at the completion of the course. Pr.: IAPD 810.

IAPD 824. Advanced Furniture Design Studio & Workshop. (6) II. Advanced design, construction, and finishing of contemporary furniture. Eximentation in the design of spatial components utilizing advanced construction techniques and materials. The course includes directed research involving market analysis, specifications, and adaptation to manufacturing processes. An exhibition of the student's work will be required at the completion of the course. Pr.: IAPD 810.

IAPD 830. Problems in Interior Architecture. (Var.) I, II. Study of specific interior architectural problems under direct supervision of the departmental staff. Pr.: Professional design degree.

IAPD 831. Facilities Management. (2) II. A survey of the methods of managing the physical assets of large facilities-corporate, institutional, and governmental-through a review of current literature, presentations by professionals active in the field, and case studies.

IAPD 840. Advanced Design Workshop. (Var) I, II, S . Advanced instruction in the design, construction, and finishing of contemporary furniture and accessories. The course involves the development of a concept for a complex furniture prototype and includes research, program development, design development, criteria examination and determination, design development, working drawings, complete prototype development, and presentation drawings. Pr.: IAPD 814.

IAPD 853. Professional Practice. (3) II. Studies of conventional and newly developing modes of professional design practice. Presented are the relationships of interior architects, architects, and landscape architects and other design professionals to users, clients, building industry, society, government, and one another. Pr.: Fifth year standing.

IAPD 891. Contemporary Design. (3) II. A visual survey of selected works of current interior architecture, product design, and furniture design, which illustrate principles and practical concerns that motivate design. Extensive writing requirement which will focus on the various topics, issues, and discussions given during the course. Open to non IAPD majors.

For more information

For additional information and application materials please contact:
Graduate Program Coordinator
Kansas State University
Interior Architecture and Product Design
203C Seaton Hall
Manhattan, KS 66506
785-532-5992
Home Page: http://aalto.arch.ksu.edu/iar/

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Head:
Bradley A. Kramer

Director of graduate studies:
E. Stanley Lee

Graduate faculty:

David Ben-Arieh, Ph.D., Purdue University.

Shing Chang, Ph.D., Ohio State University.

Kimberly Douglas, Ph.D., Arizona State University.

Todd Easton, Ph.D., Georgia Institute of Technology.

John English, Ph.D. Oklahoma State University.

Steven J. Galitzer, Ph.D., Kansas State University.

R. Michael Harnett, Ph.D., University of Alabama in Huntsville.

Bradley A. Kramer, Ph.D., Kansas State University.

E. Stanley Lee, Ph.D., Princeton University.

Shuting Lei, Ph.D., Purdue University.

Z. J. Pei, Ph.D., University of Illinois.

Malgorzata Rys, Ph.D., Kansas State University.

Chih-Hang Wu, Ph.D., Penn State University.

Academic programs

The department consists of 12 graduate faculty members and over 50 graduate students. The department perfores research in manufacturing systems, operations research, human factors (ergonomics) and engineering management. From previous data over 80% of on-campus graduate students (master's and Ph.D.) receive assistantships.

The Department of Industrial and Manufacturing Systems Engineering offers the following degrees/options at the graduate level:

- Concurrent B.S./M.S. in Industrial Engineering (BS/MSIE)
- M.S. in Industrial Engineering (MSIE)
- M.S. in Operations Research (MSOR)
- Master of Engineering Management (MEM)
- Ph.D. in Industrial Engineering (PhDIE)

Students that complete a masters degree are able to

- Solve advanced engineering problems using discipline appropriate math, science, computation and analysis skills
- Synthesize and evaluate information
- Demonstate advanced knowledge in area of specialization
- Recognize and apply state of the art techniques in the field
- Communicate effectively in both written and oral forms

Besides the above skills, students who complete a Ph.D. can also

- Plan and conduct scholarly activities that make original contributions to the knowledge base in the field of study.

The BS/MSIE degree is only open to students that are currently pursuing a BSIE at KSU. Since there is some overlap between undergraduate and graduate study, some graduate courses will satisfy the degree requirements for the undergraduate degree. A maximum of 9 credit hours from the

M.S.I.E. degree can be counted toward the B.S.I.E. degree. A more detailed description can be flound in KSU's Undergraduate Catolog.

The MSIE program can be completed with either a thesis or coursework only option. Both options require the completion of 30 graduate credit hours. This program is only offered to on-campus students.

The MSOR program can be completed with either a thesis or coursework only option. Both options require the completion of 30 graduate credit hours. The MSOR degree is offered to on-campus and to a limited number of off-campus students through distance learning media.

The MSM degree is a course-work only program that is designed for working professionals. The courses are taken by off-campus students through distance learning media. To complete this program requires the completion of 30 graduate credit hours.

The PhDIE degree requires either 60 hours of graduate credit beyond the M.S. degree or 90 graduate credit hours without a M.S. degree. 9 out of 30 credit hours after M.S. degree will be restricted to pre-specified IMSE courses. A significant original research project documented in the form of an acceptable dissertation is required. The dissertation must be of sufficient quality and importance to merit publication in a refereed journal.

Program requirements

To pursue the MSIE graduate degree, students must hold a B.S. degree in engineering, mathematics, or physical science and be versed in several of the basic areas of industrial engineering. Non-industrial engineering undergraduates may require 6 semester credit hours of prerequisite courses. GRE scores are required for all students who apply.

To pursue the MEM degree, the student must have a B.S. degree in engineering, mathematics, or physical science.

To pursure the MSOR degree the student should have a bachelor's degree in engineering, mathematics, statistics, computing science, physical science, biological science, or economics and a strong quantitative background.

To pursue a PhDIE degree, the student must have a B.S. degree in engineering, mathematics or physical science and be versed in several of the basic areas of industrial engineering. GRE scored are required for all students who apply.

Research emphases

Research in the Department of Industrial and Manufacturing Systems Engineering is conducted in five primary areas.

Ergonomics

Improve how humans work with machines and each other. Develop safe and productive work environments.

Manufacturing systems

Design and improve manufacturing systems with respect to product quality and system productivity.

Operations research

Expand the methodologies available for solving decision problems in engineering, economics, business and social systems. Incorporates applied mathematics and computer technologies into solution methods.

Quality engineering

Control manufacturing cost through manufacturing process improvement. Diagnose quality problems to improve product quality.

Uncertainty representation and reasoning

Improve engineering decision making, which is based on many uncertainties and approximations.

Major research facilities and equipment

The department of engineering has well-equipped laboratories supporting some of its research activities. Additional research is conducted in the field using industrial facilities.

The Soft Computing Laboratory, an interdisciplinary laboratory with Computing Science, supports research, education and dissemination of information related to evidential and uncertainty reasoning such as Bayesian reasoning, fuzzy logic, neural network, etc. The emphasis is on the representation and aggregation of linguistic and not-well-defined information for the purpose of modeling, decision making and intelligent control.

The ergonomics laboratory contains measurement apparatus for assessing stress levels imposed on human workers by various job designs and work environments.

The manufacturing processes laboratory consists of a wide range of manufacturing process equipment that can support research involving basic manufacturing processes. The laboratory includes numerous lathes and milling machines, a foundry with gas-fired and electric induction furnaces, molten salt heat treat facility, gas-flame metal cutting and joining processes, various welding processes, and material properties measurement equipment.

The Computer Integrated Manufacturing laboratory is a modern, well-equipped computer controlled manufacturing system. Equipment included in the lab are Computer Numerically Controlled (CNC) machining centers, robots, programmable logic controllers, a programmable conveyor, and computer workstations for Computer Aided Design and Computer Aided Manufacturing. In addition, students in manufacturing engineering have access to additional industrial equipment such as a CNC laser, computer controlled coordinate measuring machine, CNC press, and additional computer workstations and machining centers in our Manufacturing Learning Center.

The quality engineering laboratory supports demonstrations and projects involving the control of quality related aspects of manufacturing processes. The lab includes a computer-controlled, bench scale simulated manufacturing facility.

The departmental computing laboratories are modern and well equipped. IMSE students have access to these labs 24 hours a day.

Financial support

Financial support for a number of teaching and research assistants is available. However, the requests for this support regularly exceed the funding available. Awards are made on a competitive basis. The awarding of financial assistance is separate and distinct from admission to the graduate program. Many students choose to enroll without financial assistance to pursue the various graduate degrees and options in industrial and manufacturing systems engineering.

Industrial and manufacturing systems engineering courses

IMSE 501. Industrial Management. (3) I, II. Basic functions in an industrial organization and their interrelationships; management considerations involving product, process, plant, and personnel. Three hours rec. a week.

IMSE 530. Engineering Economic Analysis. (Var) I, II. The analysis of the economic aspects of engineering/industrial projects. Focus on decision making among competing alternatives, including replacement decisions. Includes: cost estimating, time-value of money and effects of depreciation and taxation. Methods of comparing alternatives are developed, including: equivalent worth, rate of return, and benefit-cost ratio. Additional topics for one hour credit: risk/uncertainty, impact of inflaction, capital rationing, breakeven analysis, and determining the MARR. Pr.: MATH 220.

IMSE 541. Statistical Quality Control. (3) I. Normal, binomial, and frequency distributions. Seven process improvement tools. Control charts on means and variances for variables and attributes. Design of experiments for process and product design. Acceptance sampling plans. Two hours rec. and two hours lab. a week. Pr.: STAT 511.

IMSE 555. Industrial Facilities Layout and Design. I, II. Design of industrial facilities with emphasis on manufacturing engineering and material handling. Two hours rec. and two hours lab a week. Pr.: IMSE 530 and IMSE 623.

IMSE 560. Introduction to Operations Research I. (3) I, II. A study of the methods of operations research including model formulation and optimization. Topics include: linear programming, sensitivity analysis, network flows. Three hours lec. a week. Pr.: MATH 222 and MATH 551.

IMSE 563. Manufacturing Processes Engineering. (4) II. A study of the effects of operating variables on manufacturing processes such as machining, metal forming, casting, welding, plastics, etc. Emphases are on manufacturing process theory, process variables measurement, and the technical inferences of collected data. Strength of materials, manufacturing process theory, instrumentation, computer data acquisition, and data analysis concepts are included. Laboratory testing of manufacturing processes and the engineering design of experiments for process variable measurements are used to develop efficient manufacturing processes. Three hours rec. and three hours lab a week. Pr.: IMSE 250 and IMSE 251, CHE 352, CE 530 or Statics equiv.

IMSE 564. Product and Process Engineering. (3) I. A study of the interrelationships between product design and production process selection. Emphasis is on the development of economic production systems for discrete products in a competitive manufacturing environment. Concepts of design for manufacture and assembly, tool engineering, and manufacturing systems design are included. Two hours lec. and three hours lab per week. Pr.: IMSE 250 and IMSE 251 and IMSE 530.

IMSE 580. Manufacturing Systems Design and Analysis. (4) II. Comprehensive design and analysis of a manufacturing system: integration of the undergraduate industrial engineering and manufacturing engineering courses. Two hours rec. and four hours lab a week. Pr.: IMSE 541, 623, 633. Pr. or conc.: IMSE 643.

IMSE 591. Senior Design Project I. (2) I, II. Students organize themselves in teams, not exceeding five students in each team. Each team is responsible to establish a client. The teams select a general subject agreeable to the client, formulate a specific design project, and gather data and resources needed to support the project. Two hours rec. a week. Pr. or conc.: IMSE 530, 541, 623, and 633.

IMSE 592. Senior Design Project II. (2) I, II. Continuation of IMSE 591 in which student teams complete engineering design projects formulated and approved in IMSE 591. Two hours rec. a week. Pr. IMSE 591. Pr. or conc. IMSE 643.

IMSE 602. Topics in Industrial Engineering. (Var.) I, II, S. Lectures on recent topics in industrial engineering.

IMSE 604. Independent Study of Industrial Engineering. (Var.) I, II, S. This course involves independent study at the introductory graduate level.

IMSE 605. Advanced Industrial Management. (3) I. Contemporary management philosophies and their impact on engineers and engineering managers. Topics include: total quality management, re-engineering, advanced quality initiatives, leadership, and strategic planning. Three hours recitation per week. Pr.: IMSE 501 or consent of instructor.

IMSE 610. Occupational Safety Engineering. (3) II. An overview of factors affecting safety in organizations, emphasizing analysis techniques and design strategies. Topics include occupational safety, accidents, fire protection, industrial hygiene, hazardous waste, toxicology, radiation safety, product liability and federal standards. A project involving a hazard analysis and the design of a solution for a field location is required. Three hours lec. a week. Pr.: IMSE 250 and IMSE 251.

IMSE 623. Industrial Ergonomics. (3) I, II. Process analysis and charting; principles of motion economy and ergonomics; work stations and environments; micromotion analysis and an introduction to standard data systems. Two hours rec. and three hours lab a week. Pr. or conc.: STAT 510.

IMSE 625. Work Environments. (3) II. Basic structure and performance of the human, viewed as a component in information processing and control systems. Effect of visual, auditory, toxic, and thermal environments. Two hours rec. and two hours lab a week. Pr.: IMSE 250 and IMSE 251.

IMSE 633. Production Planning and Inventory Control. (3) I, II. Principles, techniques, and applications of production planning and inventory control. Design of control systems. Three hours rec. Pr. or conc.: IMSE 560.

IMSE 641. Statistical Process Control in Manufacturing. (3) II. An introduction to the modern practice of quality engineering concepts, systems, strategies, and tools. Topics include advanced techniques related to statistical process control, international quality standards, quality data management, and automatic inspection. Three hours lec. a week. Pr: STAT 511.

IMSE 643. Industrial Simulation. (3) I, II. Basic concepts of computer simulation modeling of manufacturing, production, service and other systems. Use of a commercial simulation software environment to build, analyze, verify and validate models. Use of models as a system design tool. Three hours rec. per week. Pr. IMSE 560 or conc.: STAT 511.

IMSE 660. Operations Research II. (3) I, II. Continuation of IMSE 560. Topics are: graph optimization, integer programming, nonlinear programming, queuing theory. Three hours lec. a week. Pr.: IMSE 560 and STAT 510.

IMSE 662. Computer Aided Manufacturing. (3) I. Concepts in CAM, integrated control of machine tools and transport devices with production control. Concepts of CAM and automated assembly in small lot production environment. Two hours lec. and three hours lab a week. Pr.: IMSE 250 and IMSE 251 and CIS 209 or equiv.

IMSE 666. Operations Research III. (3) II. A continuation of IMSE 660. Covers more advanced aspects of LP and NLP. Introduces three new topics: normative theory of decision and games, dynamic programming and Markov decision systems. Pr.: IMSE 660, 530 (or concurrent enrollment).

IMSE 680. Quantitative Problem Solving Techniques. (3). Survey of decision making techniques. Topics covered include: Linear, Integer adn Nonlinear Programming, Network Flows and Stochastic Processes. A focus of the course will include modeling and the use of software to solve these problems. Three hours of lecture a week. Pr.: MATH 205.

IMSE 685. Principles of Manufacturing Information Systems. (3) II. Introduction to the theory and concepts of information for manufacturing. Design of manufacturing systems such as MRP, SFRS, CAD/CAM, etc. Concerns of integration and man-machine interface in manufacturing systems. Three hours lec. a week. Pr. or conc.: IMSE 633.

IMSE 751. Normative Theory of Decisions and Games. (3) II, in alternate years. Bayes theorem, Bayesian estimators, utility, loss function and risk, minimax strategies, elementary game theory. Three hours rec. a week. Pr.: STAT 511.

IMSE 760. Stochastic Calculus Financial Engineering. (3). I. This course will serve as an introduction to the basic concepts and computing techniques of financial engineering and its real-life applications. These basics can be applied in many other aspects of Industrial Engineering used throughout stochastic processes, probability theory, system simulation, portfolio/risk management, and supply chain optimization. Pr.: CIS 209 or equivalent, IMSE 530, and IMSE 660.

IMSE 780. Methods of Operations Research. (3) II. This course is intended to give an overview of OR at the graduate level. After this course, the student will have the general basic knowledge in OR and a better idea about the usefulness and interrelationships of the various subjects in O.R. Topics to be covered include the various optimization techniques, stochastic processes and optimization, and the various approaches in the treatment of uncertainty. Three hours recitation per week. Pr.: MATH 560 and STAT 510.

IMSE 802. Advanced Topics in Industrial Engineering. (Var.) I, II, S. Lectures on recent advanced topics in industrial engineering.

IMSE 804. Advanced Independent Study in Industrial Engineering. (Var.) I, II, S. This course involves independent study of recent advanced topics in industrial engineering.

IMSE 805. Management of Research and Engineering. (3) I. Engineering administration; organization factors in decision-making. Three hours rec. a week. Pr.: IMSE 501.

IMSE 806. Engineering Project Management. (3) II. Planning, scheduling, and controlling engineering projects. Includes determination of appropriate project team, cost/benefit analysis, PERT and CPM scheduling techniques, reporting, and use of computerized project management tools. Three hours lec. a week. Pr.: IMSE 501 and IMSE 530.

IMSE 810. Industrial Logistics Engineering. (3) on sufficient demand. The course provides comprehensive coverage of supply chain logistics components and system issues, including control of the movement of goods and information, coordination of supply and demand in creation and maximization of time and place utility. Emphasis is given to integrating workflow modeling, control, and design concepts and performance evaluation of logistic activities such as transportation, inventory, warehousing, and information technology. The systems viewpoint is explored at the individual firm level and from the perspective of inter-firm relationships among participants in logistics supply chains. Recognition is also given to important interrelationships between logistics and production, marketing, and financial management. Three hours rec. per week. Pr.: MATH 222.

IMSE 811. Advanced Production and Inventory Control. (3) II. Analytical and mathematical methods of making decisions on production, inventories, human resources, and shipping in modern industrial plants. Three hours rec. a week. Pr.: IMSE 633.

IMSE 820. Intelligent Manufacturing Systems. (3) II. Concepts and applications of machine intelligence to manufacturing process and systems. Each student will develop a prototype system which demonstrates the appropriate application of machine intelligence to solve a practical integrated manufacturing systems problem. Two hours rec. and three hours lab a week. Pr.: IMSE 671 or equiv.

IMSE 822. Advanced Engineering Economy. (3) (alternate years). This course expands on the principles of the fundamental engineering economics analysis. Emphasis is placed on quantification and evaluation of risk and uncertainty factors, capital allocation and budgeting concerns, the effects of inflation, economics consequence estimating models, engineering capital equipment replacement analyses and decision-tree and multi-attribute decision models in the context of engineering economics analysis of engineering problems. Lecture style with mini-projects, spreadsheet applications and group discussions to enhance learning. Three hours lec. a week. Pr.: IMSE 530, or ME 560, or CE 680, or equivalent.

IMSE 825. Tribology in Manufacturing. (3) Taught on sufficient demand. An introduction to system approach to Tribology; Surface Topography; Physical, Chemical, and Geometric Nature of Surfaces; and the Mechanics of contact between surfaces. This course also investigates various theories of friction and wear; hydrodynamic; elastohydrodynamic, and boundary lubrication; frictional instabilities; rolling contact problems; and application of system methodology to tribological problems in engineering design and manufacturing. Pr.: PHYS 214 and IMSE 563.

IMSE 830. Applied Fuzzy Set Theory. (3) I. The emphasis will be on applicational aspects. Topics covered are elementary fuzzy set theory, fuzzy measure, possibility theory, fuzzy linear programming and other fuzzy optimization techniques, fuzzy linguistics and expert systems, fuzzy production and inventory control, and fuzzy operations research models. Three hours rec. a week. Pr.: STAT 510.

IMSE 841. Advanced Topics in Quality Engineering. (3) I. A survey of current advances in quality engineering. Includes both off-line and on-line quality engineering. Three hours lec. a week. Pr.: STAT 704, 705 and IMSE 641 and knowledge of Lotus 123 and (Fortran, Pascal or C).

IMSE 842. Reliability Theory I. (3) I. The mathematics of reliability theory. The hazard function. Calculation of failure density and mean life for series, parallel systems, and various types of standby systems. Hypotheses tests on mean life. Left testing with censoring. Three hours rec. a week. Pr.: STAT 511 or equiv.

IMSE 850. Ergonomics (Human Factors) Engineering I. (3) I. The design and analysis of applied experimental research on human behavior as applied to engineering systems. An experimental project. Two hours rec. and three hours lab a week. Pr.: STAT 702 or 703.

IMSE 865. Simulation of Industrial Management Systems. (3) II. Simulating industrial management systems on computers utilizing Monte Carlo techniques and simulation languages. Numerical methods related to simulation. Three hours rec. a week. Pr.: IMSE 643.

IMSE 868. Manufacturing Processes for Semiconductor Materials and Devices. (3). On sufficient demand. Research topics on manufacturing processes for semiconductor materials and devices. Processes covered include; crystal growing, slicing, edge profiling, lapping, wafer grinding, wet etching, polishing, cleaning, oxidation, lithography, dry etching, diffusion, metallization, CMP (Chemical-Mechanical Planarization), backside thinning, dicing, bonding, packaging, final testing. Three hours lecture a week. Pr.: IMSE 250 and 563.

IMSE 871. Advanced Topics in Computer Integrated Manufacturing. (3) II. Modern issues of computerized manufacturing considering both hardware and software approaches and methods. Advanced concepts in intelligent machine programming and applications, group technology, computer aided process planning, and scheduling will be discussed. Research issues will be presented. Three hours lec. a week. Pr.: IMSE 633, IMSE 662 or equivalents.

IMSE 872. Industrial Forecasting Techniques and Applications. (3) I. The problems of model construction for industrial forecasting. The application of least squares, regression, exponential smoothing, and adaptive fitting will be studied in solving industrial engineering problems. Three hours rec. a week. Pr.: STAT 511 or 705.

IMSE 873. Industrial Systems Analysis. (V) II. Analysis and synthesis of automatic control systems with application to machines and processes and industrial management systems. A study of optimal control, stability, and sensibility of industrial management systems. Three hours rec. a week. Pr.: Consent of instructor and IMSE 660.

IMSE 881. Linear Programming. (3) II (alternate years). Development of the theory of linear programming and related topics including simplex

methods, duality theory, integer programming, transportation methods, and stochastic linear programming. Application to industrial problems and the use of computer solutions are emphasized. Three hours rec. a week. Pr.: IMSE 560.

IMSE 882. Network Flows and Graph Thoery. (3) I, in even years. Survey of topics from Newtork Flws and Graph Theory with an emphasis on algorithmeic analysis. The topics covered include: Complexitiy Analysis, Shortest Paths, Maximum Flows, Network Simplex, Minimum Spanning Trees, Matchings, Planar Graphs, Colorings, Perfect Graphs and Heuristics. Three hours lecture a week.

IMSE 884. Integer Programming and Combinatorial Optimization. (3) II, in even years. Solution techniques to optimization problems invloving integer variables. The topics covered include: single-and multiple-branching, implicit enumeration, polyhedral theory and cutting planes, mixed integer programs, unimodular matrices and matroids. Three hours lecture a week. Pr.: IMSE 660.

IMSE 885. Advanced Manufacturing Information Systems. (3) I. Survey of topics in Computer Integrated Manufacturing. Issues such as the Manufacturing Automation Protocol (MAP), representation of solids in CAD, storage and retrieval of such information are considered. Three hours lec. a week. Pr.: IMSE 685 or equivalent.

IMSE 888. Research Methods in Industrial Engineering. (3) II. This course will provide students with effective methods to perform literature reviews, survey current solution methodologies, develop and evaluate research and present research results. Pr. or concurrent: at least one of IMSE 780, IMSE 641, or IMSE 811.

IMSE 889. Applied Methods in Industrial Engineering. (1) S. This class requires students to have at least 6 weeks of full-time work experience in a job related to Industrial Engineering. This course can be taken only once by a graduate student. Pr. Approval of major professor and department head.

IMSE 890 Applied Methods in Industrial Engineering II. (2) I, II. This class requires students to have at least 12 weeks of full-time work experience in a job related to Industrial Engineering. This course can be taken only once by a graduate student. Pr. Approval of major professor and department head.

IMSE 892 Graduate Seminar in Industrial Engineering. (0) I, II. Presentation and discussion of topics of contemporary interest in industrial or manufacturing engineering. M.S. and Ph.D. candidates make one presentation. One one-hour seminar meeting a week.

IMSE 898. Master's Report. (Var.) I, II, S. Topics selected with approval of major professor and department head.

IMSE 899. Master's Thesis. (Var.) I, II, S. Topics selected with approval of major professor and department head.

IMSE 971. Industrial Queuing Processes. (3) I, II. Introduction to the queuing process and theory of queues; analysis of single and multistation queues; application to production, materials handling, inventory and maintenance systems. Three hours rec. a week. Pr.: STAT 510.

IMSE 976. Scheduling Theory. (3) I, II. Project scheduling, assembly line balancing, shop scheduling, basic structure, measures of performance, combinatorial and statistical aspects. Various approaches to the analysis of shop scheduling. Three hours rec. a week. Pr.: Consent of instructor.

IMSE 982. Nonlinear Programming. (3) I, II. Study of nonlinear models and their solution. Topics covered are nonlinear programming including Kuhn-Tucker theory, quadratic programming, separable programming, geometric programming, gradient and search methods, quasilinearization, and invariant imbedding. Three hours rec. a week. Pr.: STAT 510.

IMSE 990. Advanced Topics in Operations Research. (Var.) I, II, S. (6 hrs. maximum). Study of topics related to operations research not covered in other courses. Selected according to the interests and needs of graduate students. May be repeated. Pr.: Consent of instructor.

IMSE 991. Multiple Criteria Decision Making. (3) I, II. Decision processes for problems involving multiple conflicting criteria; multiple attribute decision making; multiple objective decision making, and group decision making under multiple criteria. Various methods/approaches for different problems are discussed. Three hours rec. a week. Pr.: IMSE 560 and IMSE 874.

IMSE 999. Dissertation Research. (Var.) I, II, S. Topics selected with approval of major professor and department head.

For more information

For additional information and application materials please contact:
Graduate Program Coordinator
Kansas State University
Department of Industrial and Manufacturing Systems Engineering
237 Durland Hall
Manhattan, KS 66506-5101
785-532-5606
Home Page: http://www.imse.ksu.edu/

About the Catalog

The Graduate Catalog is a reference for those interested in graduate programs at Kansas State University. Refer to the table of contents or the index for specific topics of interest.

Degree requirements and programs are organized alphabetically by graduate program. Courses listed in this catalog are those that may be taken for graduate credit.

Notices | Student Responsibility | Contacts | Other Publications

Notices

Kansas State University reserves the right to make changes in admission requirements, fees, degree requirements, and other rules and guidelines appearing in this catalog. Such changes take precedence over catalog statements. While reasonable effort is made to publicize any changes, the student should remain in close contact with departmental advisors and appropriate offices. Responsibility for complying with all applicable requirements ultimately rests with the student.

Although the university attempts to accommodate the course needs of students, course offerings may be limited by financial, space, and staffing considerations or may otherwise be unavailable. Nothing in this catalog may be construed to promise or guarantee registration in any course or course of study, nor may anything be construed to guarantee completion of an academic program within a specific length of time.

Admission to the Graduate School is not complete until application materials and Fees have been fully processed and the applicant has been notified in writing of admission by the Graduate School.

Student Responsibility

It is the responsibility of students to know and observe all regulations and procedures relating to the program they are pursuing, as well as those of the University and Graduate School. A regulation will not be waived nor an exception granted because students plead ignorance of, or contend that they were not informed of, the regulations or procedures. This catalog, the *Graduate Handbook*, guidelines on the Graduate School Website, and documents specific to individual graduate programs should be consulted. Questions on regulations and their interpretation pertaining to studies at the graduate level should be addressed to the Graduate School.

Students planning to graduate should become familiar with all pertinent deadlines. (A calendar of deadlines for each semester is available on the Graduate School website.) It is necessary to apply for graduation by the specified deadline to graduate in a particular semester, whether or not the student plans to attend the commencement ceremonies. Students must be enrolled the semester they graduate.

Contacts

All phone numbers are 785 area code, except where noted. All addresses are Manhattan, Kansas, 66506, except where noted.

Other Publications

Other Kansas State University publications are available on request from the offices listed below.

Graduate School
103 Fairchild Hall, 785-532-6191 or toll-free 1-800-651-1816, www.ksu.edu/grad

> *Graduate Studies Viewbook:* a brief description of K-State graduate opportunities, degree programs, admission and financial aid. Includes a directory of graduate degree programs and other resources.

Office of Admissions
119 Anderson Hall, 785-532-6250, www.ksu.edu/admit

> *K-State Admissions Guide:* an introduction to Kansas State University, including photographs and undergraduate application information and forms.

K-State Student Union Bookstore
K-State Student Union, First Floor, 785-532-6583

> *Class Schedule:* a description of the courses offered during an academic semester/session is available online at http://courses.k-state.edu/

> *K-State Undergraduate Catalog:* descriptions of undergraduate programs, courses, and policies is available online at http://courses.k-state.edu/catalog/undergraduate/

> *Kansas State University Graduate Catalog:* descriptions of graduate programs, courses, and policies is available online at

http://www.k-state.edu/grad/gscurrent/index.htm

K-State Graduate Handbook: policy and procedure guidelines for graduate students at K-State. Available online at http://www.k-state.edu/grad/gscurrent/handbook/index.htm

Student Guideline and Forms: guidelines for students enrolled in either a master and doctoral preograms, deadlines, and forms required. Available Online at http://www.k-state.edu/grad/gscurrent/guideforms/index.htm

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Auxiliary Services & Facilities- affirmative action, child care, cns, police department, postal service, telecommunications, & others

Financial Assistance- assistantships, traineeships, loans, & exlusion appeal process

Services for Students- adult student services, ces, graduate student council, lafene, recreation services, & others

Support Services- early childhood, family center, community health, research, & others

Graduate Catalog
Distance Learning Opportunities

K-State Research & Extension- description and listing of K-State research extension offices

Distance Learning Degree Programs- listing of & hyperlinks to degrees available through distance learning

Graduate Catalog
Entrance Requirements

Admission to Graduate School- necessary requirements to obtain admission

Enrollment- assignment to courses, faculty and employees, late enrollment, withdrawal, & final examinations

Fees- graduate & undergraduate complete description of tuition and fees

Degree Requirements- master's and doctoral degrees, certificates, grades, & grounds for dismissal

Application and Information Form
(US Citizens & Permanent Residents)

To prepare your application for admission to the Graduate School at Kansas State University, separate the attached application blank and fill it out after you have read the information on this page. Make certain that all the required materials requested on this page and on the application are provided.

Three Options are available for Acquiring Application Forms

1. **Word** (Fill out and Print)
2. **PDF** (Fill out on-line and Print) using the Adobe Acrobat Reader
3. Request a Blank Form be mailed to you: Master or Doctoral

1. **APPLICATION FEE.** Beginning July 1, 2004, a fee of $30 U.S. is required for all U.S. citizen and permanent resident applicants who are applying to a degree program. Your application will not be considered by the graduate school until this fee has been received.
***PLEASE NOTE:** If applying to graduate programs in the College of Architecture, Planning and Design or the College of Business, additional application fees apply. Refer to program websites for more information.*

2. **TRANSCRIPTS.** Request each college or university where you received your bachelor's degree or completed any advanced course work or degree to send an OFFICIAL transcript **directly to the program** in which you wish to enroll. These become part of your records at Kansas State University and cannot be returned. Students whose transcripts are not in English must furnish a translation by an appropriate authority. Failure to list any colleges or universities attended may result in dismissal from the University.

3. **STATEMENT OF OBJECTIVES.** If you intend to work toward an advanced degree, write on a separate sheet a discussion of your academic objectives giving specific reasons for the selection of your field of study, contemplated research areas, and professional plans.

4. **DEGREE PROGRAMS.** Below is a list of masters and doctoral programs offered at Kansas State University. Select one of these programs when identifying the Graduate Program on the application form. If you do not plan to work towards a degree, check **Non-Degree Student** and indicate the program in which you wish to take course work, and see item 16 on the application form.

5. **NONDEGREE STUDENT.** If you do not intend to work towards an advanced degree but you meet entrance requirements, you may be considered for admission as a nondegree Student. The program in which you plan to take courses must approve your application for nondegree student admission. You must apply to a degree program or for permission to continue as a nondegree Student after you have completed 9 hours. No more than 9 hours of work taken in this status may be counted toward an advanced degree upon the recommendation of your supervisory committee after you are accepted as a degree student.

Please note that the application fee is waived if you are applying as a nondegree student. It will be required when/if you apply to a degree program.

6. **STANDARDIZED TESTS.** If your graduate program requires standardized tests, you should request the Educational Testing Service to send your scores to Kansas State University. If you indicated where you wanted your scores sent (the academic department and Kansas State University) when you took the test, your scores will automatically be sent. The Graduate School does not accept photocopies as official for admission purposes. Standardized test scores are valid for five years. (If available, please include test scores on the application.)

7. **PRIMARY LANGUAGE.** To demonstrate competence in the English language, an official report of scores on the Test of English as a Foreign Language (TOEFL) must be sent to Kansas State University for all applicants whose primary language is not English. The TOEFL is offered several times a year throughout the world by the Educational Testing Service, Princeton, New Jersey 08540, USA. Those who have received a degree in the last two years from a United States college or university are not required to submit a TOEFL score but must take an English proficiency test upon arrival.

A score of at least 550 (213 on the computer-based test) on the TOEFL is required to be considered for admission to the Graduate School. (NOTE: Some programs require a TOEFL score higher than stated here.) Applicants with scores of 600/250 or above may be considered for regular admission. Applicants with scores between 550/213 and 599/249 may be admitted provisionally and must at the time of their enrollment demonstrate proficiency in reading and writing English and in understanding spoken American English to the satisfaction of the Graduate School. Those who do not meet the minimum proficiency standard will be required to complete specified courses offered by the English Language Program (ELP) at Kansas State. Intensive English training for students who have TOEFL scores below 550/213 is also available through the ELP. For information and application to this program write to Director, English Language Program, 205A Fairchild Hall, Kansas State University, Manhattan, Kansas 66506-1106; e-mail: elp@ksu.edu.

SUBMISSION OF APPLICATION. The completed application should be sent to the appropriate academic department, Kansas State University, Manhattan Kansas 66506.

A range of special services for disabled students (including learning disabled students) is available. For information contact the Disabled Student Services Office, Holton Hall, (785) 532-6441 (voice or TDD).

NOTICE OF NON-DISCRIMINATION

Kansas State University is committed to nondiscrimination on the basis of race, sex, national origin, disability, religion, age, sexual orientation, or other nonmerit reasons, in admissions, educational programs or activities and employment (including employment of disabled veterans and veterans of the Vietnam Era), as required by applicable laws and regulations. Responsibility for coordination of compliance efforts and receipt of inquiries, including those concerning Title VI of the Civil Rights Act of 1964, Title IX of the Education Ammendments of 1972, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990, has been delegated to Clyde Howard, Director of Affirmative Action, Kansas State University, 214 Anderson Hall, Manhattan, KS 66506-0124, 785-532-6220. Revised April 28, 2003.

PRINT THIS PAGE AND KEEP FOR YOUR INFORMATION

GRADUATE SCHOOL DEGREE PROGRAMS KANSAS STATE UNIVERSITY

Masters | **PhD/EdD** | **Other**

Application and Information Form (International Applications)

GENERAL INFORMATION

- To be considered for graduate admission, you must pay a $55.00 U.S. application fee. Your application may not be processed by the graduate program you are applying without this fee.

  There are three options for paying you application fee:

  - Personal check of $55.00 (drawn on a U.S. bank) made payable to Kansas State University Graduate School.
  - Money order or cashier's check for $55.00 U.S. made payable to Kansas State University Graduate School.
  - On-line credit card payment: click here. Please record your receipt number and maintain a copy for your records.

  ***PLEASE NOTE:** Some programs may require an additional application fee. If applying to graduate programs in the College of Architecture or the College of Business, additional application fees apply. Refer to program websites for more information.*

- Application materials should be sent directly to the academic program to which you are applying. It is important to know the deadlines that the program has established for receipt of applications, especially if you wish to be considered for a graduate teaching or research assistantship. Please check with your academic program for specific deadlines. Some programs may not have deadlines listed for receipt of applications. For these departments recommendations for admission must be sent to Graduate School by February 1 to be considered for fall (August) enrollment; August 1 for spring(January) enrollment; and December 1 for summer (June) enrollment.

- Please submit only one application to any one program. Do not submit an online application and a paper application to the same program. You may apply, however, to more than one program by separate application. *Please note applicants applying for more than one graduate program must pay the designated fee for each program.*

- If you prefer, you may submit an application online.
  Three Options are available for Acquiring Application Forms
  1. **Word** (Fill out and Print)
  2. **PDF** (Fill out on-line and Print) using the Adobe Acrobat Reader Hit submit only once.
  3. Request a Blank Form be mailed to you : **Master** or **Doctoral**

- U.S. citizens or resident aliens who wish to make application online to graduate study should not use this application. That application is available under Application & Admission

PRIOR TO COMPLETING THE APPLICATION

Before making application, please read the following directions. Then, obtain information about the graduate program that is of interest to you, either by requesting information from the program or by accessing information on our Web site under Graduate Programs. **There will be other information and requirements of which you should be aware before you apply.**

ALL INFORMATION AND CREDENTIALS SUBMITTED IN CONJUNCTION WITH THIS APPLICATION BECOME THE PROPERTY OF KANSAS STATE UNIVERSITY AND WILL NOT BE RETURNED.

IN ADDITION TO THE APPLICATION

Submit the following directly to the department/program to which you are applying. Additional materials may also be required.

- **APPLICATION FEE**: To be considered for graduate admission, you must pay a $55.00 U.S. application fee. Your application may not be processed by the graduate program you are applying without this fee.
  There are three options for paying you application fee:
  - Personal check of $55.00 (drawn on a U.S. bank) made payable to Kansas State University Graduate School.
  - Money order or cashier's check for $55.00 U.S. made payable to Kansas State University Graduate School.
  - On-line credit card payment: click here. Please record your receipt number and maintain a copy for your records.

  ***PLEASE NOTE:** Some programs may require an additional application fee. If applying to graduate programs in the College of Architecture or the College of Business, additional application fees apply. Refer to program websites for more information.*

- **TRANSCRIPTS**: You should request each college or university where you received your bachelor's degree or completed any advanced course work or degree to send an OFFICIAL transcript directly to the department/program to which you are applying. This transcript must document your bachelor's and/or advanced degrees. If you have not yet graduated, you will be asked for another updated transcript later. A

translation by an appropriate authority must also be provided for any transcripts that are not in English. Failure to list on the application any colleges or universities attended may result in dismissal from the University.

- **STATEMENT OF OBJECTIVES**: A statement of objectives, giving specific reasons for the selection of your field of study, contemplated research areas, and professional plans, should also be submitted with the application.

- **LETTERS OF RECOMMENDATION**: The names of three instructors whom you have asked to submit letters regarding your qualifications for graduate study should be included on the application. These letters must be received by the department/program before an application is considered complete.

- **AFFIDAVIT OF FINANCIAL SUPPORT**: Each application must be accompanied by the Affidavit of Financial Support form, (Available in [*WORD*] or [*PDF*] using the Adobe Acrobat Reader), verifying that financial support is available while attending Kansas State University. Depending on the source of support, $29,850 per year is required for tuition, books, subsistence, and other necessary costs. Please print this form, secure the necessary signatures, and return it with the confirmation receipt and application fee. (Students must document $29,850 per year.)

- **STANDARDIZED TESTS**: If your graduate program requires standardized tests, you should request the Educational Testing Service to send your scores to Kansas State University. If you indicated where you wanted your scores sent (the academic department and Kansas State University) when you took the test, your scores will automatically be sent. The Graduate School does not accept photocopies as official for admission purposes. Standardized tests scores are valid for five years. (If available, please include test scores in the application.)

- **PRIMARY LANGUAGE**: The Graduate School at Kansas State University wants to ensure that a student's progress toward a degree is not jeopardized by language difficulties. Therefore, to demonstrate competence in the English language, an official report of scores on the Test of English as a Foreign Language (TOEFL) must be sent to Kansas State University for all applicants whose primary language is not English. **TOEFL scores are valid for two years.** The TOEFL is offered several times a year throughout the world by the Educational Testing Service, Princeton, New Jersey 08540, USA. Those who have received a degree in the last two years from a United States college or university are not required to submit a TOEFL score but must take an English proficiency test upon arrival.

  A score of at least 550 (213 on the computer-based test) on the TOEFL is required to be considered for admission to the Graduate School. (NOTE: Some programs require a TOEFL score higher than stated here.) Applicants with scores of 600 (250 on the computer-based test) or above may be considered for regular admission. Applicants with scores between 550/213 and 599/249 may be admitted provisionally and must at the time of their enrollment demonstrate proficiency in reading and writing English and in understanding spoken American English to the satisfaction of the Graduate School. Those who do not meet the minimum proficiency standard may be recommended for enrollment in University English courses or for part-time English courses offered by the English Language Program (ELP) on campus. Those who are determined to need substantial work in English will be required to participate in the ELP. Intensive English training for students who have TOEFL scores below 550/213 is also available through the ELP. For information and application to this program write to Director, English Language Program, 205A Fairchild Hall, Kansas State University, Manhattan, Kansas 66505-1106; e-mail: elp@ksu.edu.

  The Graduate School at Kansas State University will also accept the International English Language Testing System-academic exam - (IELTS) scores. **IELTS scores are valid for two years.** The IELTS is offered several times a year by the International English Language Testing System, Pasadena, California 91103, USA.

  Applicants with a score of 7.0 may be considered for regular admission. Applicants with scores between 6.1 to 6.9 may be admitted provsionally and must at the time of their enrollment demonstrate proficiency in reading and writing English and in understanding spoken American English to the satisfaction of the Graduate School. Those who do not meet the minimum proficiency standard may be recommended for enrollment in University English courses.

SPECIAL SERVICES

A range of special services for students with disabilities (including learning disabilities) is available. For information contact the Disabled Student Services Office, Holton Hall, (785)532-6441 (voice or TDD), or on the Web (http:\\www.ksu.edu\dss\).

CHECKLIST

The following is a summary of the actions necessary for an application and all documents to be submitted:

1. Obtain information concerning graduate program of interest either by personal contact, by mail, or on our Web site under Graduate Programs .
2. Take standardized tests if required and have scores sent to Kansas State University.
3. Contact colleges and universities you have attended to send official transcripts to department/program where applying.
4. Ask references to send letters of recommendation.
5. Prepare Statement of Objectives.
6. Complete Affidavit of Financial Support.
7. Submit a money order, cashier's check, personal check or credit card payment for $55.00 U.S. Credit card payment available at the time you submit your online application.
8. Send the following with the application to the program where admission is requested:
    a. The signed Affidavit of Financial Support

b. A money order or cashier's check for $55.00.
c. The Statement of Objectives

An application cannot be processed without these documents.

SUBMISSION OF APPLICATION

All application materials should be sent directly to the department/program to which you are applying. However, the official notification of your acceptance into graduate study at Kansas State University will be sent by the Graduate School.

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Masters | **PhD/EdD** | **Other**

International Programs

English Language Program | International and Area Studies Programs
| Study Abroad Programs | International Development Programs

Dr. Kenneth Holland, Associate Provost for International Programs
Office of International Programs
304 Fairchild Hall
785-532-5990
Fax: 785-532-6550
E-mail: oip@ksu.edu
Home Page: www.ksu.edu/oip/

Building upon several decades of international involvement, K-State provides a range of programs that link the campus with other parts of the world.

The Office of International Programs, directed by the Associate Provost for International Programs, is responsible for university-wide coordination of international activities and general enhancement of K-State's global roles. The Office of International Programs supervises Study Abroad, the English Language Program, and international recruitment and works closely with the International Student Center, International and Area Studies, and other university and college programs. An International Activities Council, with representation from all of the colleges, provides ongoing strategic planning, program review, and policy guidance.

International Activities Council

Enid Cocke, Chair
205 Fairchild Hall
785-532-7324
Fax: 785-532-6550
E-mail: ecocke@ksu.edu

The International Activities Council (IAC), an advisory body that reports to the Provost, is composed of faculty and administrators from throughout K-State. IAC meets regularly, usually on a monthly basis, to promote and support international activities at K-State, and to enhance the internationalization of the university's activities.

English Language Program

Mary Wood, Director
English Language Program
205 Fairchild
Phone: 785-532-7324
Fax: 785-532-6550
E-mail: elp@ksu.edu
Home Page: http://www.ksu.edu/elp

The English Language Program offers intensive English courses primarily for international students who plan to enter degree programs at K-State. However, it also accepts students who wish to come for English instruction only.

The program offers four levels of full-time intensive English. It also offers three part-time university English courses designated specifically for students in academic classes who need help with English. These courses provide continued instruction and support in English while students take courses in their degree field. These courses are:

- DAS 176 - Advanced reading skills
- DAS 177 - Written communication for non-native speakers of English
- DAS 178 - Oral communication for non-native speakers of English
- DAS 179 - Speaking and pronunciation skills
- DAS 181 - Advanced integrated skills
- DAS 185 - Teaching and cultural orientation for Teaching Assistants
- DAS 186 - Introduction to the American educational system

Many graduate departments offer conditional admission to students who are academically qualified but do not yet have the necessary English proficiency. These students then apply to the English Language Program and receive an I-20 form to cover both their English study and the time that they spend earning their degree. They study in the English Language Program until they receive the necessary test score or earn the recommendation of the English Language Program.

The program also screens the English proficiency of incoming non-native speakers of English. Students with a TOEFL score between 550/213

CBT and 600/250 CBT are tested, and some, depending on their test results, may be required to take some English courses. In addition, the English Language Program administers the oral proficiency test (speak test) for students who wish to qualify to be graduate teaching assistants.

For other information and a brochure, write the English Language Program at the address above.

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International and Area Studies Programs

Dr. Bradley Shaw, Director
215 Eisenhower Hall
785-532-1988
Fax: 785-532-7004
E-mail: bradshaw@ksu.edu

Students interested in world affairs may take advantage of several interdisciplinary opportunities. The Latin American Studies and International Studies Programs offer secondary majors to undergraduates. International Trade Studies provides an area emphasis for graduate students.

Several other international programs do not offer degrees but provide advice and opportunities to interested students and faculty. These include the South Asia Center and groups of scholars with interests in the Middle East, Western Europe, Eastern and Central Europe, and Africa. For more information, contact the following:

African Studies
Wayne Nafziger, 785-532-4579

International Studies
785-532-1988

International Trade Studies
Patrick Gormely, 785-532-4576

Latin American Studies
785-532-1988

Middle East Studies
Michael Suleiman, 785-532-6842

Russian Studies
Walter Kolonosky, 785-532-6760

South Asian Studies
Bimal Paul, 785-532-6727

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Study Abroad Programs

Elizabeth Ward
Director Study Abroad
304 Fairchild Hall
785-532-5990
E-mail: lizward@k-state.edu
Home page: http://www.k-state.edu/oip/students/programs/

The Study Abroad Program provides information for students who wish to study in another country. K-State has bilateral exchange agreements with more than two dozen universities abroad. In addition, the university participates in the International Student Exchange Program (ISEP), and other consortial arrangements through which other exchanges are possible.

Qualified students are encouraged to apply for Rhodes, Marshall, Fulbright, Rotary, and other international scholarships.

Student Exchange Programs

Australia
Deakin University

China (People's Republic of)
Yangzhou University, Jiangsu

Henan Agricultural University, Zhengzhou
Luoyang Institute of Technology,
Xiangtan University, Hunan
Zhengzhou Grain College

Costa Rica
University of Costa Rica
Institute of Technology of Costa Rica

Czech Republic
Charles University, Prague
Czech Technical University, Prague
Czech Agricultural University, Prague

Denmark
Aarhus School of Architecture
University of Copenhagen

France
Blaise-Pascal University, Clermont-Ferrand
Ecole Superiere d'Agriculture de Purpan
Institute National Polytechnique de Lorraine, Nancy

Germany
European Universitat Viadrina
Justus Liebig Universitat, Giessen
Leipzig Graduate School of Management
Ludwig Maximilian Universitat, Munich

Korea (Republic of)
Korea University

Mexico
Instituto Technologico y de Estudios Superiores de Monterry (ITESM)

The Netherlands
Maastricht University

New Zealand
University of Otago, Dunedin

Paraguay
Autonoma University, Asuncion
Catholic University, Asuncion
Columbia University, Asuncion
National University, Asuncion
Pacifico University, Asuncion
Catholic University, Encernacion

Russia
Novosibirsk State University
Voronezh State Pedagogical University
Voronezh State Academy of Technology
Voronezh State University

South Africa
Orange Free State University
Port Elizabeth Technikon
University of Port Elizabeth

Switzerland
Eidgenossische Technische Hochschule, Zurich (ETH)

United Kingdom
Norwich Institute of Art and Design
Nottingham Trent University
University of Sunderland
Glasgow School of Art and Design

University of Liverpool
Heriot-Watt University
Dundee University
University of Hertfordshire
University of Newcastle

North American Agribusiness Consortium - NAAC
Canada
University of Manitoba, Winnepeg
Laval University, Sante Foy
Mexico
University of Sonora, Hermosillo
ITESM, Monterrey

Group Study Abroad

Group Study Abroad Coordinator
E-mail: oip@ksu.edu
Phone: 785-532-5990
Fax: 785-532-6550

Travel seminars occur on a regular basis during spring break, intersessions and summer. Seminars are short-termed courses (1-7 weeks) led by K-State faculty for K-State credit.

Consortial and other multi-institutional programs

International Student Exchange Program (ISEP)
Links with 100 plus universities in Europe, Africa, Asia, the Pacific, Indian Ocean, Canada and Latin America.

Japan, Nakajo
SIU-Carbondale (MAUI)
Study Abroad, 785-532-5990

MAUI-Utrecht Program
Links with 25 universities across Norway, Sweden, Denmark, Netherlands, Germany, United Kingdom, Ireland, France, Spain, Portugal, Italy, Greece, Slovenia, Czech Republic and Estonia.

Scholarship Programs for Foreign Study

Fulbright
Walter Kolonosky, 785-532-6760

Marshall, Rhodes
Jim Hohenbary, 785-532-6904

Partnership Exchange (Germany/Switzerland)
Study Abroad, 785-532-5990

Pearson, James B. Fellowship
Study Abroad, 785-532-5990

Rotary International
Larry Erpelding, 785-532-6151

Vernon Larson Study Abroad Scholarship
Corliss Lamont Humanist Community Service Program
Joseph & Elizabeth Barton-Dobenin International Exchange Scholarship
Heather Stewart Memorial Scholarship
Doris Hays Fenton Memorial Scholarship
Catherine Joyce Memorial Scholarship
Joseph & Elizabeth Barton-Dobenin Fellowship in Business
Ming-Hwa Tiao International Student Scholarship
Study Abroad, 785-532-5990

Marc Johnson International Studies Scholarship
Larry Erpelding, 785-532-6151

Yamani Scholarship(Middle East)
Michael Suleiman, 785-532-6842

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International Development Programs

Mid-America Universities International Council (MAUI)
Elizabeth Ward, 785-532-5990

International Business Consortium
Yar Ebadi, 785-532-7351

International Community Service Program
Carol Peak, Director, 785-532-5701
http://www.ksu.edu/csp

International Trade Studies
Patrick Gormely, 785-532-4576

Kansas-Paraguay Partners
Robert Klemm, 785-532-2737

International Agricultural Programs

Steven Graham, Coordinator
Larry Erpelding, Co-Coordinator
105D Waters Hall
785-532-7034
http://www.oznet.ksu.edu/dp_iap

Food and Feed Grains Institute
Roe Borsdorf, Interim Director, 785-532-4056
http://www.k-state.edu/ffgi/

International Grains Program
John Howard, Director, 785-532-4071
http://www.ksu.edu/igp/home.htm

International Meat and Livestock Program
Janice Swanson, Director, 785-532-6533
http://www.oznet.ksu.edu/pr_imlp/

International Sorghum and Millet Program (INTSORMIL)
Joe Hancock (Animal Nutrition), 785-532-1230
Mitchell Tuinstra (Plant Breeding and Genetics), 785-532-7238
Larry Claflin (Plant Pathology), 785-532-1369
John Leslie (Plant Pathology), 785-532-1363
http://intsormil.org/index.htm

Mid-America International Agricultural Consortium (MIAC)
Robert Hudgens, 785-532-7034
http://www.miac.org/

Information Support Services for Agriculture (ISSA)
Donna Schenck-Hamlin, 785-532-7452
http://www.lib.ksu.edu/depts/issa/

Wheat Genetics Resource Center
Bikram Gill, 785-532-6176
http://www.ksu.edu/wgrc

Kinesiology

Overview | Degree program | Research facilities | Program strengths | Admission
Financial support | Kinesiology courses | More information

Head:
David Dzewaltowski

Director of graduate studies:
Tom Barstow

Graduate faculty:

Tom Barstow, Ph.D., University of California-Davis.

Richard C. Baybutt, (Adjunct) Ph.D., Penn State University.

Timothy K. Behrens, Ph.D., University of Oklahoma.

Melissa Bopp, Ph.D., University of South Carolina.

David Dzewaltowski, Ph.D., University of Iowa.

Paul Estabrooks, (Adjunct) Ph.D., University of Western Ontario.

Elizabeth Fallon, Ph.D., University of Florida.

Craig Harms, Ph.D., Indiana University.

Mary McElroy, Ph.D., University of Maryland.

Timothy I. Musch, Ph.D., University of Wisconsin-Madison.

Larry Noble, Ph.D., University of Texas at Austin.

David Poole, Ph.D., University of California-Los Angeles.

Brett J. Wong, Ph.D., University of Oregon.

Overview

Kinesiology is the systematic study of human movement that integrates information drawn from a number of domains to form its own unique body of knowledge. As a life science area, the study of kinesiology requires both breadth and depth in content, as well as strong grounding in scientific inquiry skills. Kinesiology provides an informed understanding of the role of physical activity to an individual's physical and mental health.

Degree program

The Department of Kinesiology offers a master of science degree. Students may emphasize exercise physiology, exercise psychology, biomechanics, or sociocultural aspects of human movement. Students may also choose an integrated program in clinical and community kinesiology for preparation as a physical activity promotion and chronic disease prevention and rehabilitation specialist. The clinical and community kinesiology emphasis prepares students to seek certification from the American College of Sports Medicine and work in such areas as hospital, corporate, or community wellness facilities.

The specific program of study, designed by the student and supervisory committee, is tailored to meet the individual needs and interests of the student. An individual's program of study consists of a minimum of 30 graduate hours. A maximum of 12 hours of supporting work in other departments may be applied toward the 30 hour requirement. Students choose from one of two different degree options: master's thesis or course work. All students are expected to demonstrate a depth and breadth of understanding of kinesiology in a written and/or oral final evaluation.

Research facilities

Biomechanics, exercise psychology, and human exercise physiology laboratories are located in the Department of Kinesiology. The Department's animal research laboratories are housed within the Department of Anatomy and Physiology in the College of Veterinary Medicine facilities. The Lifestyle Improvement through Fitness Enhancement (LIFE) community fitness laboratory provides prevention and rehabilitation exercise services to a variety of groups including corporate employees, youth, and older adults. Graduate students are provided many opportunities to work in both research and physical activity service settings.

Program strengths

The Kinesiology Faculty has emerged as a national leader in the science of health-related physical activity. Graduate education, research and service activities are supported by grants from the National Institutes of Health as well as private corporations and health foundations. Strong collaboration efforts with other academic units on campus such as the Departments of Anatomy and Physiology, Foods and Nutrition, and Extension Community Health provide valuable research and applied professional preparation opportunities for students.

Admission

Incoming students must satisfy a minimum number of undergraduate competencies. These competencies are often satisfied with an undergraduate degree in kinesiology. Students without an undergraduate degree in kinesiology may be required to complete additional undergraduate coursework. Application procedures require (1) a completed graduate application form, (2) transcripts from all universities and colleges attended, (3) scores on the aptitude portion of GRE examination, (4) three letters of reference, and (5) a statement outlining professional goals and areas of special interest. Application for admission to the program in the fall semester should be made in the preceding late fall or early winter. Applications are also accepted for the spring semester.

Financial support

Graduate research and teaching assistantships are available and are renewable for two years. Assignments include assisting with faculty research, teaching laboratory portions of kinesiology courses, and working in adult, corporate, and disease prevention and rehabilitation exercise programs. Graduate assistantships are also available from the following university units: Lafene Health Center and Department of Intercollegiate Athletics. Contact these units directly for further information. Applications for assistanships should be made as early as possible.

Kinesiology courses

Undergraduate and graduate credit for non-kinesiology majors

KIN 515. History of Sport. (3) The historical development of sport (especially in Europe and North America) including the growth of competition, the rise of mass spectator sports, elitism, and the changing function of sport. History of sport as business and history of the relationship between sport and other institutions. Cross-listed with History, see HIST 515.

KIN 520. Practicum in Exercise Science. (1-3) I, II. Practical experiences in the fitness setting such as observation and participation in exercise testing and prescription, exercise leadership, and record keeping and program management. Pr.: Consent of instructor.

KIN 590. Seminar in Kinesiology. (3) I. Issues and problems involving integration of the subdisciplines of kinesiology and professional areas of application. Pr.: Completion of all or concurrent enrollment in final kinesiology core courses.

KIN 591. Psychology of Exercise and Sport Injury. (3) Intersession only. Underlying effects, treatment of psychological consequences, and physical trauma of exercise and sport injury. Topics include the impact of injury on exercise behavior, the athlete at risk, behavioral risk factors, injury assessment, treament of injury, and psychological factors addressed by the sports medicine team. Pr.: BIOL 340 and a grade of C or higher in KIN 310 and KIN 345.

KIN 592. Sport and Exercise Personality. (3) Intersession only. The role of personality in sport, sport performance and exercise behavior. Theories relevant to sport and exercise peresonality will be examined to provide a theoretical framerwork for understanding and applying research. Assessment instruments and relevant research will be examined and critiqued. Pr.: a grade of C or higher in KIN 310 and 345.

KIN 598. Topics in Kinesiology. (1-3) On sufficient demand. Study of a selected topic in kinesiology involving either an in-depth study or application of theory presented in a related core course. May be repeated as topic varies. Pr.: Related core course.

KIN 599. Independent Studies in Kinesiology. (1-3) I, II. Selected topics in kinesiology. Maximum of 3 hours applicable towards a degree. Pr.: Consent of undergraduate coordinator.

Undergraduate and graduate credit

KIN 600. Psychology of Physical Activity. (3) II. An examination of theory and research related to physical activity participation. Topics will include: mental health effects of exercise, behavior change theories applied to physical activity, physical activity correlates and intervention strategies used to increase and maintain physical activity participation. Pr.: a grade of C or higher in KIN 310, 340 and 345.

KIN 601. Cardiorespiratory Exercise Physiology. (3) I. II of odd numbered years. An examination of the structure and function of the respiratory system and the manner in which oxygen passes from the atmosphere to its site of utilization in the mitochondria. Exercise and environmental stresses will form the basis for examining the capacity, plasticity, and limitations to respiratory function. Pr.: a grade of C or higher in KIN 310 and KIN 335. Cross-listed with AP 601.

KIN 602. Gender Issues in Sport and Exercise. (3) On sufficient demand. An examination of the impact of exercise and fitness trends on women in contemporary society with particular emphasis on how society presents obstacles to exercise and fitness. Topics include the relationship between exercise patterns and family structure, cosmetic fitness, eating disorders, and social class. Pr. a grade of C or higher in KIN 310, 340, and 345.

KIN 603. Cardiovascular Exercise Physiology. (3) II. Study of the structure and function of the cardiovascular system as it pertains to acute and chronic exercise. Topics include the control of blood pressure, vascular volume, and blood flow during orthostasis and exercise. Pr.: a grade of C or higher in KIN 310 and 335. Cross-listed with AP 603.

KIN 604. Exercise and Mental Health. (3) On sufficient demand. Study of research and theory related to mental health consequences of physical activity. Topics will include the role of exercise in developing self-esteem and body image as well as the use of exercise as a therapy for emotional and behavioral disorders. Pr.: a grade of C or higher in KIN 310, 340, and 345.

KIN 605. Topics in the Biological Basis (1-3) On sufficient demand. Study of a selected topic in the biological basis of kinesiology involving either an in-depth study or application of theory presented in a related course area. Pr.: a grade of C or higher in KIN 310 and 335.

KIN 606. Topics in the Behavioral Basis of Kinesiology. (1-3) On sufficient demand. Study of a selected topic in the behavioral basis of kinesiology involving either an in-depth study or application of theory presented in a related course area. Pr.: a grade of C or higher in KIN 310, 340, and 345.

KIN 607. Muscle Exercise Physiology. (3) I. Subcellular, cellular, and tissue structure of skeletal muscle and the relationship of these structural characteristics to the functioning of the muscle. Examines energy pathways available to the muscle to support the various functions, mechanisms underlying changes in exercise tolerance that accompany exercise training and detraining, and diseases that affect skeletal muscle. Pr.: a grade of C or higher in KIN 310 and KIN 335.

KIN 608. Body Image, Eating Disorders & Obesity. (3) S. Study of research and theory related to body image, eating disorders and obesity from psychological, behavioral, and physical activity and public health perspectives. Topics will include epidemiological trends, psychosocial and environmental factors, diagnostic criteria and ethics, as well as prevention and treatment strategies. Pr: C or higher in KIN 345.

KIN 625. Exercise Testing and Prescription. (3) II. Benefits and risks of exercise testing and prescription with healthy populations, individuals at risk, and patients with cardiovascular and metabolic diseases. Includes experiences with exercise test technology and methods of exercise prescription. Two hours recitation and two hours lab a week. Pr.: a grade of C or higher in KIN 310, KIN 335, proof of current CPR, BLS, and First Aid certification.

KIN 630. Design and Analysis of Exercise and Sport Equipment. (3) On sufficient demand. Design and analysis of equipment used in selected sports and equipment used in both resistive and aerobic exercise. Relevant biomechanical and physiological principles will be reviewed and applied to evaluate the quality and effectiveness of equipment now available on the open market and to consider potential improvements in design. Three hours rec. a week. Pr.: a grade of C or higher in KIN 310, 330, and 335.

KIN 635. Nutrition and Exercise. (3) I. The interrelationships between diet, nutrition, and exercise. Topics covered include physical fitness, weight control, nutrient metabolism during exercise, and athletic performance. Pr.: HN 132 or HN 400 and a grade of C or higher in KIN 310 and 335. Cross-listed with HN 635.

KIN 650. Development of Motor Control. (3) On sufficient demand. A multi-level analysis of the neurophysiological activation of muscle, reflexes, sensory integration during movement, and theories of voluntary movement. Two hours lecture and two hours lab a week. Pr.: BIOL 340 and a grade of C or higher in KIN 310.

KIN 655. Fitness Promotion. (3) I. The study of the implementation and promotion of preventive health programs for populations at work, hospitals, and community fitness settings. Pr.: KIN 310 and KIN 335.

KIN 657. Therapeutic Use of Exercise in the Treatment of Disease. (3) II of even-numbered years. Analysis of pathophysiology associated with a number of different diseases and the impact on exercise performance as well as the use of exercise as a therapeutic modality. Pr.: a grade of C or higher in KIN 310 and KIN 335.

KIN 700. Physical Culture in the Western World. (3) I. A seminar on selected topics in the historical and philosophical foundations of physical culture in western civilization. Pr.: Three hours of Western Heritage.

KIN 703. Minority Groups in Sport. (3) The contributions by, problems of, and discrimination against minority groups in sports. Pr.: KIN 250 and KIN 340.

KIN 718. Cinematographic and Videographic Analysis of Human Movement. (3) On sufficient demand. Techniques and instrumentation for the analysis of overt human movement using film, videotape, and other imaging techniques. Pr.: KIN 250 and KIN 330.

KIN 792. Internship in Exercise Science. (6-8) I, II, S. Supervised field experience for the exercise science major in training settings such as YMCA, YWCA, municipal recreation agency, or industrial fitness agency. May be completed with half-time assignment for 12-16 weeks or full-time assignment for 6-8 weeks. Pr.: a grade of C or higher in KIN 655.

KIN 796. Topics in Kinesiology. (1-4) On sufficient demand. Intensive study of a selected topic in kinesiology involving either greater in-depth study, or application of theory presented in a related course. May be repeated as topic varies. Pr.: a grade of C or higher in 6 hours in kinesiology 500 or above. Only 6 hours may be counted toward degree. Cross-listed with AP 796.

Graduate credit

KIN 800. Advanced Physiology of Exercise. (3) I. An in-depth study of the physiological responses of the human body during exercise, the adaptations that occur with exercise training, and the laboratory techniques to assess these responses and adaptations. Pr.: KIN 335. Cross-listed with Anatomy and Physiology. See AP 800.

KIN 805. Physical Activity and Human Behavior.(3) I. An examination of the theory and research related to the psychological antecedents and outcomes of participation in physical activity and exercise. Topics include models of exercise motivation, social cognitive theory of exercise and social ecological models of physical activity. Pr.: KIN 655.

KIN 806. Motor Development. (3) On sufficient demand. A study of psychomotor development. The focus is on the growth years, though developmental considerations for all age groups are considered. Implications for sport, exercise, and physical activity are discussed. Pr.: KIN 320.

KIN 807. Motor Learning and Control. (3) I. Application of learning principles to skill acquisition in sport and human domain; and practical applications. Pr.: KIN 320 or 9 hours of graduate credit in psychology (500 level or above).

KIN 808. Social Epidemiology of Physical Activity. (3) I. An examination of the social factors that contribute to an understanding of why people participate in physical activity. Topics include the consideration of individual social and demographic factors such as gender, race, socioeconomic status, education, and social support as well as social structural factors such as the role of the social institutions (e.g. family, work and school environments). Pr.: KIN 655.

KIN 815. Research Methods in Kinesiology. (3) II. A study of techniques of the research process including the identification of a research problem, the design of experimental and non-experimental strategies, and the presentation of written esearch.

KIN 818. Social and Behavioral Bases of Public Health. (3) I. The role of behavioral, social, psychological, economic, environmental, and social structural factors in both the occurrence of health problems in groups and populations, and in the development of the risk factors that contribute to these problems. Principles of health behavior change and the application of these principles to a variety of health issues as well as an emphasis on how social structural factors impact health are examined to better understand health behavior and health inequities in contemporary society. Pr.: Graduate status in public health or kinesiology program.

KIN 820. Physical Activity Leadership.(3) II. Examination of leadership as it pertains to physical activity environments for older adults. Emphasis placed on gaining a broad understanding of the current state of leadership research and the application of a conceptual model of leadership to physical activity outcomes. Pr.: KIN 655.

KIN 825. Mechanical Analysis of Human Movement. (3) II. Mechanical principles and analysis procedures for the study of overt human movement. Applications to movements in exercise, sport, occupational, and daily living activities will be emphasized. Pr.: KIN 330.

KIN 830. Public Health Physical Activity. (3) II. Exploration of the experimental, clinical, and epidemiological theory and research addressing the issues of promoting physical activity. Practical applications of theory and research discussed. Pr.: KIN 655.

KIN 835. Group Dynamics and Physical Activity. (3) II. Examines the principles of group development and maintenance in physical activity environments. Topics include the nature of groups, group environment, important member attributes, group structure, group cohesion, group processes and tactics of group development. Pr.: KIN 655.

KIN 840. Public Health Field Experience. (3-6) I, II, S. Supervised field experience in an international, state, local, or district health agency or other appropriate health agency. May be taken more than once, but only 6 hours may be applied toward the MPH degree. Pr.: Consent of instructor. Cross-listed with HN 840.

KIN 855. Exercise Psychology in Special Populations. (3) I. A study of the psychological determinants and outcomes of exercise participation in special populations (e.g. arthritic, obese, cardiovascular disease). Emphasis in understanding the motive underlying involvement in exercise and physical activity and the situational and personal determinants associated with failure to initiate and/or adhere to exercise and physical activity programs. Pr.: KIN 655.

KIN 896. Independent Study in Kinesiology. (1-4) I, II, S. Intensive independent study in a topic or problem involving the integration, application, and synthesis of theory presented in a related course. The course culminates in the preparation of an original paper. Pr.: KIN 815 and related graduate subject core courses.

KIN 897. Research in Kinesiology. (1-4) I, II, S. Independent study in one or more of the research processes involved in the scientific method. Pr.: STAT 702 or 703, KIN 815, and related graduate subject core course.

KIN 898. Master's Report. (1-4)

KIN 899. Master's Thesis. (1-6)

For more information

For additional information and application materials please contact:
Coordinator of Graduate Studies
Kansas State University
Department of Kinesiology

8 Natatorium
Manhattan, Kansas 66506-0302
785-532-6765
E-mail: tbarsto@ksu.edu
Home Page: http://www.ksu.edu/kines/

Landscape Architecture

Master of landscape architecture | Program requirements | Admission | Landscape architecture courses | More information

Head:
Dan W. Donelin

Director of graduate studies:
Dan W. Donelin

Academic Advisor:
Lisa Last

Graduate faculty:

Alton A. Barnes, Jr., MLA, University of Illinois.

Eric Bernard, MLA, Texas Tech University.

Laurence A. Clement, Jr., MLA, Kansas State University.

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Lynn Ewanow, MLA, State University of New York, College of Environmental Science and Forestry.

Richard H. Forsyth, MLA, Harvard University.

Jeff Head, MLA, Kansas State University.

Timothy D. Keane, Ph.D., University of Michigan.

Melanie B. Klein, MLA, University of Colorado at Denver.

Dennis L. Law, MLA, Kansas State University.

Robert L. Page, MLA, Harvard University.

Stephanie A. Rolley, MCP, Massachusetts Institute of Technology.

Lee R. Skabelund, MLA, University of Michigan.

LaBarbara James Wigfall, MCRP, Harvard University.

William P. Winslow, III, MLA, University of Michigan.

The Department of Landscape Architecture/Regional and Community Planning offers a professional master of landscape architecture degree and a master of regional and community planning degree. The master of landscape architecture and master of regional and community planning are offered to non-baccalaureate as well as post-baccalaureate students. Both the non-baccalaureate and post-baccalaureate masters' degrees are accredited by their respective professional accrediting agencies. Graduates of the programs are in demand throughout the country in private practice, governmental service, and academic setting.

Master of landscape architecture

Landscape planning and design have been part of the curriculum at Kansas State University since 1871, being part of the required curriculum of all students in the early days of the institution. The first MLA student graduated in 1968 and the MLA program is fully accredited by the Landscape Architectural Accreditation Board of the American Society of Landscape Architects.

Program Definition
Our definition of advanced landscape architecture education includes development of a strong foundation of traditional knowledge and skills as well as self-motivated and defined scholarship. Throughout the program, we are committed to research as a means of learning and serving communities and individuals.

Graduates of our program practice in a wide variety of natural and built environments including urban, suburban, rural, wilderness, domestic, and international. Their practice takes place in small and large firms, multidisciplinary firms, design/build, land development, facility management, public practice, academic settings, and within other fields. Kansas State University MLA graduates provide leadership in and advocacy for stewardship of the land and the interface of people with the land. They seek long-term solutions concerning land health, human dignity, and aesthetic quality.

Program Mission and Objectives
The mission of the Kansas State University MLA program is to prepare students to practice landscape architecture and advance within and contribute to the profession over time. It will provide opportunities for students and faculty to cultivate the skills of practice and explore and develop areas of expertise.

Goals of the program are to cultivate student competencies in

- design
- critical thinking
- research
- communication

THE MLA PROGRAM AND CURRICULUM
There are two program offerings in Landscape Architecture, Non-Baccalaureate and Post-Baccalaureate degrees, both of which result in a master's degree.

Core Curriculum
The core courses are designed to fulfill several purposes. The series provides an overview of the profession of landscape architecture and explores the scope, context, and opportunities of the profession. Students are introduced to research as a principle tool of advancement of the profession and the application of research in professional practice. The following core courses are required of all graduate students in the MLA curriculum.

		Credits	
Number	**Name**	**BN**	**PB**
LAR 646	Community Planning & Design	5	5
LAR 502	Land Arch Seminar II	2	2
LAR 648	Specialization Studio	5	-
LAR 725	LA Research Methods	3	3
LAR 704	Environmental Land Planning & Design	5	5
LAR 750	Land. Arch. Seminar III	2	2
LAR 745	Professional Practice	3	3
Professional Electives		3	8
Master's Project & Report Option			
LAR 700	Project Programming	3	3
LAR 705	Master's Project & Report	5	5
	OR		
Thesis Option			
LAR 898	Thesis Proposal Writing	3	3
LAR 899	Research in Land. Arch. (thesis)	5	5
		36	**36**

Total credit hours required for MLA degree is 36

There are two options of study available to both Non-Baccalaureate and Post-Baccalaureate students.

- **Master's Project & Report for which the student must enroll in LAR 700 and LAR 705.**

  OR

- **Thesis Option which requires the student to take LAR 898 and LAR 899.**

Concentrations
The policy of the MLA program is that students develop their own area of concentration that reflects a focused investigation of topics and issues specific to their professional practice interests. The selected focus must reflect faculty experience, interest and expertise as well as the resources of the Department and the College.

Program requirements

Non-Baccalaureate MLA
There is an Eleven-Semester Non-Baccalaureate MLA Degree Program for undergraduate students. Students are accepted into the College of Architecture, Planning and Design and begin their education by enrolling in the Environmental Design Program (ENVD). The ENVD Program provides a common first year for Landscape Architecture, Regional and Community Planning, Architecture and Interior Architecture and Product Design students. A student must make a decision early in the second semester of the first year regarding which of the four programs he or she

would like to enter the following fall semester. Students in the Landscape Architecture Program will apply to the Graduate School for entry into the MLA program during the sixth semester of undergraduate study. Minimum requirements for acceptance to the MLA Non-Baccalaureate Program are:

- 3.00-4.00 GPA - Regular Admission
- 2.75-2.99 GPA - Probation
- 2.50-2.74 GPA - Probation by Department Request

GPA is based on the last 60 hours of credit earned at the time you are considered for admission. Landscape architecture applications will be required to submit examples of studio work if they have below a 3.00 GPA. The Graduate School will not admit students with less than a 2.50 GPA.

Graduate courses in landscape architecture begin during the summer after the sixth semester. Upon successful completion of the sixth semester and acceptance into the MLA program by the Graduate School non-baccalaureate students will begin the MLA program of study.

For Non-Baccalaureate MLA students Two distinct study opportunities are offered during the eighth semester, each requiring 14 credit hours. The Italian studies program and the internship options have course requirements that substitute for the professional elective requirements in this semester. If the internship option is not selected during the eighth semester, a summer internship is required between the eighth and ninth semesters.

The landscape architecture program requires a minimum of 18 credit hours of university general education (UGE) electives, of which at least six credit hours must be in courses numbered 300 or above. At least 15 credit hours must be in courses taken outside the college. No more than two UGE courses may be taken in a single discipline. A current listing of UGE electives may be found at www.k-state.edu/uge/. Students who participate in study abroad programs approved by K-State will meet UGE credit at the 300 level upon the successful completion of the program.

A listing of departmental professional electives can be found in the Landscape Architecture Handbook on the department website.

Landscape architecture program
It is important to refer to the department website for current information regarding this program. The program is subject to constant review and change without notice. Students should obtain a copy of the current curriculum when they enter the program.

Total credit hours for graduation: 165

Third semester		
LAR 220	Site Design Studio I	4
LAR 310	Design Graphics and Visual Thinking	2
LAR 420	Natural Systems and Site Analysis	4
LAR 433	History and Theory of Landscape Architecture	3
LAR 510	Technical Module I	1
ENGL 200	Expository Writing II	3
		17
Fourth semester		
LAR 248	Landscape Architecture Materials and Methods	3
LAR 320	Site Design Studio II	5
LAR 322	Environmental Issues and Ethics	3
LAR 520	Technical Module II	1
BIOL 210	General Botany	4
		16
Fifth semester		
LAR 410	Planting Design Studio	5
LAR 438	Land Construction I	4
LAR 530	Technical Module III	2
PLAN 315	Introduction to Planning	3
HORT 374	Woody Plant Materials I	3
		17
Sixth semester		
Application to the MLA program early spring		5
LAR 442	Site Planning and Design Studio	4
LAR 439	Land Construction II	2

LAR 501	Landscape Architecture Seminar I	1
LAR 540	Technical Module IV	6
University general education elective*		18

Summer study		
LAR 646	Community Planning and Design	5
LAR 502	Landscape Architecture Seminar II	2
LAR 010	Landscape Architecture Field Trip	0
		7

Seventh semester		
LAR 444	Internship/Advanced Studies Planning Seminar	1
LAR 550	Technical Module V	2
LAR 647	Land Construction III	5
LAR 648	Specialization Studio	5
LAR 725	Landscape Architecture Research Methods	3
LAR 750	Landscape Architecture Seminar III	2
		18

Eighth semester**		
Study abroad internship		
LAR 703	Off-Campus Studio	5
	or	
Professional electives		9
		14

Ninth semester		
LAR 645	Professional Internship Report	1
LAR 704	Environmental Landscape Planning and Design	5
Professional elective		3
LAR 700	Project Programming	3
	or	
LAR 898	Thesis Proposal Writing	3
University general education elective*		3
		15

Tenth semester		
LAR 705	Master's Project and Report	5
	or	
LAR 899	MLA Research	5
LAR 745	Professional Practice	3
LAR 550	Technical Module VI	1
University general education elective*		3
		12

*Program includes 18 hours of university general education electives as required by the university. A current listing of UGE electives can be found on www.ksu.edu/registrar/enroll/gened.html.

**Eighth semester: Two distinct study opportunities are offered during this semester, each requiring 14 credit hours. The study abroad and the internship options have course requirements that substitute for the 9 professional elective credit requirements. If the internship option is not selected during the eighth semester, a summer internship is required before graduation. A current listing of UGE electives can be found on www.ksu.edu/registrar/enroll/gened.html. Students who participate in study abroad programs approved by K-State will fulfill the 6-hour UGE credit at the 300 level upon successful completion of the study abroad program.

For more information concerning course requirements and sequencing for the Non-Baccalaureate MLA option, please refer to the 2006-2008 K-State University Undergraduate Catalog.

Post-Baccalaureate MLA

There is a Seven-Semester Post-Baccalaureate MLA Degree Program for students applying with non-design undergraduate degrees. Applicants to the Master of Landscape Architecture Program have undergraduate degrees in many different fields. For this reason, the faculty evaluate all applicants on an individual basis to determine the applicant's level of ability. Students may be required to undertake basic proficiency courses to ensure they have the knowledge and skills in history and theory, design, construction, planting design, and professional practice. The basic proficiency courses will vary with each individual, from none for a student with an accredited BLA degree to 55 credits for a student with no design background. The Post-Baccalaureate MLA Program is a two-year program for a student with an accredited BLA degree to a seven semester program for a student with no design background.

Proficiency Courses

Students without a design background enrolled in the Post-Baccalaureate MLA program are required to undertake basic proficiency courses to ensure they have the knowledge and skills in history and theory, design, construction, planting design, and professional practice. Possible required proficiency courses are:

Number	Name	Credits
LAR 010	Landscape Architecture Field Trip	0
LAR 220	Site Design Studio I	4
LAR 248	Land. Arch. Materials and Methods	3
LAR 310	Design Graphics & Visual Thinking	2
LAR 322	Environmental Issues & Ethics	3
LAR 420	Natural Systems and Site Analysis	4
LAR 442	Site Planning & Design Studio	5
LAR 433	History and Theory of LA	3
HORT 374	Woody Plant Materials I	3
LAR 501	Landscape Architecture Seminar I	2
LAR 510	Tech Module I	1
LAR 520	Tech Module II	1
LAR 530	Tech Module III	2
LAR 540	Tech Module IV	1
LAR 550	Tech Module V	2
LAR 560	Tech Module VI	1
LAR 410	Planting Design	5
LAR 438	LA Land Construction I	4
LAR 439	LA Land Construction II	4
LAR 647	LA Land Construction III	5

Program Structure

Both the Non-Baccalaureate and Post-Baccalaureate MLA programs are designed to give participating students a broad exposure to traditional and emerging forms of practice and professional opportunities.

Program of Study

The Graduate School requires that each student develop a program of study. The program of study is a list of the graduate courses each student intends to take to fulfill the requirements of their graduate degree. The 36 credit hour MLA program of study requires all students to take several core courses and to develop an area of emphasis or concentration. A program of study is developed by the student in consultation with his or her major professor and supervisory committee members and approved by the MLA coordinator. Most **Post-Baccalaureate MLA** students will file their program of study during their fourth semester. **Non-Baccalaureate MLA** students will file their program of study during their seventh semester. The program of study must be filed with the Graduate School by each student no later than during the semester prior to the final semester of study.

Post-Baccalaureate Admission

Application materials should be submitted for review to the Department of Landscape Architecture/Regional and Community Planning and the Graduate School.

International applications should be submitted by February 1 and domestic applications by July 1.

The application package should contain the following materials:

1. Completed K-State Graduate School application form.
2. Proof of having a bachelor's degree (may be noted on transcript).
3. Two official transcripts of all previous courses and grades at junior colleges, colleges, or universities. Send these directly from the registrar

of the college or university to this department to the attention of the graduate director. They become part of the student's file and may not be returned.

4. A letter of intent addressed to the landscape architecture faculty, stating your academic and professional objectives and your interest in the K-State MLA program.
5. A portfolio or collection of previous design work, landscape plans, sketches, project photos, samples of academic, or professional writing. The collection of works may be presented with photocopies, diazo prints, or other similar formats. The portfolio will be used in conjunction with the transcripts to determine what basic professional courses might be required. **A portfolio is not required for applicants without a design background.** Please include postage-paid, self-addressed shipping materials, if you would like your work returned.
6. Three references from previous professors or employers, relative to the applicant's ability to handle graduate level work. The names and addresses of the references should be listed on the application form. Copies of the reference form can be found on the LARCP website. (WORD or PDF). The applicant should fill out and sign the top portion and then give the form to the reference to complete and forward directly to the graduate director.
7. There is a non-refundable application fee of $70.00 US for domestic students and $80.00 US for international students (which includes the department and Graduate School fees). Applications will not be considered without this fee. There are detailed instructions how to pay this fee onine, in step 4 of the online application, with a credit card that is issued by a U.S. finanicial institution. Visa, Master Card, American Express, and Discover are accepted. Applicants can pay by check or money order, issued from a U.S. financial institution, payable to the Kansas State University Graduate School.
8. The Graduate Record Examination (GRE) is not required for application.

International applicants must submit the following additional materials:

9. Copy of original TOEFL Examination Score (Test of English as a Foreign Language) of 600 or above is required. Foreign students with a bachelor's degree from an American university are exempt from this requirement. Students may be required to complete Intensive English Program before being allowed to enroll in MLA courses.
10. Completed affidavit of financial support.
11. Copy of passport.

Evaluation of the applicant will not begin until all application materials and fee have been received.

Landscape architecture courses

LAR 500. Site Planning and Design. (3) I, II. Theory, principles, and elements of site planning and design. Lectures, readings, short problems, and site visits dealing with site analysis, ecological consideration, grading drainage, circulation and parking, lighting, planting design, materials and details, management and maintenance, and cost factors. Pr.: ARCH 401 or concurrent with ARCH 401.

LAR 501 and LAR 502. Landscape Architecture Seminar. (2) I, II. Required of all fourth- and fifth-year landscape architecture majors. Discussion of current trends in landscape architecture and related fields by students, faculty, and invited speakers. (Two 2-credit-hour seminars are required for a total of four hours for the BLA program.)

LAR 610. Landscape Architecture Field Trip. (1) II. Field trip opportunity for students with advanced standing in the College of Architecture, Planning and Design.

LAR 635. Golf Course Planning and Design. (1-4) I, II, SIS. Fundamentals of golf course planning and design, including: history, management, design, facilities, aesthetics, and technical development. Pr.: Junior standing within landscape architecture.

LAR 645. Professional Internship Report. (1-2) I, II, S. Confirmed employment with a landscape architecture, architecture, planning, or engineering sponsor. Presentation of a summary exhibition board, journal and oral report by each student. Pr.: LAR 655.

LAR 646. Community Planning and Design. (5) S. Design studies focused on community planning and design issues and their communication. Emphasis placed on responding to socio-cultural, political and natural site conditions at multiple scales ranging from large scale land use plans to detailed site plans and design communication. Pr.: LAR 442 and PLAN 315. Coreq.: LAR 502.

LAR 647 Land Construction III. (5) I. Continuation of LAR 439 to include large scale site design, road alignment, large area grading, soils and excavation methods, storm drainage, and utilities routing. Pr.: LAR 439.

LAR 648. Landscape Architecture Specialization Studio. (Var.) I. Diverse topic-specific studios that are supported by corresponding graduate seminars. Focused exploration of landscape architecture practice. Pr.: LAR 442. Coreq: LAR 750.

LAR 652. The Small Community in the Plains States. (3) I, II, S. An overview of the diverse nature of small communities in the Plains states, with an emphasis on the forms and patterns in the existing physical environment. Instruction in various methods of survey and analysis at the regional and community-specific scales, and application of these techniques to a different community each semester. Pr.: Fourth-year standing.

LAR 655. Landscape Architecture Professional Internship. (8-10) II. Twenty-eight week internship with an approved landscape architecture, architecture, planning or engineering sponsor subject to the approval of the departmental faculty. Pr.: LAR 444 and concurrent enrollment in LAR 648.

LAR 660. Landscape Rehabilitation of Disturbed Lands. (3) I. Planning rehabilitation of lands disturbed by mining and construction. Review

of mining procedures, ecological systems, slope rehabilitation, and revegetation techniques. Three hours lecture a week. Pr.: Junior standing.

LAR 700. Project Programming. (3) I. Research and the development of a program directed toward the advancement of a capstone project for LAR 705 Master's Project and Report. Pr.: LAR 647 and LAR 648.

LAR 703. Landscape Architecture Off-Campus Studio. (5) II. Off campus design studies fulfilled in an approved professional design office or in an approved international studies program. Pr.: LAR 648 and 647.

LAR 704. Environmental Landscape Planning and Design. (5) I, II. Introduction to and understanding of environmental planning, design and management of natural and social landscape systems at a regional, watershed, or ecosystem scale. Studies focus on systems inventory, analysis and impact assessment, and geoprocessing theory and methods.

LAR 705. Master's Project and Report. (5) II. Comprehensive application of research and design study through individual studies approved by the department faculty. Pr.: LAR 700. Coreq.: LAR 560.

LAR 709. Computer Applications in Landscape Architecture. (3) II. Introduction to computer-aided design and related applications. Basic two- and three-dimensional problem-solving design visualization and communication. Using word processing and spread sheets in the CAD environment. One hour lec. and 3 hours lab per week. Pr.: Graduate standing with operational knowledge of DOS and windows-based systems is expected.

LAR 710. Microcomputer Applications in Landscape Architecture. (3) I, II. Examination of the application of microcomputer technology in the decision-making processes in the advanced practice and research of landscape architecture. Two hours lecture and two hours lab a week. Pr.: LAR 460.

LAR 720. Public Lands and Natural Resources Law. (3) I, II. Legal aspects of land use and natural resource management on the federal public lands. A brief history of the acquisition and disposition of the public domain and a review of legal authority on the public lands are followed by an examination of key legal issues concerning the resources of water, minerals, timber, range, wildlife, recreation and wilderness. Pr.: Advanced standing.

LAR 725. Landscape Architecture Research Methods. (3) I, II. An introductory course surveying the basic philosophies and methodologies of science and research as they apply to the field of landscape architecture. Special emphasis will be placed on those methods appropriate for investigating human response to the built environment.

LAR 731. Landscape Plant Field Studies I. (1) I. The study of introduced and indigenous deciduous woody trees, shrubs, vines, and herbaceous plants adapted to the northeastern Kansas region with emphasis on the identification and selection of plant materials for use in landscape design. One hour lecture and two hours outdoor lab a week. Pr.: Graduate standing.

LAR 732. Landscape Plant Field Studies II. (1) II. A continuation of LAR 731: including the study of introduced and indigenous wood conifers and broadleaf evergreens, deciduous flowering trees and shrubs, and native grasses and forbs adapted to the northeastern Kansas region with emphasis on the identification and selection of plant material for use in landscape design. One hour lecture and two hours outdoor lab a week. Pr.: LAR 731.

LAR 735. Advanced Golf Course Planning and Design. (2) I, II, S. Advanced methods and strategies of golf course and resort planning and design. One hour of lecture and three hours of lab a week. Pr.: LAR 635.

LAR 741. Problems in Landscape Architecture. (Var.) I, II, S. Specific problems and-or reports in the area of landscape architecture. Pr.: Advanced undergraduate or graduate standing.

LAR 742. Topics in Italian Landscape Architecture. (3) II. Investigation of Italian culture, landscape and communities through analytical readings and/or drawings.

LAR 744. Community Planning and Design. (4) I. Study of the relationships between planning and design in the growth and development of cities and towns. Two hours lec. and six hours studio a week. Pr.: PLAN 315.

LAR 746. Urban Design Studio I. (4) I. An interdisciplinary design studio involving large-scale design; projects with extensive time implementation sequence; responses to socioeconomic, cultural, environmental, and technical needs; and implementation strategies. Design methods are applied to selected urban areas of the Midwest. Pr.: PLAN 315 or equivalent; and concurrent enrollment in PLAN 745.

LAR 748. Natural Systems and Site Analysis. (1-3) I. Plant characteristics and their application in landscape architectural design; ecological considerations of site adaptation; natural systems; comprehensive site analysis; variety in scale and scope of projects. Two hours lec and 4 hours studio a week. Pr.: Graduate standing.

LAR 749. Planting Design. (1-3) II. Preparation of planting plans and supplementary materials design to fit a variety of sites; emphasis on planting design elements, principles and implementation. Two hours lec. and 4 hours studio a week. Pr.: LAR 748.

LAR 750. Landscape Architecture Seminar III. (2) I. Studies and discussion of topics related to specialization studio.

LAR 752. Landscape Architecture Materials and Methods. (2) I. To provide the student a basic understanding of materials and methods commonly utilized in the practice of landscape architecture as a basis to pursue subsequent land design and land construction course work. Pr.:

Graduate standing.

LAR 753. Professional Practice. (3) I. Studies of conventional and newly developing methods of professional design practice. Instruction in the relationships of architects, landscape architects, interior architects, and other professionals to users, clients, construction industry, society, government, and one another. Two hours lecture and one hour recitation. Pr.: 5th-year standing.

LAR 756. Design of Parks and Recreation Areas. (3) I. Site Planning of national, state, municipal, and private parks, and specialized recreation areas. Three hours lecture a week. Pr.: Junior standing.

LAR 757. Design for Special Populations. (3) II. Design of exterior environment to accommodate the handicapped and disadvantaged individual. Pr.: Advanced undergraduate or graduate standing.

LAR 758. Land Resource Information Systems. (3) I. The understanding, collection, and application of land resource data to land planning and design. Current methods of resource inventory, ecologically oriented site analysis, and environmental impact assessment. Review of common sources for necessary information in each resource category. Two hours lecture and two hours studio a week. Pr.: Advanced undergraduate or graduate standing.

LAR 759. Landscape Resource Evaluation. (3) II. The determination of the impact of physical project design upon the natural and manmade environment. Studies of existing site conditions and projections of the effect of such projects upon the site and vicinity. Pr.: Senior or graduate standing.

LAR 760. Composite Landscape Architecture Design Studio I. (1-4) I. Landscape design including delineation, design process, design elements, small-scale design, urban design. Pr.: Graduate standing.

LAR 761. Composite Landscape Architecture Design Studio II. (1-4) II. Continuation of LAR 760: including topics such as community design, resource analysis, park and recreation design, historic preservation with consideration of aesthetic and sensory issues. Pr.: LAR 760.

LAR 762. Composite Landscape Architecture Design Studio III. (1-4) I. Continuation of LAR 761: including topics such as community design, resource analysis, park and recreation design, historic preservation with consideration of aesthetic, technical, and economic issues. Pr.: LAR 761.

LAR 763. Composite Landscape Architecture Construction I. (1-4) II. Landscape construction including topography, site planning, site layout, grading, earthwork estimating, lighting, irrigation, construction detailing, cost estimating. Pr.: LAR 762.

LAR 764. Composite Landscape Architecture Construction II. (1-4) I. A continuation of LAR 763; large area grading, road alignment, storm drainage, utilities layout and specifications, contract. Pr.: LAR 763.

LAR 765. Composite Landscape Architecture Construction III. 3) I. A continuation of LAR 764. To include large scale site design, road alignment, large area grading, storm drainage , and utilities routing. Pr.: LAR 764.

LAR 860. Advanced Planting Design. (1-4). I, II, S. Special studies in advanced planting design. Pr.: LAR 749.

LAR 870. Advanced Landscape Architecture. (3) I, II, S. Special studies and design in advanced landscape architecture. Pr.: LAR 702.

LAR 880. Advanced Landscape Architecture Construction. (1-4) I, II, S. Specialized study of large-scale landscape planning involving landscape construction and grading. Pr.: LAR 647.

LAR 898. Thesis Proposal Writing. (2) I, II, Exploration of procedures of planning, design, scheduling, organization, and management of a landscape architecture research project. Two hours lecture a week. Pr.: LAR 725, ARCH 725 or EDCEP 816.

LAR 899. Research in Landscape Architecture. (Var.) I, II, S. Investigations in landscape architecture and related areas, of such caliber as to form the basis for a graduate thesis. Pr.: Graduate standing in landscape architecture.

For more information

For additional information and application materials please contact:
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Management

Head:
Brian P. Niehoff

Director of graduate studies:
Jeff Katz

Graduate faculty:

Marne Arthaud-Day, Ph.D., Indiana University.

James M. Bloodgood, Ph.D., University of South Carolina.

Bongsug Chae, Ph.D., Texas A&M University.

Michael Chilton, Ph.D., University of Arkansas.

Yar M. Ebadi, DBA, Indiana University.

Ike C. Ehie, Ph.D., University of Missouri-Rolla.

Jeffrey Katz, Ph.D., University of Florida.

Roger McHaney, Ph.D., University of Arkansas.

Peter Mudrack, Ph.D., University of Toronto, Canada.

Brian P. Niehoff, Ph.D., Indiana University.

Paul, Robert, (Emeritus) Ph.D., University of Arkansas.

J. Bruce Prince, Ph.D., University of Southern California.

Ronald L. Sampson, Ph.D., University of Notre Dame.

Chwen Sheu, Ph.D., The Ohio State University.

Diane Swanson, Ph.D., University of Pittsburgh.

William Turnley, Ph.D., University of South Carolina.

Programs

The Department of Management supports the Master of Business Administration (MBA) and Master of Accountancy (MACC) degrees.

Management courses

Undergraduate and graduate credit in minor field

MANGT 520. Organizational Behavior. (3) I, II. Examination of psychological and sociological variables important in understanding individual motivation, group functioning, change, creativity, and leadership in organizations. Pr.: MANGT 420.

MANGT 521. Quantitative Management. (3) I, II. Quantitative techniques, models, and the integrative nature of management systems. Includes PERT, CPM, linear programming, and inventory models. Pr.: CIS 101,102,103 or 200 and lab, MANGT 420, MATH 205, and STAT 350.

MANGT 522. Operations Planning and Control. (3) II, on suffcient demand. Development of concepts and understanding of planning and control systems for allocating resources and scheduling activities in business firms. To guide and coordinate the flow of materials, labor inputs, and goods and services through physical productive systems. Topics include: aggregate planning, master production scheduling, production activity planning and control, operations information systems, inventory control, material requirements planning, and total quality control. Pr.: MANGT 421.

MANGT 530. Industrial and Labor Relations. (3) I. Basic course in industrial and labor relations. Broad coverage of the institution of collective bargaining and its environment, the goals and operation of labor unions, the impact of unions on management, and labor relations law.

Pr.: Junior standing.

MANGT 531. Human Resources Management. (3) I, II. This course provides an overview of the human resource systems and processes needed to achieve organizational effectiveness and strategic success. All key functional areas including human resource planning, staffing, performance management, employee development, and compensation are addressed. Pr.: MANGT 420.

MANGT 535. Employment Law. (3) I, II. A survey course designed to acquaint students with the broad and controlling aspects of prominent laws which affect human resource management. Topics include ADA, ADEA, OSHA, Title VII, etc. Pr.: MANGT 531.

MANGT 540. Small Business Consulting. (3) II. In the framework of supervised field projects, student teams analyze the management programs of an actual business. Emphasis is placed on understanding operational and strategic planning problems in the context of small business. Students develop a strategic plan for the success of the business. Pr.: Junior standing or permission of the instructor.

MANGT 550. Organizational Training and Development. (3) II. The process of training and developing the human resources in organizations, which includes organizational diagnosis, needs assessment, program design, appropriate methodologies, program implementation, transfer of training, and the evaluation of program effectiveness. Current trends in the content and process of training and development activities are also examined. Pr: MANGT 520 and MANGT 531.

MANGT 560. Management of Diversity in the Workplace. (3) I. This course provides a framework for understanding how diversity interfaces with all aspects of business. Topics will include multicultural competencies, global diversity trends, theories for managing diversity, personal and organizational communication, diversity recruitment and retention, and other management practices for a diverse workforce and customer base. Pr: MANGT 420 or equivalent.

MANGT 570. Systems Design. (3) I, II. Advanced application of concepts learned in information systems fundamentals course. Focus on the application and integration of different design methodologies using structured programming languages, and various structured design techniques. Pr.: MANGT 367.

MANGT 576. Management of Local Area Networks. (3) I, II. Study of telecommunications and its impact on business organizations. Coverage of networking models, hardware, software, distributed systems, and standards issues. Emphasis on Local Area Networks (LANs) and hands-on project management. Pr.: MANGT 367.

MANGT 595. Business Strategy. (3) I, II, S. An integration of previous courses through the study of problems in policy formulation and implementation. Cases and current topics with emphasis on strategic planning. Open only to seniors or nonbusiness graduate students. Pr.: FINAN 450, MANGT 420, MKTG 400, and senior level students admitted in a College of Business Administration degree track (major).

MANGT 596. Business, Government, and Society. (3) I, II, S. The interrelationships and interactions of business with the social, political, and economic institutions. The impact of changes in the external environment on business and the managerial task. Pr.: FINAN 450, MANGT 420, MKTG 400, and senior level students admitted in a College of Business Administration degree track (major).

Undergraduate and graduate credit

MANGT 623. Compensation and Performance Management. (3) II. An in-depth critique of compensation system design and performance management strategies needed to attract, retain, develop and motivate the human capital required for organizational effectiveness and strategic success. Pr.: MANGT 531.

MANGT 633. Advanced Human Resource Management. (3) I. An in-depth analysis of selected topics in human resource management including study of current research and literature. Pr.: MANGT 531.

MANGT 641. Management of Quality. (3) I. Development of quality as a management philosophy through the study of ideas from contemporary quality philosophies of Deming, Juran, and Taguchi. Statistical process control charting as a process and quality improvement tool and product and process design as important components of quality. Pr.: MANGT 421.

MANGT 652. Application of Theory of Constraints. (3) II. The intent of this course is to provide an overview of the application of Theory of Constraints (TOC). TOC suggests that every process or system has at least one constraint that prevents the operation from being more efficient. TOC offers methodologies that are specifically developed to identify and manage constraints to enable the operation to achieve its goals. Students will be taught the skills required for the identification and management of constraints within an operation system. Pr.: MANGT 420, MANGT 421, MANGT 521.

MANGT 653. Business Project Management. (3) I. This course provides an in-depth coverage of project management concepts and methodologies required for service and manufacturing operations. Topics to be covered include, but are not limited to: project selection and evaluation, project dynamics, motivation and evaluation of project team members, project scheduling, project budgeting, and project closure. Pr.: MANGT 420, MANGT 421.

MANGT 656. Systems Analysis. (3) I, II. An in-depth study of systems analysis techniques viewing information systems as an integral component of organizational strategic planning. Emphasis on systems planning, use of CASE tools, process and data modeling, quality and systems reengineering. Pr.: MANGT 366 and 420.

MANGT 660. Demand-Based Management for Supply Chain. (3) I. This course provides a framework of how the demand side of the

supply chain should interface with supply side. The focus will be on integrating specific tools and emerging issues including strategy, forecasting, inventory management, risk pooling, coordination, information sharing, and global supply chain management. Pr.: MANGT 421.

MANGT 662. Supply Chain Management. (3) II. This course addresses the interrelationship between operations and other functions required to deliver value to the end customer of a supply chain. topics include major processes to manage the flow of goods, services and information through core functions such as logistics, operations and purchasing in the supply chains of both goods and service providers. Pr.: MANGT 421, or with permission or instructor.

MANGT 666. Applications of Data Models in Business. (3) I, S. Examination of interrelationships between managers and database designers from the user's perspective. Database design strategies for the functional areas of business such as accounting, marketing, and manufacturing management with a focus on making data responsive to changing information needs and supportive or organizational plans and goals. Pr.: MANGT 367.

MANGT 686. Systems Administration. (3) I, II. Study of the interrelationship of organizational information systems and how these systems support managerial decision making. The analytical/programming tools used to perform the systems administration function will be implemented through a semester project. Pr.: MANGT 570, 576, 656, and 666.

MANGT 690. International Management. (3) On sufficient demand. Examination of business decision parameters and strategy in a multinational context. The influence of cultural, economic, political, and social differences on decision making and the operation of American enterprises in the international environment. Pr.: FINAN 450, MANGT 420, MKTG 400, or FINAN 710.

Graduate credit

MANGT 810. Operations Management and Analysis. (3) II. The study of the role of operations systems in the provision of value for the customer. Operations systems design, capacity determination, resource requirements planning and control, theory of constraints, supply chain management, quality management and control and project management are discussed and analyzed. Pr.: STAT 351 or STAT 702.

MANGT 820. Behavioral Management Theory. (3) I, S. An in-depth analysis of the development of the behavioral bases of individual and group behavior in business, governmental, educational, and other organizations with emphasis on current research literature and applications. Pr.: Open only to students in graduate business degree or certificate programs or with permission of the instructor.

MANGT 825. Advanced Business Law. (3) II. A study of civil law as it affects commercial transactions, including corporations, partnerships, property, commercial paper, and secured transactions. Pr.: graduate student standing.

MANGT 830. Applied Managerial Computing. (3) I. A practical exposure to information technology as it applies to business. Emphasis will be placed on problem-solving using spreadsheets, databases, and HTML based information systems. Pr.: Graduate student standing.

MANGT 840. Advanced Entrepreneurship. (3) On sufficient demand. An in-depth examination of the nature of entrepreneurship including success factors, the requirements of successful new venture planning and implementation, and researching the current literature in the field. The study of new product identification, the assessment of commercial potential, and the elements of an effective business plan will be examined in detail, culminating in the preparation of a comprehensive plan for the development and marketing of a new product or service. Pr.: FINAN 815, MANGT 820, and MKTIB 890.

MANGT 845. Technology Entrepreneurship and Strategy. (3) On sufficient demand. In this course the student will learn how to recognize and screen technology opportunities in diverse areas such as telecommunications to biotechnology; learn the intricacies of intellectual property creation, protection and acquisition; effectively implement the commercialization process. A major objective of the course is to help students realize that technology may be the most under-utilized asset in either the private or public sector yet, in the form of licenses or rights to use, can be sold repeated with a relatively low cost of goods sold, resulting in a continual stream of income. Pr.: None.

MANGT 860. Management of Legal, Ethical, and Public Policy Issues. (3) II, S. A study of the influence of political, economic, legal and social factors on contemporary business organizations. The course requires students to integrate concepts from core courses in order to formulate and implement strategic and ethical responses to issues posed by these environmental factors. Pr.: ACCTG 810, FINAN 815, MKTG 810, MANGT 810, MANGT 820, MANGT 830, ECON 815, and STAT 702.

MANGT 867. Enterprise Information Systems Management. (3) II. Concepts and information resource management techniques are integrated into a conceptual framework of enterprise information systems. The impact of current issues and new technologies on business is emphasized through discussion and application. Pr.: ACCTG 844.

MANGT 892. International Operations Management. (3) On sufficient demand. Explores the global market context and the environment for multinational operations. Examines important tools, concepts, theories, models, and structures as defined and applied to manufacturing and service operations in other countries. Emphasis is placed on Japanese technology and practices. It draws upon those aspects of manufacturing and service operations that can help U.S. firms become increasingly competitive worldwide. Pr.: MANGT 690 and 810.

MANGT 893. Management Science. (3) On sufficient demand. The application of management science methods to business problems to provide a basis for rational decision making. Includes mathematical programming, inventory theory, simulation, model building, and heuristics. Pr.: MATH 205, STAT 351 or STAT 702 (or concurrent enrollment).

MANGT 897. Topics in Management: Contemporary Issues in Management. (3) II. Discussion and analysis of contemporary issues in

management, including applications, development and study of relevant literature and research findings. Pr.: MANGT 820, 810 and 830.

MANGT 898. Special Problems in Management. (Var.) As scheduled. An in-depth study of specified topics. Pr.: Twelve hours of management and consent of the instructor and department head.

For more information

For additional information and application materials please contact:
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Mathematics

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Doctor of philosphy | Mathematics courses | Graduate credit | More information

Head:
Louis Pigno

Associate Head:
Charles N. Moore

Director of Graduate Studies:
David Yetter

Graduate faculty:

David R. Auckly, Ph.D., University of Michigan.

Andrew G. Bennett, Ph.D., Princeton University.

Robert. B. Burckel, Ph.D., Yale University.

Ricardo Castano-Bernard, Ph.D., University of Warwick, United Kingdom.

Andrew Chermak, Ph.D., Rutgers University.

Todd E. Cochrane, Ph.D., University of Michigan.

Louis Crane, Ph.D., University of Chicago.

Xiang Fang, Ph.D., Texas A&M University.

Soren Hansen, Ph.D., University of Aarhus.

Gerald Hoehn, Ph.D., University of Bonn, Germany.

Marianne Korten,, Ph.D., University of Buenos Aires.

Lige Li, Ph.D., Tulane University.

Zongzhu Lin, Ph.D., University of Massachusetts.

John Maginnis, Ph.D., Stanford University.

Diego Maldonado, Ph.D., University of Kansas.

Forrest R. Miller, Ph.D., University of Massachusetts.

Charles N. Moore, Ph.D., University of California, Los Angeles.

Thomas B. Muenzenberger, Ph.D., University of Wyoming.

Virginia Naibo, Ph.D., Universidad Nacional del Litoral, Argentina.

Gabriel Nagy, Ph.D., University of California, Berkeley.

Louis Pigno, Ph.D., State University of New York, Stony Brook.

Christopher Pinner, Ph.D., University of Texas at Austin.

Pietro Poggi-Corradini, Ph.D., University of Washington.

Alexander G. Ramm, D. Sci., Mathematics Institute Academy of Science, Minsk.

Alexander Rosenberg, Ph.D., Moscow State University.

Dmitry Ryabogin, Ph.D., The Hebrew University of Jerusalem.

Sadahiro Saeki, D.Sc., Tokyo Metropolitan University.

Yan Soibelman, Ph.D., Rostov University.

George E. Strecker, Ph.D., Tulane University.

Victor Turchin, Ph.D., University of Paris VII.

Dan Volok, Ph.D., The Weizmann Institute of Science, Rehovot, Israel.

Huanan Yang, Ph.D., University of California, Los Angeles.

David Yetter, Ph.D., University of Pennsyslvania.

Overview

The Department of Mathematics offers programs of study leading to the master of science and doctor of philosophy degrees. There are over 30 graduate students in the master's and Ph.D. programs; in addition to American students, there is also a large number of European, Middle Eastern, and Asian students, thus lending a truly international flavor to the academic environment in the Department. Financial assistance is available on a competitive basis to well-qualified applicants in the form of graduate teaching assistantships and graduate research assistantships; in addition, there are graduate student fellowships and GTA stipend supplements available through the Graduate School on a competitive basis.

Research areas and facilities

The Mathematics Department has internationally recognized programs in harmonic analysis, operator theory, quantum topology, representation theory, group theory, and applied mathematics. The applied mathematics group is active in computational fluid dynamics, wave propagation, reaction-diffusion equations, as well as in numerical analysis. There are also robust research groups in categorical and point-set topology, geometry of manifolds, analytic number theory, and probabilistic harmonic analysis.

Kansas State University provides excellent facilities for mathematical research. The university libraries have extensive holdings in the mathematical sciences and a separate Math/Physics branch library is housed in the same building as the Mathematics Department. Even obscure publications are available at the Linda Hall Science Library in Kansas City through interlibrary loan. KSU provides a modern computer environment with access to major mathematical software packages (Mathematica, Matlab, etc.) and full internet access. The Mathematics Department also has its own state-of-the-art network of workstations and PC's used for both teaching and research.

Admission

In most cases an applicant to the master's program should have completed work in mathematics equivalent to that required for a bachelor's degree at Kansas State University, whereas applicants to the Ph.D. program will have normally completed the equivalent of a master's degree in an accredited program. While there are no formal application deadlines, international applicants residing outside the U.S. or Canada should have their application materials in by February 1 to be guaranteed consideration for the fall semester of the same year.

Master of science degree

There are three distinct master's degree options recognized by both the Department and the Graduate School: master's thesis; master's report; and the nonthesis, nonreport option.

- In general terms, the master's thesis option is best suited for the student seeking the master's degree as the terminal degree.
- The master's report generally is shorter than the master's thesis, but in principle is closer in format and spirit of creativity to published works in mathematics than is the master's thesis, which tends to be more expository in nature.
- The nonthesis, nonreport option is generally best suited for students wishing to continue into the Ph.D. program in mathematics. Here, instead of defending a thesis or a report, the student will pass a written exam, administered by the student's master's committee.

In all cases, the graduate student must include at least 30 credit hours of mathematics at the 700 level or above on the program of study, which is composed in consultation with the student's supervisory committee.

There is no language requirement for the master's degree.

Doctor of philosophy

The basic requirements for the Ph.D. degree in the Department of Mathematics include:

At least 90 credit hours of mathematics, all at the 700 level and above, of which at least 24 credit hours are taken in residence at Kansas State University, and which includes at least 30 credit hours of MATH 999. A master's degree from a reputable graduate program in mathematics can be used in lieu of 30 credit hours in mathematics.

Passing the Qualifying Exam.

Passing the Preliminary Exam.

Demonstrating reading proficiency of mathematical exposition in French, German, or Russian.

Writing and defending the Ph.D. dissertation.

It is the Department's philosophy that the Qualifying Examination tests the student's mathematical breadth, whereas the Preliminary Examination tests the student's depth.

After passing the Qualifying Exam, the graduate student will, within one year, select a thesis advisor and form the Ph.D. supervisory committee. This committee is responsible for administering the Preliminary Examination, which tests the student's mathematical depth, and therefore his or her readiness to undertake serious mathematical research. The Ph.D. dissertation resulting from the student's independent and original research represents the successful conclusion of the time spent as a graduate student. The student's supervisory committee will schedule a public defense of the dissertation, during which the student will defend not only the mathematical correctness of the work, but also its originality and importance.

Mathematics courses

MATH 500. Mathematical Theory of Interest. (3) I. Extensive introduction to the mathematical theory of interest with applications to the field of actuarial science. Prepares students to take the second professional examination administered by the Society of Actuaries and the Casualty Actuarial Society. Pr.: MATH 221.

MATH 501. Mathematical Foundations of Actuarial Science (3) II. Introduction to calculus-based applications and models with an emphasis on applications to insurance. Prepares students to take the first professional examination administered by the Society of Actuaries and Casualty Actuarial Society. Pr.: MATH 222 and STAT 510 or conc. enrollment in STAT 510.

MATH 506. Introduction to Number Theory. (3) II. Divisibility properties of integers, prime numbers, congruences, multiplicative functions. Pr.: MATH 221.

MATH 510. Discrete Mathematics. (3) I, II, S. Combinatorics and graph theory. Topics selected from counting principles, permutations and combinations, the inclusion-exclusion principle, recurrence relations, trees, graph coloring, Eulerian and Hamiltonian circuits, block designs, and Ramsey Theory. Pr.: Sophomore standing and MATH 221.

MATH 511. Introduction to Algebraic Systems. (3) I. Properties of groups, rings, domains and fields. Examples selected from subsystems of the complex numbers, elementary number theory, and solving equations. Pr.: MATH 222.

MATH 512. Introduction to Modern Algebra. (3) I, II. Introduction to the basic algebraic systems, viz., groups, rings, integral domains, and fields, often drawing from elementary number theory. Special emphasis will be given to methods of theorem proving. Pr.: MATH 222 or consent of instructor.

MATH 515. Introduction to Linear Algebra. (2-3) II. Finite-dimensional vector spaces, linear transformations and their matrix representations, dual spaces, invariant subspaces, Euclidean and unitary spaces, solution spaces for systems of linear equations. Pr.: MATH 512.

MATH 520. Foundations of Analysis. (3) A study of sets and sequences, neighborhoods, limit points, convergence, open and closed sets in the real line and in the plane, the concept of a continuous function. Pr.: MATH 222.

MATH 521. The Real Number System. (3) An extensive development of number systems, with emphasis upon structure. Includes systems of natural numbers, integers, rational numbers, and real numbers. Pr.: MATH 221.

MATH 540. Advanced Ordinary Differential Equations. (3) First-order scalar equations: geometry of integral curves, symmetries and exactly soluble equations; existence, uniqueness and dependence on parameters with examples. Systems of first-order equations, Hamilton's equations and classical mechanics, completely integrable systems. Higher-order equations. Initial value problems for second order linear equations, series solutions and special functions. Boundary value problems with applications. Introduction to perturbation theory and stability. Pr.: MATH 240.

MATH 551. Applied Matrix Theory. (3) I, II. Matrix algebra, solutions to systems of linear equations, determinants, vector spaces, linear transformations, eigenvalues, linear programming, approximation techniques. Pr.: MATH 205 or 220.

MATH 560. Introduction to Topology. (3) An introduction to the basic topological concepts. Topological spaces, metric spaces, closure, interior, and frontier operators, subspaces, separation and countability properties, bases, subbases, convergence, continuity, homeomorphisms, compactness, connectedness, quotients and products. The course will include a brief introduction to proof techniques and set theory. Other topics in topology also may be included. Pr.: MATH 222.

MATH 570. History of Mathematics. (3) II. A survey of the development of mathematics from ancient to modern times. Pr.: MATH 220.

MATH 572. Foundations of Geometry. (3) Euclidean, non-Euclidean, and finite geometries; role of axioms; practice proving theorems in a formal system; synthetic, metric, and transformation approaches to Euclidean geometry. Pr.: MATH 221.

MATH 591. Topics in Mathematics for Teachers. (1-3) I, II, S. Topics of importance for teachers of mathematics. May be repeated for

credit. Pr.: Consent of instructor.

MATH 599. Topics in Mathematics. (1-3) Courses on special topics to be taught on sufficient demand.

MATH 630. Introduction to Complex Analysis. (3) I, II. Complex analytic functions and power series, complex integrals. Taylor and Laurent expansions, residues, Laplace transformations, and the inversion integral. Pr.: MATH 240.

MATH 632. Elementary Partial Differential Equations. (3) I. Orthogonal functions, Fourier series, boundary value problems in partial differential equations. Pr.: MATH 240.

MATH 633. Advanced Calculus I. (3) I. Functions of one variable; limits, continuity, differentiability, Riemann-Stieltjes integral, sequences, series, power series, improper integrals. Pr.: MATH 222.

MATH 634. Advanced Calculus II. (3) II. Functions of several variables; partial differentiation and implicit function theorems, curvilinear coordinates, differential geometry of curves and surfaces, vectors and vector fields, line and surface integrals, double and triple integrals, Green's Theorem, Stokes' Theorem, and Divergence Theorem. Pr.: MATH 633.

MATH 655. Elementary Numerical Analysis I. (3) I. Error analysis, root finding, interpolation, approximation of functions, numerical integration and differentiation, systems of linear equations. Pr.: MATH 221, a computer language, and either MATH 515 or 551.

MATH 656. Elementary Numerical Analysis II. (3) II. A continuation of MATH 655. Linear programming, numerical solutions of differential equations, and the use of standard packages for the solutions of applied problems. Pr.: MATH 655 and 240.

MATH 670. Mathematical Modeling. (3) Introduction of modeling procedures. Case studies in mathematical modeling projects from physical, biological, and social sciences. Pr.: Four mathematics courses numbered 500 or above.

Graduate credit

MATH 700. Set Theory and Logic. (3) An introduction to logic, mathematical proof, and elementary set theory. Topics include elementary logic, relations, partitions, functions, cartesian products, disjoint unions, orders, construction of the natural numbers, ordinal and cardinal numbers, the Axiom of Choice, and transfinite induction. Special emphasis will be given to proving theorems.

MATH 701. Elementary Topology I. (3) I. Introduction to axiomatic topology including a study of compactness, connectedness, local properties, separation axioms, and metrizability. Pr.: Math 633.

MATH 702. Elementary Topology II. (3) Path connectedness, fundamental groups, covering spaces, introduction to topological and differentiable manifolds. Pr.: MATH 701.

MATH 704. Introduction to the Theory of Groups. (3) Introduction to abstract group theory, permutation groups, homomorphisms, direct products, Abelian groups. Jordan-Holder and Sylow theorems. Pr.: MATH 512.

MATH 706. Theory of Numbers. (3) I. Divisibility, congruences, multiplicative functions, number theory from an algebraic viewpoint, quadratic reciprocity, Diophantine equations, prime numbers. Pr.: MATH 221 and either 511 or 512.

MATH 710. Introduction to Category Theory. (3) Categories, duality, special morphisms, functors, natural transformations, limits and colimits, adjoint situations, and applications. Pr.: MATH 701 and MATH 730.

MATH 711. Category Theory. (3) Set-valued functors and concrete categories, factorization structures, algebraic and topological functors, categorical completions, Abelian categories. Pr.: MATH 710.

MATH 713. Advanced Applied Matrix Theory. (3) II. A development of the oncepts of eigenvalues by considering applications in differential equations, quadratic forms and estimation problems. Supporting topics include the Jordan canonical form, functions of matrices, vector and matrix norms, convex sets, with selected topics from the theory and application of the simplex algorithm, Markov chains, Leslie population models, Leontieff input-output model. Pr.: MATH 551 or 603.

MATH 715. Applied Mathematics I. (3) I. Topics from vector calculus, higher-dimensional calculus, ordinary differential equations, matrix theory, linear algebra, and complex analysis. Pr.: MATH 222.

MATH 716. Applied Mathematics II. (3) II. Topics from Fourier series, Fourier and Laplace transforms, partial differential equations, calculus of variations and linear algebra. Pr.: MATH 715.

MATH 721. Introduction to Real Analysis. (3) I. Limits, continuity, uniform convergence, completeness, differentiation, Riemann integration. Pr.: MATH 634 or graduate standing.

MATH 722. Introduction to Functions of Several Variables. (3) II. Analysis of functions of several variables, including differentiability, partial differentiability, maxima and minima, inverse function theorem, implicit function theorem, integration, Fubini's theorem. Pr.: MATH 634 or graduate standing.

MATH 730. Abstract Algebra I. (3) Groups, rings, fields, vector spaces and their homomorphisms. Elementary Galois theory and

decomposition theorems for linear transformations on a finite dimensional vector space. Pr.: MATH 512 or consent of instructor.

MATH 731. Abstract Algebra II. (3) II. Continuation of MATH 730. Pr.: MATH 730 or consent of instructor.

MATH 740. Calculus of Variation. (3) On sufficient demand. Necessary conditions and the Euler-Lagrange equations. Hamilton-Jacobi theory, Noether's theorems, direct methods, applications to geometry and physics. Pr.: MATH 722 or equivalent.

MATH 745. Ordinary Differential Equations. (3) I. First-order equations and applications, second-order equations and oscillation theorems, series solutions and special functions, Sturm Liouville problems, linear systems, autonomous systems and phase plane analysis, stability, Liapunov's method, periodic solutions, perturbation and asymptotic methods, existence and uniqueness theorems. Pr.: MATH 240

MATH 755. Dynamic Modeling Processes. (3) Topics to include equilibrium and stability, limit circles, reaction-diffusion, and shock phenomena, Hopf bifurcation and cusp catastrophes, chaos and strange attractors, bang-bang principle. Applications from physical and biological sciences and engineering. Pr.: MATH 240 and 551.

MATH 757. Mathematical Control Theory. (3) Mathematical analysis of dynamical systems governed by differential equations and their optimal processes, feedback, and filtering. Topics include: dynamical systems with controls, axioms of control systems, input-output behaviours, stability and instability, reachability and controllability, dynamic feedback and stabilization, optimal control processes, piecewise constant control and bang-bang principle, Pontryagin maximum principle, tracking, and filtering. Pr.: MATH 560 and MATH 615.

MATH 760. Probability Theory. (3) An introduction to the mathematical theory of probability. Material covered includes combinatorial probability, random variables, independence, expectations, limit theorems, Markov chains, random walks, and martingales. Pr.: MATH 633 and STAT 510.

MATH 772. Elementary Differential Geometry. (3) Curves and surfaces in Euclidean spaces, differential forms and exterior differentiation, differential invariants and frame fields, uniqueness theorems for curves and surfaces, geodesics, introduction to Riemannian geometry, some global theorems, minimal surfaces. Pr.: MATH 240.

MATH 789. Combinatorial Analysis. (3) II, in alternate years. Permutations, combinations, inversion formulas, generating functions, partitions, finite geometries, difference sets, and other topics. Pr.: MATH 512.

MATH 791. Topics in Mathematics for Secondary School Teachers. (3) Topics of importance in the preparation of secondary school teachers to teach modern mathematics. May be repeated for credit.

MATH 799. Topics in Mathematics. (1-3) Courses on special topics to be taught on sufficient demand.

MATH 801. Numerical Solution of Differential Equations I. (3) I. Single and multistep methods for initial-value problems for ordinary differential equations; discretization and round-off error; consistency, convergence, and stability of these methods; stiff equations and implicit methods; two-point boundary value problems; initial and boundary-value problems for partial differential equations; finite difference methods; marching schemes for parabolic and hyperbolic problems; consistency, stability, convergence, and the Lax equivalence theorem; treatment of boundary conditions; boundary-value problems for elliptic equations; relaxation, alternating direction, and strongly-implicit iterative methods; nonlinear problems; finite element methods. Pr.: MATH 655 and knowledge of a programming language.

MATH 802. Numerical Solution of Differential Equations II. (3) II. Continuation of MATH 801. Pr.: MATH 801.

MATH 810. Higher Algebra I. (3) Theory of groups, theory of rings and ideals, polynomial domains, theory of fields and their extensions. Pr.: MATH 731.

MATH 811. Higher Algebra II. (3) Continuation of MATH 810. Pr.: MATH 810.

MATH 812. Homological Algebra I. (3) I. Introduction to the basics of homological and cohomological delta functors with applications to specific categories. Topics include Abelian categories, functors, exactness, chain complexes and maps, cochain complexes and maps, projective and injective resolutions, left and right derived functors, homological dimension, double complexes, spectral sequences, Tor and Ext functors, cohomology of groups, Lie algebras, and Hochschild homology. Pr.: MATH 811.

MATH 813. Homological Algebra II. (3) II. Introduction to special homology and cohomology theories. Topics include Galois cohomology, cyclic homology, local cohomology theories, localization, derived categories, and the calculus of fractions in Abelian categories. Pr.: MATH 812.

MATH 814. Lie Algebras and Representations I. (3) I, in odd years. Introduction to Lie algebras. Topics include ideals, homomorphisms, nilpotent and solvable algebras, radicals, killing forms, Cartan subalgebras, semisimple Lie algebras and root systems, classification of semisimple Lie algebras, conjugacy theorems, enveloping algebras and PBW theorems, Serre relations, and constructions of semisimple Lie algebras and their enveloping algebras. Pr.: MATH 811.

MATH 815. Lie Algebras and Representations II. (3) II, in odd years. Introduction to Kac-Moody algebras and their representations, Verma modules and BGG categories, and the Kac-Weyl character formula. In addition, special topics include quantum groups and their representations. Pr.: MATH 814.

MATH 816. Algebraic Geometry I. (3) I. Introduction to affine algebraic varieties over algebraically closed fields. Topics include Hilbert Nullstellensatz, Zarski topology, morphisms, differentials, smoothness, separability, and normality, algebraic and projective varieties, sheaf theory,

sheaf cohomology, and vector bundles. Pr.: MATH 811.

MATH 817. Algebraic Geometry II. (3) II. Introduction to schemes. Topics include categories, representable functors, prime spectra, algebraic schemes, separable schemes, normal schemes, proper schemes, schemes with bases, completions, formal schemes, Zariski's Theorem, Frobenius morphisms, and etale morphisms. Pr.: MATH 816.

MATH 818. Introduction to Algebraic Groups I. (3) I, in even years. Introduction to algebraic groups. Topics include a review of algebraic geometry on varieties and morphisms, Lie algebras of algebraic groups, actions of algebraic groups over algebraic varieties, Jordan-Chevalley decompositions, solvable and unipotent algebraic groups, radicals and unipotent radicals, Borel subgroups, and parabolic subgroups. Pr.: MATH 811.

MATH 819. Introduction to Algebraic Groups II. (3) II, in even years. Introduction to reductive and semisimple algebraic groups, Bruhat decompositions, flag varieties, cohomology groups of line bundles over flag manifolds, Chevalley groups and their representations, Weyl modules and classification of irreducible modules, group functors and schemes, Hopf algebras and their representations. Pr.: MATH 818.

MATH 821. Real Analysis. (3) I. Measure theory and integration, Lebesgue integration, L_p-spaces, Hilbert spaces, integration on product spaces, Fubini's theorem. Pr.: MATH 721 and 722.

MATH 822. Complex Analysis. (3) II. Analytic functions, the Cauchy integral theorem, power series, principle of the argument, conformal mapping. Pr.: MATH 821.

MATH 823. Geometric Function and Measure Theory I. (3) I. Topics include general measure theory, covering theorems, Hausdorff measure, area and coarea formulas, distributions, Sobolev spaces, Poincare' inequalities, embeddings theorem, changes of variables, extentions, and capacity. Applications include quasiconformal and quasiregular maps in IR^{IN} and analysis on fractals. Pr.: MATH 821.

MATH 824. Geometric Function and Measure Theory II. (3) II. Continuation of Geometric Function and Measure Theory I. Pr.: MATH 823.

MATH 825. Complex Analysis I. (3) I. Holomorphic functions, harmonic functions, the Cauchy integral theorem, normal families and the Riemann mapping theorem, and the Mittag-Leffler theorem. Pr.: MATH 822 or consent of department.

MATH 826. Complex Analysis II. (3) II. Analytic continuation, the Picard theorem, Hp-spaces, elementary theory of Banach algebra, the theory of Fourier transforms, and the Paley-Wiener theorems. Pr.: MATH 825.

MATH 827. Classical and Modern Fourier Analysis I. (3) I. Topics include Fourier analysis on the circle, singular integrals of convolution type, Littlewood-Paley theory and multipliers, BMO and Carleson Measures, and boundedness and convergence of Fourier integrals (or singular integrals of nonconvolution type). Pr.: MATH 821.

MATH 828. Classical and Modern Fourier Analysis II. (3) II. Continuation of Classical and Modern Fourier Analysis I. Pr.: MATH 827.

MATH 840. Differential Equations I. (3) I. Basic ordinary and partial differential equations. First-order ordinary differential equations: symmetries and solutions in quadratures; existence, uniqueness and dependence on parameters, systems of first order equations, analysis of equilibria. Second order equations: series solutions and special functions, initial- and boundary-value problems for second-order equations. Elements of integral equations. First-order partial differential equations. Basic second-order partial differential equations: wave equations, heat equations, Poisson equation, Schrodinger equation. Pr.: MATH 634 or MATH 745 or consent of instructor.

MATH 841. Differential Equations II. (3) II. Where PDEs come from. Initial and boundary-value problems. A crash course in distribution theory: different spaces of distributions, Fourier and Laplace transformations of distributions, Sobolev spaces. The Poisson equation in bounded and in exterior domains; properties of solutions of elliptic equations. The classical evolution equations revisited. Energy estimates, existence and uniqueness theorems, regularity and other properties of solutions. Simple examples of nonlinear PDEs. Pr.: MATH 840.

MATH 842. Differential Equations III. (3) II. Continuation of MATH 841. Pr.: MATH 841.

MATH 852. Functional Analysis I. (3) I, in alternate years. Topological vector spaces; locally convex spaces (Hahn-Banach Theorem, weak topology, dual pairs, Krein-Milman Theorem, theory of distributions); Banach spaces (Uniform Boundedness Principle, Open Mapping Theorem and applications, Alaoglu's Theorem, analytic vector-valued functions, Krein-Smulian Theorem); C(X) as a Banach space (Stone-Weierstrass Theorem, Riesz Theorem); Lp spaces. Pr.: MATH 821

MATH 853. Functional Analysis II. (3) II, in alternate years. Banach Algebras (spectrum, Gelfand Fourier transform, holomorphic functional calculus); Hilbert spaces (geometric properties, Riesz's Theorem, projections, the adjoint); functional calculus for normal operators; compact operators (spectral properties, Min-Max Theorem, Schatten-vol Neumann classes); Fredholm operators; other operator topologies on B(H); unbounded self-adjoint operators. Other topics. Pr.: MATH 852.

MATH 855. Methods of Applied Mathematics I. (3) An introduction to the mathematical techniques of problem solving in the sciences and engineering. Construction of mathematical models; problem formulation, dimensional analysis and scaling; solution methods for differential equations and difference equations; methods for obtaining approximate solutions; regular and singular perturbations methods, asymptotic series, applications to specific equations and scientific problems. Pr.: MATH 630, 633 and 551.

MATH 856. Methods of Applied Mathematics II. (3) A continuation of MATH 855. Asymptotic expansion of integrals; the methods of stationary phase and steepest descent; summations of series, the Shanks transformation and the Pade fractions; boundary layer theory; the WKB and Langer approximations; the method of averaging and the method of multiple scales. Pr.: MATH 855.

MATH 857. Nonlinear Analysis I. (3) I. The course deals with studies of nonlinear operator equations, existence of their solutions, uniqueness of the solutions, numerical methods for finding solutions. Fixed point theorems, topological principles, nonlinear elliptic equations and evolution equations, ill-posed and inverse problems are discussed. Pr. MATH 821, 822, 852, 853 and MATH 840 is recommended.

MATH 858. Nonlinear Analysis II. (3) II. Continuation of Nonlinear Analysis I. Pr.: MATH 857.

MATH 861. Numerical Analysis I. (3) I. Topics covered may include elementary functional analysis relevant to numerical analysis; numerical solution of differential or integral equations; analysis of stability and convergence; numerical linear algebra including large-scale systems; approximation theory. Pr.: MATH 634 and 655.

MATH 862. Numerical Analysis II. (3) II. Continuation of MATH 861. Pr.: MATH 861.

MATH 864. Theory of Ordinary Differential Equations I. (3) I. The modern theory of ordinary differential equations including general theory and the theory of linear differential equations. Pr.: MATH 641, 722 and 731.

MATH 865. Theory of Ordinary Differential Equations II. (3) II. Continuation of MATH 864 to include nonlinear equations and differential equations in Banach spaces. Pr.: MATH 864.

MATH 871. General Topology I. (3) I. Topological spaces and topological invariants; continuous mappings and their invariants; perfect mappings; topological constructions (product, quotient, direct and inverse limit spaces). Pr.: MATH 700 and 701.

MATH 872. General Topology II. (3) II. Compact spaces and compactification, uniform and proximity spaces, metric spaces and metrization, topology of Rn, function spaces, complete spaces, introduction to homotopy theory. Pr.: MATH 871.

MATH 875. Algebraic Topology. (3) I. Fundamental groups; Seifert-Van Kampen theorem; covering spaces; homology and cohomology; simplicial, singular, cellular, and axiomatic theories; cup products; Betti numbers, Euler characteristic; universal coefficient and Kunneth theorems; Hurewicz theroem in dimension one; orientation of manifolds; degree of maps. Pr.: MATH 701.

MATH 876. Differential Topology. (3) II. Smooth manifolds; smooth maps; smooth partitions of unity; tangent spaces and tangent bundles; derivatives; inverse function theorem and applications; Morse functions; embedding theorems; orientations and orientability via tangent bundles; cotangent and exterior bundles; differential forms; integration on manifolds; vector fields and Lie derivatives; DeRham cohomology and DeRham's theorem. Pr.: MATH 701.

MATH 877. Classical and Quantum General Relativity. (3) I. A self contained introduction to general Relativity, followed by a mathematical introduction to quantum mechanics and quantum field theory. Course culminates in review of current approaches to quantizing general Relativity.

MATH 881. Differentiable Manifolds I. (3) I. Differentiable structures, tangent bundles, tensor bundles, vector fields and differential equations, integral manifolds, differential forms, Stokes' Theorem, DeRham cohomology, Riemannian metrics, introduction to Lie groups, topics in algebraic topology from a differentiable viewpoint. Pr.: MATH 702.

MATH 882. Differentiable Manifolds II. (3) Continuation of MATH 881. Pr.: MATH 881.

MATH 890. Riemann Surfaces. (3) II. Introduction to Riemann Surfaces. Topics will include complex charts, complex structures, holomorphic and meromorphic maps (and functions), order of poles and zeros, covering spaces, monodromy of holomorphic maps, differential forms, DeRham cohomology groups, integration on Riemann surfaces, Cech cohomology of sheaves, compact Riemann surfaces, finite theorems, divisors and sheaves of meromorphic forms, and the Riemann Roch Theorem. Pr.: MATH 702, MATH 811, and MATH 822.

MATH 896. Topics in Mathematics. (Var.) I, II, S. Pr.: Background of courses needed for topic undertaken and consent of instructor.

MATH 897. Seminar in Mathematics Education. (1-3) II, S.

MATH 898. Master's Research. (Var.) I, II, S. Pr.: Consent of instructor.

MATH 899. Thesis Topics. (Var.) I, II, S.

MATH 920. Theory of Groups. (3) I. Group representations and group characters, transfer, signalizer functors, theory of pushing-up, groups of Lie type, (B, N)-pairs, chamber systems and buildings, sporadic simple groups, amalgam methods, Bass-Serre theory. Pr.: MATH 811.

MATH 924. Several Complex Variables. (3) An introduction to the theory and analytic functions of several variables, domains of homomorphy and pseudoconvexity, the Levi problem, delta bar equations, Cousin problems, zeros of analytic functions, integral formulas, holomorphic mappings. Pr.: MATH 826.

MATH 925. Group Representations and Character Theory I. (3) I. The basic topics in representation theory are covered: Schur's Lemma, irreducibility, class functions, characters, orthogonality relations, Frobenius-Schur theorem, induced characters and Frobenius reciprocity, Mackey's theorem, Clifford's theorem, exceptional characters and applications to group orders, generalized characters and Brauer's

characterizations of characters. Pr.: MATH 811.

MATH 926. Group Representations and Character Theory II. Depending on the interests of the students, topics may be chosen from the following: modular representations, Brauer's theory of blocks, characters of the linear groups, homologically induced representations, representations of complex Lie algebras. Pr.: MATH 925.

MATH 971. Algebraic Topology I. (3) I. Homotopy groups, covering spaces, fibrations, homology, general cohomology theory and duality, homotopy theory. Pr.: MATH 702 and 811.

MATH 972. Algebraic Topology II. (3) II. Continuation of MATH 971. Pr.: MATH 971.

MATH 973. Low-Dimensional Topology I-Geometric Topology. (3) I. Manifolds, triangulations, differentiable structures, wild vs. tame embeddings, the Jordan Curve theorem, Schonflies Theorems, the classification of compact surfaces, Dehn's Lemma, the Triangulation Theorem and Huaptvermutung in dimensions 2 and 3, introduction to knot theory: knot groups, the Alexander polynomial, and related topics. Pr.: MATH 872 or 881.

MATH 974. Low-Dimensional Topology II-Quantum Topology. (3) II. Artin's braid groups, Markov's Theorem, the Jones Polynomial and its generalizations, state-sum invariants of knots and manifolds, skein-relations, quantum groups and categories of tangles, topological quantum field theories. Pr.: MATH 973 or consent of instructor.

MATH 991. Topics in Algebra. (3) On sufficient demand. Selected topics in modern algebra. May be repeated for credit. Pr.: Consent of instructor.

MATH 992. Topics in Analysis. (3) On sufficient demand. Selected topics in modern analysis. May be repeated for credit. Pr.: Consent of instructor.

MATH 993. Topics in Harmonic Analysis. (3) On sufficient demand. Selected topics in harmonic analysis. May be repeated for credit. Pr.: Consent of instructor.

MATH 994. Topics in Applied Mathematics. (3) On sufficient demand. Selected topics in applied mathematics. May be repeated for credit. Pr.: Consent of instructor.

MATH 995. Topics in Geometry. (3) On sufficient demand. Selected topics in geometry. May be repeated for credit. Pr.: Consent of instructor.

MATH 996. Topics in Topology. (3) On sufficient demand. Selected topics in topology. May be repeated for credit. Pr.: Consent of instructor.

MATH 997. Topics in Number Theory. (3) On sufficient demand. Selected topics in number theory. May be repeated for credit. Pr.: Consent of instructor.

MATH 999. Research in Mathematics. (Var.) I, II, S. Pr.: Sufficient training to carry on the line or research undertaken and consent of instructor.

For more information

For additional information and application materials please contact:
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Mass Communications

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Director:
Angela Powers

Director of graduate studies:
Bob Meeds

Graduate faculty:

William Adams, Ph.D., Indiana University.

Soontae An, Ph.D., University of North Carolina-Chapel Hill.

Bonnie Bressers, B.A., University of Wisconsin.

Joye C. Gordon, Ph.D., Purdue University.

Thomas Gould, Ph.D., University of North Carolina-Chapel Hill.

Hyun-Seung Jin, Ph.D., University of North Carolina-Chapel Hill.

David MacFarland, Ph.D., University of Wisconsin.

Robert Meeds, Ph.D., University of Missouri.

Nancy Muturi, Ph.D., University of Iowa.

Sam Mwangi, Ph.D., University of South Carolina.

R. Charles Pearce, Ph.D., University of Tennessee.

Angela Powers, Ph.D., Michigan State University.

Todd F. Simon, LL.M., The George Washington University.

J. Steven Smethers, Ph.D., University of Missouri.

Seong-Hun Yun, Ph.D., University of Maryland.

Ancillary graduate faculty:

Marcus Ashlock, Ph.D., Oklahoma State University.

Kristina Boone, Ph.D., Ohio State University

The program

The A.Q. Miller School of Journalism and Mass Communications offers a master of science in mass communication. The degree program requires a core of mass communication research and theory classes. Students work with a faculty advisor to develop an emphasis beyond the core. The school offers a full range of academic and professional classes. The courses in each emphasis encourage students to apply the core concepts and to prepare for careers in the mass media or teaching and research professions. Opportunities for developing skills and for research include the student-run Collegian newspaper and Wildcat 91.9-FM as well as the university's television production center, MediaCats video production, and the Huck Boyd National Center for Community Media.

Requirements

30 graduate semester hours, distributed as follows:

MC 765 Communication Theory
MC 780 Research Methods
MC 850 Applied Research in Mass Media
Two 700-level electives in MC
Thesis or report

Graduate electives in the area of specialization to complete 30 semester hours

All master's degree candidates must pass a written comprehensive exam covering research and theory in their area of specialization. All candidates deliver a final oral defense of their theses or reports.

Admission to the master's degree program requires an undergraduate degree from a four-year college or university, with basic undergraduate course work in journalism and mass communications. Provisional admission may be granted to applicants entering the degree program with no previous course work in mass communications, with the requirement to take basic undergraduate courses along with the graduate course work. Also required are satisfactory scores on the GRE and an undergraduate GPA of 3.0 or above on the final 60 hours of course work. For international students, a TOEFL score of 600 is required (or 250 on TOEFL computer-based test).

Financial support

The school has a limited number of paid teaching assistantships, renewable nine-month appointments, 20 hours per week during the regular semester. Stipends vary but are usually $7,500 for nine months. Tuition is waived during the academic year for a student holding a .5 GTA appointment. GTAs work as assistants to professors in classes and on projects. Some teach course sections on their own. Preference is given to applicants with academic and/or professional media experience. Application for assistantships is by letter, with resume and samples of professional work, addressed to Bob Meeds, Director of Graduate Studies, A.Q. Miller School of Journalism and Mass Communications, Kansas State University, 105 Kedzie Hall, Manhattan, Kansas 66506-1501.

Career opportunities

Students seek a master's degree for various reasons. Some students are in mid-career and seek advancement or to change career direction. Other students, upon completing the undergraduate degrees, seek additional skills and insights into specializations so as to be better prepared for the start of their careers. Others enroll as a step toward the Ph.D. and an academic career.

Mass communications courses

Undergraduate and graduate credit in minor field

MC 501. Advanced Web Communication. (3) I, II. Management of websites with a focus on solutions to the problems generated by vast quantities of information. Pr.: Instructor permission.

MC 505. Electronic News Reporting. (3) I. Practical experience in gathering, writing, editing, producing, and presenting news for the electronic media, and study of related issues. Pr.: MC 500 with grade of C or better.

MC 535. Community Media. (3) II. Challenges facing smaller-market news media, including rural and small-town economics, technological issues, local audience composition, access and accountability, community involvement, and job prospects in community media. Pr: Junior standing.

MC 557. Advanced Advertising Techniques. (3) II. Emphasis on individual enhancement of creative concept development, advanced technical skills, and portfolio development. Self-directed projects allow in-depth knowledge, understanding and practice of advertising production methods. Pr.: MC 555 with grade B or better.

MC 561. Global Culture and the Internet. (3) Intersession only. Examination of the impact of Western influences through Internet communication and technology on the shaping of a global culture; includes issues of commercialism, capitalism, colonialism and tribalism and conflicts created by cultural classes. Pr. MC 110 or instructor permisison.

MC 564. History of Mass Communication. (3) I, II. Growth and development of media and media technology in the United States and their economic, political and social significance. Pr: Junior standing.

MC 572. International Mass Communication. (3) I, II. Comparative study of world media systems and the role of mass communication in national development. Pr: Junior standing.

MC 573. Ethics in Mass Communication. (3) I, II. Making ethical decisions in mass media fields and the principles on which those decisions are based. Pr.: Junior standing.

MC 575. Multimedia Techniques. (3) I. Theory and practice of creating cross-platform multimedia productions, utilizing computer-based audio, video and graphics. Special emphasis on working with clients and preplanning. Pr.: Any of the following: MC 276, MC 303, MC 456 or MC 480 with a C or better, or instructor permission.

MC 580. Convergence Reporting. (3) I, II, S. Reporting and writing across different media platforms. Students produce stories in multiple formats to be submitted to campus media outlets, including the Collegian, the Electronic Collegian, the Royal Purple yearbook, KSDB-FM and the Cable Channel 8 newscast. Pr: MC 303.

MC 589. Issues in Mass Communication. (1-3) I, II. Advanced topics in mass communication practices and principles. May be repeated for

credit when topic varies.

MC 593. Producing and Directing for Video. (3) II. Practice experience in planning, producing, directing, and posting studio and field video productions. Special emphasis on advanced production techniques and managing project development. Pr.: MC 276 with grade of C or better.

Undergraduate and graduate credit

MC 600. Economics of Mass Communication. (3) I, II. Study of the various economic models applicable to the media industries and application of basic economic concepts and analytical tools to explain media industry behaviors, evaluate business strategies of media firms and assess the merits of public policies toward the media industries. Pr.: Junior standing.

MC 605. Supervision of School Publications. (3) A methods course for those planning to teach secondary or community college journalism courses and advise high school or community college publications.

MC 612. Gender Issues and the Media. (3) The portrayal of women and men by the media, and media employment issues based on gender. Pr.: One course in MC or women's studies.

MC 625. Media Relations. (3) II. Examines management skills necessary for establishing, maintaining and evaluating a media relations program. Discussion includes working with journalists, conducting media events, preparing spokespersons and developing crisis communications. Pr.: MC 445.

MC 630. Public Relations Case Studies. (3) Study of historic and contemporary public relations situations using a case-method approach. Attention is directed at strategic planning and implementation by public relations managers. Students establish criteria on what constitutes a public relations program and theories and norms for the selection of objectives and strategies under varying conditions. Pr.: MC 325.

MC 640. Advertising Campaigns. (3) The managerial development and execution of consumer, industrial, and institutional advertising campaigns. Pr.: MC 545, 555, and 595.

MC 645. Public Relations Campaigns. (3) Advanced study of an organization's public relations needs. Includes researching the situation, analyzing audiences, and preparing strategic plans for approved clients. Pr.: MC 595, 635, and completion of at least one course in social science methods or data analysis.

MC 655. Electronic Media Programming. (3) The principles, planning, and development of radio-television-cable programs, schedules and related regulation. Pr.: MC 410.

MC 665. Advertising/Public Relations Management. (3) II. Investigation of managerial decision making in advertising and public relation programs. Emphasizes strategic and logical thinking in the decision making process. Theories and practices from media managment, social/cognitive psychology and integrated communication. Pr.: MC 420 or MC 445 with grade of C or better.

MC 670. Advertising and Social Responsibility. (3) II. Examines social, ethical and legal issues and problems facing the advertising industry, and its relationship with the consumer.

MC 675. International Advertising. (3) I. Overview of issues and challenges associated with advertising in a global environment, including cultural and economic differences, regulatory issues, and ethical and social responsibilities. Pr.: MC 235 or instructor permission.

MC 680. Readings in Mass Communications. (1-3) Investigation of the literature of mass communications. Three significant books per credit hour with written analysis and oral presentation. Pr.: Minimum of nine hours of completed course work in MC and consent of supervisory instructor.

MC 685. Media Management. (3) I, II. Issues, ethics and practices in managing media companies, with special emphasis on problems and practices, in converged media operations. Pr.: MC 110, junior standing.

MC 690. Problems in Mass Communications. (1-4) Pr.: Background of courses needed for problem undertaken.

MC 705. Fund Raising by Non-Profit Organizations. (3) I. Theory and practice of fund raising as a function of public relations in non-profit organizations. Focuses on why or how people give to philanthropic causes.

MC 710. History of Journalism. (3) Growth and development of the news media in the United States and their economic, political, and social significance. Pr.: A U.S. history course.

MC 712. Environmental Communications. (3) II, in even years. Combines theoretical discussions with practical experience regarding communications about environmental issues and provides introduction to natural and applied science topics related to the communications plan. Three hours lec. per week. Pr.: Senior standing. (Cross-listed with AGCOM 712).

MC 715. History of the Electronic Media. (3) Growth and development of the electronic media in the United States and their economic, political, and social significance. Pr.: A U.S. history course.

MC 720. Ethics in Mass Communications. (3) Moral analysis, argument, and decision making by the mass communicator, with linkage of ethics to the conduct of media professionals in the United States. Pr.: A philosophy course.

MC 725. International Communications. (3) Comparative study of world media systems and the role of mass communications in national development.

MC 730. Seminar in Issues of the Media. (3). A study of the philosophical and contextual changes in the practice of mass communication. Pr.:Senior or graduate standing with an overall GPA of 2.5.

MC 740. Colloquium in Mass Communications. (1-3) Discussion of selected topics in mass communications research and practice. May be repeated for credit when topic varies.

MC 765. Communication Theory. (3) An examination of major communication theories as they relate to individual, interpersonal, group, and mass communications.

MC 770. Professional Journalism Practicum. (1-4) For advanced students. Supervised practical work in professional journalism and mass communications. Includes laboratory investigation, field work, and internships. Pr.: Consent of supervising instructor.

MC 780. Research Methods in Mass Communications. (3) Survey of research methods used in the study of the mass media.

Graduate credit

MC 850. Applied Research in Mass Media. (3) Study and application of mass media research, its literature, and methodology. Pr.: MC 780.

MC 865. Seminar in Mass Communication Law. (3) Analysis of mass communication freedoms and limitations in such areas as defamation, privacy, copyright, censorship, obscenity, and advertising and electronic media regulation. Pr.: Graduate standing.

MC 899. Research in Mass Communications. (Var.) Thesis/report credit. Pr.: Sufficient training to carry on the line of research undertaken.

For more information

For additional information and application materials please contact:
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Modern Languages

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Head:
Robert Corum

Graduate Program Coordinator:
Claire Dehon

Graduate faculty:

Loren R. Alexander, (Emeritus) Ph.D., Michigan State University.

Peter Arnds, Ph.D., University of Toronto.

Jennifer Drake Askey, Ph.D., Washington State University, St. Louis.

Douglas K. Benson, Ph.D., University of New Mexico.

Emma Betz, Ph.D., University of Illinois at Urbana-Champaign.

Robert L. A. Clark, Ph.D., Indiana University.

Robert T. Corum, Ph.D., University of Virginia.

Claire L. Dehon, Ph.D., University of Kansas.

Lucia Garavito, Ph.D., University of Kansas.

Derek Hillard, Ph.D., Indiana University.

Amy L. Hubbell, Ph.D., University of Michigan.

Laura Kanost, Ph.D., University of Kansas.

Walter F. Kolonosky, Ph.D., University of Kansas.

Maria Martinez-Ortiz, Ph.D., Purdue University.

Salvador A. Oropesa, Ph. D., Arizona State University.

Michael Ossar, (Emeritus) Ph.D., University of Pennsylvania.

Silvia Sauter, Ph.D., University of Texas-Austin.

Bradley A. Shaw, Ph.D., University of New Mexico.

Benjamin Torrico, Ph.D., University of Kansas.

Program description

The graduate program in modern languages offers the M.A. degree in French, German, and Spanish, with two optional areas of emphasis: literature and language acquisition.

Literature

The program is designed to help the student attain a high level of proficiency in all aspects of the chosen language; how to read, analyze, interpret, and discuss in an intelligent manner a wide selection of works in the chosen language; and to synthesize the material read into an accurate and coherent picture of the literary and cultural developments of the chosen language-speaking area. Selected classes are available in the afternoon or evening and during the summer. This degree is recommended for those students who wish to teach at the secondary level or to continue graduate work elsewhere with the intention of teaching at the secondary or university level, or for students who prefer to develop their skills in language and literature in preparation for other careers.

In the literature option students may choose to complete the degree with a minimum of 24 hours of graduate courses and a thesis (typically 60-80 pages in length), or they may complete a minimum of 30 hours of graduate course work including such evidence of scholarly effort as term papers.

Language acquisition

The program is designed to meet the needs of practicing and potential secondary school teachers. It is intended to enhance language skills, cultural awareness, and general humanistic development; encourage new patterns and techniques of teacher preparation and teacher/student interaction in the classroom; narrow the traditional gap in graduate study between teaching methodology and the content areas of literature and culture; facilitate the professional certification of prospective teachers; and encourage professional development and communication in the field. Emphasis is given to the integration of linguistic, cultural, literary, and methodological concepts that may have direct application in the classroom. Selected courses are available in the late afternoon or evening via a telephone communications system, thus making it possible for a practicing teacher to participate in class discussions using special equipment at home. Summer credits are also offered through on-campus offerings.

In the language acquisition option, students complete the degree with a minimum of 24 hours of graduate course work (as outlined in the special list of classes for this degree) and a thesis that applies the integration of cultural, literary, and methodological components to the language classroom.

Final examinations

In both program options a final comprehensive written and oral examination is required at the completion of work. This exam is tailored to the particular M.A. option. It generally takes two years to complete the M.A. program in literature. Practicing teachers who typically take only one course per semester may need an additional year or two to complete the option in language acquisition.

Teaching support

The Department of Modern Languages prides itself on the excellence of its teaching staff, and it considers one of its most important goals that of training outstanding future teachers. The faculty works closely both with on-campus teaching assistants and practicing teachers to ensure the maximum benefit from the program.

Careers

Graduates in modern languages may also wish to pursue careers in textbook publishing, consultation in multimedia language programs, educational graphics, translation and editing, educational foundations, educational travel, and educational administration. Some of these career fields require additional specialized training. The knowledge of a language, culture, and literature at this level can also be combined with other fields: journalism, ecology, theology, music and art, film, library science, and business.

Special programs and activities

We offer summer programs in Mexico, Spain, and France. Graduate students in German may qualify for substantial scholarships in a recently expanded program for study in selected universities of Austria, Germany, or Switzerland. The university has an agreement with the University of Costa Rica and connections to a number of study abroad programs including International Students Exchange Program. The department co-sponsors the publication of *Studies in Twentieth Century Literature*, a scholarly journal devoted to the study of literature written in French, German, Russian, and Spanish.

In 1988 and 1991 the department received major grants from the National Endowment for the Humanities to conduct a year-long institute for secondary-school foreign-language teachers. Through these Institutes, our faculty developed considerable expertise in the integration of language, culture, and literature in secondary instruction. A substantial amount of the course work was carried out using a telecommunications system provided by the Regents TELEnet system located in the Educational Communications Center on campus. The department also cooperates with ECC staff in the development of Spanish courses which are transmitted by satellite to high schools all over the United States.

Financial support

A limited number of graduate teaching assistantships is available that offer the opportunity of teaching university-level courses under close pedagogical supervision. Appointments may be partial (teaching two courses per year) or full-time (three courses per year). All full-time GTAs receive a 100 percent tuition waiver. Those who have partial appointments will receive a tuition reduction. GTAs must be enrolled in a minimum of 6 hours of classwork in the Department of Modern Languages per semester to qualify. Except in unusual circumstances, GTAs are expected to enroll in 9 hours. Assistantships are normally renewable for a period of two years, assuming satisfactory teaching performance and progress toward the degree. The department also offers graduate fellowships to incoming M.A. candidates as well as to students in their second year of graduate study.

Admission

Most incoming students have undergraduate degrees in the particular language or in teaching, although we also may accept on a provisional basis those students who have considerable expertise in the language and culture in other ways, e.g., native speakers or U. S. citizens with extensive travel, living, and educational experience abroad.

We do not require the GRE examination for admission. Graduate applications to begin study in the fall must be received in our office by March 1, and by October 1 for the spring. Depending on the language you wish to study, assistantships may or may not be available after this date.

All international students must provide evidence of financial support. International students who do not have a degree from a university in the U.S. must submit a minimum TOEFL score of 560 or 220 (new scale) before they will be admitted to any graduate program at K-State. International students who apply for a teaching assistantship must attain a minimum score of 240 on the Test of Spoken English as well. We do have courses in English as a second language on campus in July and August to help applicants reach this TSE speaking score should they require it. It is in the applicant's best interest to take both the TOEFL and the TSE early if possible.

Modern languages courses

Courses at the 500 level may not be included in the M. A. program of study unless they are in a language or discipline other than the candidate's major field.

Courses taught in English

Undergraduate and graduate credit in minor field

CHINE 501. Chinese V. (4) Development of communication skills through application activities. Enhancement of vocabulary and intensive practice in grammatical structures and their usage. Pr.: CHINE 202 or equiv.

CHINE 502. Chinese VI. (4) Continuation of Chinese V. Development of functional skills for general situations. Further enhancement of vocabulary and intensive practice in grammatical structures and their usage. Pr.: CHINE 501 or equiv.

CHINE 599. Special Studies in Chinese. (Var.) Pr.:Consent of department head and instructor.

FREN 502. French Literature in Translation. (3) Selected readings in English of works representing important literary trends. May be taken by majors and minors if all assignments are completed in French.

FREN 510. Modern French Culture. (2) French culture since World War II with special emphasis on social, economic, historical, and artistic developments of that period. Taught in English. Not accepted for major credit in French.

GRMN 503. German Literature in Translation. (3) Selected readings in English from such major German authors as Mann, Brecht, Hesse, Grass, and Kafka.

LATIN 501. Classical Literature in Translation. (3) Selected readings in English from the works of such major classical authors as Homer, Euripides, Vergil, Horace, and Terence.

MLANG 507. European Literature in Translation. (3) Selected readings in English from the major authors of Europe and the Spanish-speaking world.

RUSSN 504. Russian Literature in Translation: The Nineteenth Century. (3) Survey of the principal writers of tsarist Russia with emphasis upon Turgenev, Dostoevsky, Tolstoy, and Chekhov.

RUSSN 508. Russian Literature in Translation: The Soviet Period. (3) The development of Russian literature since the Revolution, with emphasis upon Mayakovsky, Sholokov, Pasternak, and Solzhenitsyn.

Graduate credit

MLANG 710. Introduction to Foreign Language Pedagogy. (3) I. The fundamentals of language learning as described by current research, and teaching strategies that facilitate the acquisition of foreign language skills. Taught in English. Pr.: Acceptance as GTA or instructor in ML.

MLANG 800. Colloquium in Modern Languages. (2) A graduate colloquium for M. A. candidates in French, German, and Spanish. Variable topics in literary and cultural fields appropriate to study in common by students in these languages.

French

Undergraduate and graduate credit in minor field

FREN 502. French Literature in Translation. (3) Selected readings in English of works representing important literary trends. May be taken by majors and minors if all assignments are completed in French.

FREN 509. French Phonetics. (1) I, II. The fundamentals of French phonetics. Intensive practice in diction. Pr.: FREN 213 or equiv.

FREN 510. Modern French Culture. (2) French culture since World War II with special emphasis on social, economic, historical, and artistic developments of that period. Taught in English. Not accepted for major credit in French.

FREN 513. French Composition and Grammar. (3) Review in depth of the structure of the language. Intensive practice in written and conversational French. Pr.: FREN 213 or equiv.

FREN 514. Contemporary France. (3) Introduction to French culture with special emphasis on social and historical developments since World War II. Pr.: FREN 213 or equivalent.

FREN 516. Readings in French. (3) Practice in reading a variety of literary, journalistic, and specialized texts. Pr.: FREN 213 or equiv.

FREN 517. Commercial French. (3) Advanced grammar necessary for adequate oral and written expression in international business and diplomatic situations, including specialized terminology, conversation and discussion, and translation. Pr.: FREN 213 or equiv.

FREN 518. Advanced French Conversation. (3) Practice in spoken French, with emphasis on idiomatic expression. Course not open to students whose primary language is French and whose competence has been demonstrated in the language at this level. May be repeated once for credit. Pr.: FREN 213 or equiv.

FREN 519. Special Studies in French. (Var.) Pr.: FREN 213 or equiv. and consent of department head and instructor.

FREN 520. Introduction to French Literature I. (3) The reading and discussion of major works of French literature from the early nineteenth century to the present. Pr.: FREN 516 or equivalent.

FREN 521. Introduction to French Literature II. (3) The reading and discussion of major works of French literature from the Middle Ages to the end of the eighteenth century. Pr.: FREN 516 or equivalent.

FREN 530. Topics in French Literature and Culture. (3) Provides the students the opportunity to investigate in detail a particular theme or genre in French literature or culture. May be repeated once with a change in focus and texts. Pr.: At least one course taught in French at the 500 level.

Undergraduate and graduate credit

FREN 709. Medieval French Literature. (3) An introduction to literary forms, style, and the thought from the eleventh century to the fifteenth century in France. Readings in modern French in *Chanson de Roland, Chrétien de Troyes, Roman de la Rose*, etc. Pr.: FREN 520 or 521 and one other 500 level course, or consent of instructor.

FREN 710. Sixteenth-Century French Literature. (3) Reading and discussion of selected prose and poetry of the French Renaissance. Pr.: FREN 520 or 521 and one other 500 level course, or consent of instructor.

FREN 711. Seventeenth-Century French Literature. (3) I. Various literary forms of the French Baroque and Classical period. Reading of representative texts by Corneille, Pascal, Molière, Racine, La Fontaine, and others. Pr.: two 500 level courses, including FREN 520 or FREN 521 or with the consent of the instructor.

FREN 713. Eighteenth-Century French Literature. (3) Critical study of the literature of the Enlightenment. Pr.: FREN 520 or 521 and one other 500 level course, or consent of instructor.

FREN 714. Romantic French Literature. (3) A study of preromanticism and romanticism. Pr.: FREN 520 or 521 and one other 500 level course, or consent of instructor.

FREN 715. Realist French Literature. (3) A study of realism, naturalism, and symbolism. Pr.: FREN 520 or 521 and one other 500 level course, or consent of instructor.

FREN 716. Contemporary French Literature. (3) I or II in alternate years. The study of major themes and trends in the novel, drama, and poetry since 1900 as reflected by major authors as Proust, Camus, Sarraute, and others. Pr.: two 500-level courses, included FREN 520 or FREN 521 or with consent of the instructor.

FREN 719. Advanced Spoken and Written French. (3) I. An advanced, intensive study of French prose style. Introduction to the techniques of translation from English to French. Intensive practice in oral style and diction. Pr.: FREN 520 or 521 and one other 500 level course, or consent of instructor.

FREN 720. Seminar in French Literature. (3) I or II in alternate years. A seminar with various topics centered on literature. Pr.: two 500 level courses, included FREN 520 or FREN 521 or with the consent of the instructor.

FREN 721. Francophone Literature. (3) The development of French colonial and postcolonial literature with an emphasis on the twentieth and twenty-first centuries. Regional focus may vary from Quebecois. Caribbean, Sub-Saharan or North African Literatures. Taught as a seminar. Pr.: FREN 520 or 521 and one other course at a 500 level.

FREN 742. French-Speaking Culture and Literature in Second-Language Learning. (3) Analysis and interpretation of cultural and literary texts from French-speaking countries, with emphasis on the development of interpretive skills and materials, and their application to the French curriculum at all levels. May be repeated once with a change in focus and texts. Pr.: FREN 520 or 521 and one other 500 level course, or consent of instructor.

FREN 799. Problems in Modern Languages. (Var.) Pr.: FREN 520 or 521 and one other 500 level course, or consent of instructor.

Graduate credit

FREN 898. Master's Report. (1-2) I, II, S. A written report of either research or problem work on a topic in the major field. Pr.: Consult of major professor.

FREN 899. Research in Modern Languages. (Var.)

German

Undergraduate and graduate credit in minor field

GRMN 503. German Literature in Translation. (3) Selected readings in English from such major German authors as Mann, Brecht, Hesse, Grass, and Kafka.

GRMN 520. Readings in German. (3) Practice in reading a variety of literary, journalistic, and specialized texts. Pr.: GRMN 223 or equiv.

GRMN 521-522. Introductory Topics in German Literature and Culture – Periods. (3) Topics courses constitute a sequence of introductory period studies covering the chronological range of German literature from about 1750 to the present. Within these historical periods, the specific course contents will vary by semester and instructor.

GRMN 521. Introductory Topics in German Literature and Culture of the 18th and 19th century. (3).

GRMN 522. Introductory Topics in German Literature and Culture of the 20th and 21st century. (3).

GRMN 523. German Composition. (3). Course emphasizes writing and includes select grammar review. Course not open to students whose competence has been demonstrated in the language at this level. Pr.: GRMN 223 or equivalent.

GRMN 524. German for Reading Knowledge I. (3) The grammar and syntax of German and the reading of basic material selected from modern German texts. (This course is designed for students who need to be able to read German.)

GRMN 525. German for Reading Knowledge II. (3) Continued reading of material from modern German texts. (This course is designed for students who need to be able to read German.)

GRMN 526. Business German. (3). Advanced grammar necessary for adequate oral and written expression in international business and diplomatic situations, including specialized terminology, conversation and discussion and translation. Cultural aspects of business are also considered. Pr.: GRMN 223 or equiv.

GRMN 527. Advanced German Conversation. (3). Course emphasizes proficiency in oral expression and includes select grammar review. Course not open to students whose competency has been demonstrated in the language at this level. Pr.: GRMN 223 or equiv.

GRMN 529. Special Studies in German. (Var.) Pr.: Consent of department head and instructor involved.

GRMN 530. German Cultural Studies and History. (3). This course addresses cultural and historical topics not confined to a single period. Specific course content will vary by semester and instructor. It may emphasize cross-national subjects, the development of a theme or discourse over time, new perspectives from social, intellectual, or cultural studies, or non-traditional texts and topics. Each semester's offerings will be described more specifically in university and department publications before each enrollment period. Pr.: One prior or concurrent 500-level German language class or equiv.

Undergraduate and graduate credit

GRMN 700-705. Topics in German Literature and Culture. Topics courses are designed for undergraduates and graduate students. These courses constitute a sequence of period studies covering the chronological ranges of German speaking literature and culture. Within these historical periods, the specific course contents will vary by semester and instructor. They may emphasize literary figures and movements, historical and cultural contexts, or different genres and forms within the periods. Each semester's offerings will be specifically described before each enrollment period in university and department publications. Pr.: One prior 500-level German literature course.

GRMN 700. Topics in Medieval German Literature and Culture. (3) I, II, S.

GRMN 701. Topics in Eighteenth Century German Literature and Culture. (3) I, II, S.

GRMN 702. Topics in Nineteenth Century German Literature and Culture. (3) I, II, S.

GRMN 703. Topics in Early Twentieth Century German Literature and Culture. (3) I, II, S.

GRMN 704. Topics in German Literature and Culture since 1945. (3) I, II, S.

GRMN 705. Topics in Twentieth and Twenty-First Century German Literature and Culture. (3) I, II, S.

GRMN 728. History of the German Language. (3) A study of the development of the sounds, forms and syntax of standard German.

GRMN 729. Open Topics Seminar in German Literature and Culture. (3) Open Topics courses are designed for undergraduates and graduate students. Course addresses topics not confined to a single period in a national literature. Specific course content will vary by semester and instructor. It my emphasize cross-national subjects, literary or cultural criticism or theory, works of one or a pair of related authors, the development of a theme or genre over time, new perspectives from social, intellectual, or cultural studies, or non-traditional texts and topics. Each semester's offerings will be described more specifically in university and department publications before each enrollment period. The courses are repeatable with change of subject matter. Pr.: One prior 500-level German literature course.

GRMN 731. Advanced German: Speaking and Writing. (3) Course combines practice in speaking, writing, and reading, and select advanced grammar review. Course not open to students whose competence has been demonstrated in the language at this level. Pr.: GRMN 523 and GRMN 527 or equiv.

GRMN 740. German Culture and Literature in Second-Language Learning. (3) Analysis and interpretation of cultural and literary text from German-speaking countries, with emphasis on the development of interpretive skills and materials, and their application to the German curriculum at all levels. May be repeated once with a change in focus and texts. Pr.: one prior 500-level German course.

GRMN 799. Problems in Modern Languages. (Var.)

Graduate credit

GRMN 898. Master's Report. (1-2) I, II, S. A written report of either research or problem work on a topic in the major field. Pr.: Consult of major professor.

GRMN 899. Research in Modern Languages. (Var.)

Latin

Undergraduate and graduate credit in minor field

LATIN 501. Classical Literature in Translation. (3) Selected readings in English from the works of such major classical authors as Homer, Euripides, Vergil, Horace, and Terence.

LATIN 549. Special Studies in Latin. (Var.) Consent of the department head and instructor involved.

Linguistics

Undergraduate and graduate credit in minor field

LG 600. Principles of Linguistics. (3) The scientific study of language, with examples from English, Spanish, French, German, and others. Overview of language origins, phonetics, phonology, syntax, semantics, language acquisition, dialects, language change, and writing systems. Same as ENGL 600 and LING 600.

LG 601. General Phonetics. (3) I or II, in alternate years. Description and classification of speech sounds according to point and manner of articulation. Transcription in the International Phonetic Association alphabet. Includes sounds of English, French, Spanish, German, and others. Same as ENGL 601 and LING 601.

LG 602. Historical Linguistics. (3) I or II, in alternate years. Internal and comparative reconstruction of earlier forms of languages. Genetic relationships in language families, and various typological considerations. Includes French, Spanish, and others. Same as ENGL 602 and LING 602.

LG 603. Topics in Linguistics. (1-3) I or II, in alternate years. Seminar on a special topic in linguistics: decipherment of ancient writing systems, linguistics applied to the teaching of English or other languages, discourse analysis (especially of spoken texts), etc. Topic to be announced for semester in which offered. Repeatable for credit on a different topic. Same as ENGL 603 and LING 603.

LG 730. Foundations of Semiotics. (3) The general theory of signs; detailed classification of signs and examination of several semiotic systems such as language, literature, culture, and society. The semiotics of communication and signification.

LG 792. Field Methods in Linguistics. (3) On sufficient demand. Techniques of collecting and analyzing linguistic data in the field. Work with language consultants in class, on languages such as Swahili. Pr.: Consent of the instructor. Same as LING 792 and ANTH 792.

Russian

Undergraduate and graduate credit in minor field

RUSSN 504. Russian Literature in Translation: The Nineteenth Century. (3) Survey of principal writers of Tsarist Russia with emphasis upon Turgenev, Dostoevsky, Tolstoy, and Chekhov.

RUSSN 508. Russian Literature in Translation: The Soviet Period. (3) The development of Russian literature since the Revolution, with emphasis upon Mayakovsky, Sholokhov, Pasternak, and Solzhenitsyn.

RUSSN 551. Russian V. (3) Reading of Russian short stories of the nineteenth and twentieth centuries, including works by Pushkin, Lermontov, Dostoevsky, and Chekhov.

RUSSN 552. Survey of Russian Literature. (3) A history of Russian literature from its beginnings until the present, with emphasis on the works of the nineteenth century, including those of Pushkin, Lermontov, Gogol, Turgenev, Dostoevsky, and Tolstoy.

RUSSN 553. Russian Conversation and Composition. (3) Discussion in Russian. Extensive practice in writing Russian compositions.

RUSSN 559. Special Studies in Russian. (Var.) Pr.: Consent of department head and instructor involved.

Spanish

Undergraduate and graduate credit in minor field

SPAN 505. Spanish Literature in Translation. (3) Selected readings in English from the works of such major Spanish and Latin American authors as García Lorca, Borges, Neruda, and García Márquez.

SPAN 510. Structure of the Spanish Language. (3) Introductory description of the grammatical structure of Spanish, with its main components: phonological, morphological, syntactic and semantic. Spanish pronunciation, dialectal variation and some other aspects are analyzed in contrast. Required of all Spanish majors. Pr.: SPAN 410 or equiv. facility as determined by modern languages faculty.

SPAN 520. Hispanic Readings. (3) Practice in reading a variety of literary, journalistic, and specialized texts. Pr.: SPAN 361 or 365 or equiv. background as determined by modern languages faculty.

SPAN 530. Spanish for Professions. (3) Advanced grammar necessary for adequate oral and written expression in selected professional disciplines (such as business, health professions, and human services), including specialized terminology, conversation and discussion, and translation.

SPAN 550. Introduction to Literature in Spanish. (3) An introduction to literary terminology and its practical application for analyzing and interpreting texts from Spain and Spanish America. Strongly recommended for students planning to take SPAN 567 or SPAN 568. Pr.: SPAN 410 or equiv.

SPAN 560. Chicano Language and Literature. (3) An introduction to the literature and experience of Chicanos in the U.s., beginning with Aztec texts and concluding with Chicano writing of the 1960s to the present. Emphasis on classroom discussion and interpretive essays. Taught bilingually; non-Spanish speakers are accommodated through the use of English translations. Pr.: Six hours above 300 level Spanish or special permission.

SPAN 568. Literature of Spanish America. (3) Reading and analysis of representative works of Spanish-American literature from the pre-Columbian period to the present. Pr.: Minimum of 3 hours at the 500 level or equiv. background as detemined by modern languages faculty. SPAN 550 strongly recommended.

SPAN 565. Spanish Civilization. (3) Survey of Spanish culture and civilization from its beginnings to the present; emphasis on Spanish contributions over the centuries in the humanities. Pr.: SPAN 410 or equiv. facility as determined by modern languages faculty.

SPAN 566. Hispanic-American Civilization. (3) Survey of Spanish-American culture and civilization from 1492 to the present. Pr.: SPAN 410 or equiv. facility as determined by modern languages faculty.

SPAN 567. Introduction to the Literature of Spain. (3) Reading and analysis of representative works of Spanish literature from its beginnings to the present.

SPAN 569. Special Studies in Spanish. (Var.) Pr.: Consent of department head and instructor involved.

SPAN 575. Spanish Translation: Concepts and Practices. (3) Brief history of translation theory and practice with emphasis of bi-directional translation between Spanish and English. Cultural and linguistic barriers to effective translation. Introduction to translation as a profession, including translation and analysis of short texts. Pr.: SPAN 410 or equiv. facility as determined by modern languages faculty.

Undergraduate and graduate credit

SPAN 670. Spanish Applied Linguistics. (3) Linguistic theory applied to the Spanish language. Linguistic topics include syntax, phonology, morphology, semantics, sociolinguistics, and psycholinguistics. Other topics include dialectology, bilingualism, and the creative use of language. Of interest to students to both language acquisition and literature. Taught in Spanish. Pr.: SPAN 567 and 568 or equiv. facility as determined by modern languages faculty.

SPAN 730. Medieval Literature. (3) Principal literary works of Medieval and Renaissance Spain, from the jarchas and the Poema de Mio Cid to the Cronicas and La Celestina, studied within the historical and cultural context of each. Pr.: SPAN 567 and 568 or equiv. facility as determined

by modern languages faculty.

SPAN 731. Early Modern Literature of Spain. (3) Reading and analysis of the works of such writers as Lope de Vega, Tirso de Molina, Calderón de la Barea, Garcilaso, Fray Luis de León, San Juan de la Cruz, Góngora, and Quevedo, as well as selected works from the picaresque tradition. Pr.: SPAN 567 and 568 or equiv. facility as determined by modern languages faculty.

SPAN 732. Cervantes. (3) Reading and discussion of the works of Cervantes and of his literary and cultural background. Pr.: SPAN 567 and 568 or equiv. facility as determined by modern languages faculty.

SPAN 734. Eighteenth and Nineteenth-Century Spanish Literature. (3) Drama, essay, novel, poetry, and short story. Such authors as Larra, Zorrilla, el Duque de Rivas, Espronceda, Tamayo y Baus, Echegaray, Bécquer, and Pérez Galdós will be discussed. Pr.: SPAN 567 and 568 or equiv. background as determined by modern languages faculty.

SPAN 735. Twentieth-Century Spanish Literature. (3) The major writers and directions of twentieth-century literature in Spain. Analysis and discussion of the works of such representative authors as Unamuno, Jiménez, Guillén, Lorca, Cela, Buero Vallejo, and Delibes. Pr.: SPAN 567 and 568 or equiv. facility as determined by modern languages faculty.

SPAN 736. Spanish Poetry. (3) The development of the poetry of Spain from the Middle Ages to the 20th Century. Includes poets such as Berceo, the romanceros, Manrique, Góngora, Quevedo, Espronceda, Bécquer, Machado, Lorca, Guillén, Otero, Fuertes, Rodríguez, and Rossetti. Taught as a seminar. Pr.: SPAN 567 and 568 or equiv. facility as determined by modern languages faculty.

SPAN 750. Spanish-American Literature from Its Origins to the Nineteenth Century. (3) Analysis and discussion of literary manifestations from pre-Columbian civilizations, the Spanish colonies, and independent nations. Early forms of narrative, the Baroque, Neo-Classicism and Romanticism. Texts by Aztec poets, Spanish chroniclers, Sor Juana, Fernández de Lizardi, Hernández, Isaacs, Gómez de Avellaneda, and Echeverría. Pr.: SPAN 567 and 568 or equiv. facility as determined by modern languages faculty.

SPAN 751. Spanish-American Literature: Late Nineteenth Century to Early Twentieth Century. (3) Realism, Naturalism, Modernism, and the Avant-Garde, including writers such as Blest Gana, Cambaceres, Martí, Darío, Güiraldes, Azuela, Gallegos, Rivera and Bombal. Pr.: SPAN 567 and 568 or equiv. facility as determined by modern languages faculty.

SPAN 752. Contemporary Spanish-American Narrative. (3) Analysis and discussion of the narrative from the period of the Boom to the present. Includes writers such as Borges, Sábato, Cortázar, García Márquez, Vargas Llosa, Fuentes, Allende and Valenzuela. Pr.: SPAN 567 and 568 or equiv. facility as determined by modern languages faculty.

SPAN 755. Spanish-American Drama. (3) Analysis and discussion of the drama of Spanish-speaking American nations, with emphasis on the Twentieth Century. Readings from such leading playwrights as Usigli, Márquez, Carballido, Triana, Gambaro, Leñero, and Castellanos. Pr.: SPAN 567 and 568 or equiv. facility as determined by modern languages faculty.

SPAN 757. Spanish-American Poetry. (3) The development of poetry from its early pre-Columbian manifestations to the present time, with emphasis on the Twentieth Century. Includes poets such as Sor Juana, Martí, Darío, Borges, Vallejo, Neruda, Paz, Storni, Agustini, and Castellanos. Taught as a seminar. Pr.: SPAN 567 and 568 or equiv. facility as determined by modern languages faculty.

SPAN 760. Hispanic Literature and Culture in the U.S. (3) Social, historical and cultural experience of the Mexican, Mexican American and Latino populations in the U.S. Introduction to historical, literary and cultural studies methodologies and perspectives from the European conquest to the present. Texts in English and Spanish. Pr.: SPAN 550, 560, 567, or 568.

SPAN 768. Cinema of Spain. Analysis and discussion of representative films from Spain. Different genres (comedy, drama, thriller, etc.) and different audiences (children, family, adults) will be studied. The analysis will be based on film theory, gender, and cultural studies. Pr.: SPAN 560, 565 or 567.

SPAN 769. Cinema of Spanish America. Defining phases in the development of Spanish American cinema in connection with nationhood, historical processes, sociopolitical issues, gender representation, modes of production and consumption, and role of the filmmaker. Special focus on films from Argentina, Chile, Columbia, Cuba and Mexico. Pr.: SPAN 560, 566, or 568.

SPAN 770. Introduction to Second Language Acquisition. (3) Introduction to the major theoretical frameworks of second language acquisition (SLA). Reading, discussion and analysis of SLA research on a variety of linguistic and learning issues. Of interest to students of both language acquisition and literature. Taught in English. Pr.: Minimum 6 hours at the 500-level in Spanish or other language.

SPAN 771. Advanced Spanish Translation. (3) Applied translation concepts and strategies. Translations from Spanish to English and English to Spanish, involving unique problems related to science, business, reporting, and literature. Includes use of software applications for translators. Pr.: 3 hours of college Spanish at the 700 level or equiv. facility as determined by modern languages faculty.

SPAN 772. Spain Today. (3) An investigation of selected social, political, and humanistic aspects of contemporary Spanish culture. Pr.: SPAN 565 or 567.

SPAN 773. Spanish America Today. (3) Investigation of selected social, political, and humanistic aspects of contemporary Spanish American culture. Pr.: SPAN 566 or 568.

SPAN 776. Spanish in the World. (3) The influence of the Spanish language and Spanish speaking cultures in the world. Includes such topics as

history of the language, dialects, bilingualism, political and economic influence, and Spanish in the U.S. Pr.: SPAN 570 or 670.

SPAN 777. Spanish and Spanish-American Culture and Literature in Second-Language Learning. (3) Analysis, interpretation, and pedagogical implications of cultural and literary texts from Spanish-speaking countries. Emphasis on texts for beginning and intermediate level classes. Pr.: SPAN 550, 567 or 568.

SPAN 778. Spanish and Spanish-American Culture and Literature in Second-Language Learning I. (3) Analysis, interpretation and pedagogical implications of cultural and literary texts from Spanish speaking countries. Emphasis on texts for intermediate adn advanced level classes. Pr.: SPAN 550, 567, or 568.

SPAN 779. Seminar in Spanish. A seminar with variable topics.

SPAN 799. Research Topics in Spanish. (Var.)

Graduate credit

SPAN 898. Master's Report. (1-2) I, II, S. A written report of either research or problem work on a topic in the major field. Pr.: Consult of major professor.

SPAN 899. Research in Modern Languages.

For more information

For additional information and application materials please contact:
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Head:
Mohammad Hosni

Director of graduate studies:
Steve Eckels

Visit the MNE Graduate Web Site for current news and information

Graduate faculty:

Bruce Babin, Ph.D., University of Arizona.

B. Terry Beck, Ph.D., Oakland University.

Liang-Wu Cai, Ph.D., Massachusetts Institute of Technology.

Kirby S. Chapman, Ph.D., Purdue University.

William L. Dunn, Ph.D., North Carolina State University.

Steven J. Eckels, Ph.D., Iowa State University.

Donald L. Fenton, Ph.D., University of Illinois.

Mohammad Hosni, Ph.D., Mississippi State University.

Byron W. Jones, Ph.D., P.E., Oklahoma State University.

Prakash Krishnaswami, Ph.D., University of Iowa.

Kevin B. Lease, Ph.D., University of Iowa.

Sameer I. Madanshetty, Ph.D., Yale University.

Douglas S. McGregor, Ph.D., University of Michigan.

David A. Pacey, Ph.D., Kansas State University.

Dale E. Schinstock, Ph.D., University of Kansas.

J. Kenneth Shultis, Ph.D., University of Michigan.

Daniel V. Swenson, Ph.D., Cornell University.

J. Garth Thompson, Ph.D., Purdue University.

Akira Tokuhiro, Ph.D., Purdue University.

Youqi Wang, Ph.D., Shanghai Jiao Tong University.

Warren N. White, Jr., Ph.D., Tulane University.

Xiao Jiang Xin, Ph.D., University of Sheffield, United Kingdom.

Zhongquan Zheng, Ph.D., Old Dominion University.

The department

The Mechanical and Nuclear Engineering Department at Kansas State University offers separate graduate programs in Mechanical Engineering and Nuclear Engineering both leading to M.S. and Ph.D. degrees. Our award-winning faculty are engaged in exciting and cutting-edge research projects in state-of-the-art laboratories and research facilities, while our graduate students are excelling inside and outside of the classroom. Research areas and courses include a broad range of both traditional and emerging fields of Mechanical Engineering and Nuclear Engineering. With over $5 million in research funding, almost all graduate students in our department receive graduate research assistantships (GRA). Several of our students receive graduate teaching assistantships (GTA) with 50-100 percent tuition waiver to help teach laboratory sections. The MNE

department also pays for the health insurance of all Ph.D. students.

Applicants must have a bachelor's degree from an accredited institution. Although students with bachelor's degrees in Mechanical and/or Nuclear Engineering make up the bulk of our graduate student body, the department welcomes applicants from other fields including other engineering disciplines, mathematics, physics and chemistry. International applicants should also include GRE and TOEFL scores. GRE scores should be no less than 400 verbal, 650 quantitative and 3.0 on analytical writing. TOEFL scores must be above 600 on the written exam or 250 on the computer exam. The IELTS may substitute for the TOEFL. IELTS scores are valid for two years and should be no less than 7.0..

Programs of study are flexible and tailored to the interests, backgrounds and career goals of each student. Courses from outside the department are often added to programs of study to enhance the student's experience. To see when MNE Graduate courses are offered, please view the MNE Graduate Course Rotation Schedule.

Degree requirements

Prospective students may apply for a graduate degree in either Mechanical Engineering or Nuclear Engineering. We offer the following degrees:

Mechanical Engineering	**Nuclear Engineering**
Master of Science Degree - The department offers three degree options at the master's level:	Master of Science Degree - The department offers three degree options at the master's level:
Master of Science Degree - Thesis option	Master of Science Degree - Thesis option
Master of Science Degree - Report option	Master of Science Degree - Report option
Master of Science Degree - Coursework option (on-campus and distance)	Master of Science Degree - Coursework option
Doctor of Philosophy Degree	Doctor of Philosophy Degree

For information on specific degree requirements, please go to degree requirements.

Research facilities

In addition to a first-rate curriculum of graduate courses, cutting-edge graduate research projects are supported by state-of-the-art labs and research facilities. Labs and research centers associated with K-State's Mechanical and Nuclear Engineering Department include:

Laboratory facilities

- Advanced Flight Systems Laboratory
- Applied Computation Laboratory
- Autonomous Vehicle Systems Laboratory
- Composites Laboratory
- Dynamic Systems and Controls Laboratory
- Heat Transfer Lab
- Internal Combustion Engines Laboratory
- InterDisciplinary Engineering and Applied Systems (I.D.E.A.S.)
- Laser Diagnostics Laboratory
- Measurements and Instruments Laboratory
- Mechanical Testing and Evaluation Laboratory
- Non-Contact Precision Measurements Laboratory (N.C.P.M.L.)
- Neutron Activation Analysis Laboratory
- Physical Acoustics Laboratory
- Radiation Detection Instructional Laboratory
- Radiation Measurement Applications Laboratory
- Tate Neutron Activation Analysis Laboratory
- Wind Tunnel/Fluid Mechanics Laboratory

Research centers

- Center for Complex Fluid Flows
- Environmental Air Quality Program
- Institute for Environmental Research
- National Gas Machinery Laboratory
- Semiconductor Materials and Radiological Technologies Laboratory (S.M.A.R.T.)
- Triga Mark II Nuclear Reactor Facility

Mechanical and nuclear engineering courses

Undergraduate and graduate credit in minor field

ME 512. Dynamics. (3) I, II, S. Vector treatment of kinematics, Newton's Laws, work and energy, impulse and momentum, with applications to problems of particle and rigid body motion. Three hours rec. a week. Pr.: CE 333. Pr. or conc.: MATH 240.

ME 513. Thermodynamics I. (3) I, II, S. Properties of the pure substance. The first and second laws of thermodynamics. Gas mixtures and psychrometry. Three hours rec. a week. Pr.: PHYS 213; MATH 222.

ME 523. Thermodynamics II. (3) I, II. Continuation of Thermodynamics I. Energy analysis, thermodynamic cycles, generalized thermodynamic relations, and reactive systems. Three hours rec. a week. Pr.: ME 513.

ME 533. Machine Design I. (3) I, II. Introduction to the design and analysis of machine elements. Emphasis on materials, loads, stress, strain, deflection, failure theories, and finite element analysis. Applications include design and analysis of shafts, gears, and fasteners, weldments, springs, bearings. Three hours rec. a week. Pr.: ME 512.

ME 535. Mechanical Engineering Laboratory I. (3) I, II. Theory and application of mechanical engineering measurements, instrumentation, and computer-based data acquisition. One hour rec. and six hours lab a week. Pr.: ME 400, 513, and EECE 519.

ME 560. Engineering Economics. (3) I, II. Economic analysis of problems as applied in engineering. Three hours rec. a week. Pr.: ECON 110, junior standing in engineering.

ME 563. Machine Design II. (3) I, II. Design and analysis of machine elements. Applications include design and analysis of bearings, gears, shafts, clutches, brakes, belt and chain drives, and hydraulic fluid power. Three hours rec. a week. Pr.: ME 533.

ME 570. Control of MEchanical Systems I. (4) I, II. Introduction to modeling and control of dynamic systems encountered by Mechanical Engineers. Topics include basic linear systems modeling and analysis; feedback control; time response and stability of dynamic systems; introduction to root locus and frequency response design. Three hours lec. and three hours lab a week. Pr.: MATH 240, ME 400, and ME 512. Pr. or conc.: ME 535.

ME 571. Fluid Mechanics. (3) I, II, S. Physical properties; fluid statics; dynamics of ideal and real fluids (for incompressible and compressible flow); impulse and momentum; laws of similitude; dimensional analysis; flow in pipes; flow in open channels; flow about immersed objects. Three hours rec. a week. Pr.: ME 512. Pr. or conc.: ME 513.

ME 573. Heat Transfer. (3) I, II. Fundamentals of conduction, convection, and radiation; principles of heat exchanger design and dimensional analysis. Three hours rec. a week. Pr.: ME 400, ME 571, MATH 240.

ME 574. Interdisciplinary Industrial Design Projects I. (3) I, II. Introduction to design theory, project management, team dynamics and socio-economic context of design, etc.; Application of design principles, engineering analysis and experimental methods to an industrial interdisciplinary design project involving design, analysis, fabrication and testing. One hour rec. and six hours lab per week. Pr.: ME 535, ME 571, Pr. or conc.: ENGL 415, or instructor approval.

ME 575. Interdisciplinary Industrial Design Projects II. (3) I, II. Continuation of ME 574 with emphasis on in-depth project experience. Also, discussion of career planning, graduate school, ethics, technical/professional soieties, and engineering licensing. One hour lec. and five hours lab a week. Pr.: ME 574 or instructor approval.

NE 501. Introduction to Nuclear Engineering. (3) I, II. An overview course to acquaint non-nuclear engineers with introductory aspects of nuclear engineering. Three hours rec. a week. Pr.: Junior standing in engineering or physical sciences.

NE 515. Nuclear Engineering Materials. (3) I. An investigation of the nuclear properties, metallurgy, the processing of nuclear materials, and the behavior of fuels and components in a radiation environment. Three hours lec. a week. Pr.: NE 505, CHE 350.

NE 520. Neutron and Particle Interactions I. (2) II. Neutron interactions and associated cross sections of importance to nuclear reactor theory; fission and its application to reactor design; energetics of multiple neutron scattering and neutron thermalization. Two hours rec. a week. Pr.: NE 505.

Undergraduate and graduate credit

ME 610. Finite Element Applications in Mechanical Engineering. (3) I. The application of the finite element method to the solution of engineering problems. Topics include introductions to the methods, linear elastic stress analysis, thermal analysis, and modeling limitations and errors. Commercial computer codes are used in the applications. Pr.: CE 533. Pr. or conc.: ME 573.

ME 620. Internal Combustion Engines. (3) I, even years. Analysis of cycles, design and performance characteristics. Three hours rec. a week. Pr.: ME 523.

ME 622. Indoor Environmental Engineering. (3) II, even years. Ventilation, heating and cooling system design for buildings. Application of thermodynamic, heat transfer, and fluid mechanics principles for determination of building heating and cooling loads. Determination of ventilation requirements. Sizing, design and integration of environmental control systems. Three hours rec. a week. Pr. or conc.: ME 573.

ME 628. Aerodynamics. (3) I. A general introduction to aerodynamics including the analysis of lift, drag, thrust, and performance for subsonic aircraft, and the application of aerodynamic principles to design. Three hours rec. a week. Pr.: ME 571, MATH 240.

ME 631. Aircraft and Missile Propulsion. (3) II, odd years. Mechanics and thermodynamics of aircraft and missile propulsion systems; combustion; air breathing jet engines; rockets; applied compressible flow; propellants; performance and design of propulsion systems. Three hours rec. a week. Pr.: ME 523, 571, MATH 240.

ME 633. Thermodynamics of Modern Power Cycles. (3) I, odd years. The first and second law analysis of modern steam cycles for both fossil-fuel and nuclear-fuel installations, Cycle efficiency and factors affecting performance, such as cycle design, load factor, and auxiliaries. Thermal pollution resulting from steam cycles. Three hours rec. a week. Pr.: ME 513.

ME 635. Dynamics of Flight-Stability and Control. (3) II, odd years. Development of the general dynamic equations of motion for six-degree-of-freedom aircraft. Aerodynamic and propulsion force and moment models, linear and flat earth approximations, static and dynamic stability and control analysis. Longitudinal and lateral normal modes, stability augmentation and automatic control design and simulation. Pr. or conc.: ME 570.

ME 640. Control of Mechanical Systems II. (3) I. Design and analysis of control systems. Topics include linear and nonlinear systems modeling; parameter estimation/system identification; steady state errors; advanced root locus and frequency response design; controller implementation. Two hours lec. and three hours lab a week. Pr.: ME 570 and MATH 551.

ME 651. Introduction to Composites. (3) I. Design, fabrication and testing of various composite materials. Analyses of mechanical properties of laminated composites. Two hours rec. and 3 hours lab a week. Pr.: CE 533, Senior standing in engineering.

ME 656. Machine Vibrations I. (3) II. A general consideration of free and forced vibration in machines for various degrees of freedom; critical speed; vibration isolation. Three hours rec. a week. Pr.: ME 512 and MATH 240.

ME 699. Problems in Mechanical Engineering. (Var.) I, II, S. Pr.: Approval of department head.

ME 701. Development of Computer Applications In Mechanical Engineering. (3) I. Nature of design, graphical user interface development to support computer-aided design, algorithms and computer graphics in computer applications, feature-based design, applications to design problems. Pr.: ME 400.

ME 716. Intermediate Dynamics. (3) II. General vector principles of the dynamics of particles and rigid bodies; applications to orbital calculations, gyrodynamics, and rocket performance; introduction to the energy methods of advanced dynamics. Three hours rec. a week. Pr.: ME 512, MATH 240.

ME 720. Intermediate Fluid Mechanics. (3) I. A continuation of ME 571 in the study of general topics in fluid mechanics. Conservation of mass and momentum principles with particular emphasis on analysis of inviscid (potential) flows, compressible flows, and more advanced viscous flows including boundary layers. Numerous applications utilizing numerical methods. Pr.: ME 571, MATH 240.

ME 721. Thermal Systems Design. (3) I. Thermal systems design including economics, simulation, and optimization. Includes heating, ventilating and air conditioning design and control. Pr.: ME 573.

ME 722. Human Thermal Engineering. (3) I, odd years. Application of thermodynamic, heat transfer, and fluid mechanics principles of the thermal analysis of the human body. Mathematical analysis and computer modeling of human response to the thermal environment. Evaluation of heat stress and cold stress. Protection from heat and cold. Requirements for thermal comfort and impact on human performance. Three hours rec. a week. Pr.: ME 573.

ME 728. Computer Control of ElectroMechanical Systems. (3) II. Discrete modeling and analysis of dynamic physical systems in Mechanical Engineering. Sampling and data conversion and reconstruction. Real time implementation of control on a computer. Digital controller design and implementation. Laboratory exercises in control applications and design. Two hours of recitation and three hours of laboratory per week. Pr.: ME 570.

ME 730. Control Systems Analysis and Design. (3) II. Use of classical analysis techniques for control system compensation. State space-control theory fundamentals are presented in addition to an introductory treatment of several major systems areas. Pr.: EECE 530 or ME 640. Cross-listed with EECE 730.

ME 738. Experimental Stress Analysis. (3) I, even years. Experimental methods of investigating stress distributions. Photoelastic models, photoelastic coatings, brittle coatings, and resistance strain gauges applied to static and dynamic problems. Two hours rec. and three hours lab a week. Pr. or conc.: CE 533.

ME 760. Engineering Analysis I. (3) I. Methods of analysis employed in the solution of problems selected from various branches of engineering. Emphasis is on discrete systems. Three hours rec. a week. Pr.: MATH 240 or senior standing.

ME 773. Intermediate Heat Transfer. (3) II. Conduction, convection and radiation, mass transfer, phase change, heat exchangers, introductory numerical methods. Three hours rec. a week. Pr.: ME 573.

NE 612. Principles of Radiation Detection. (3) I. Operating principles and general properties of devices used in the detection and characterization of ionizing radiation. Fundamental methods of data interpretation and presentation. Two hours rec. and three hours lab. a week. Pr.: NE 495.

NE 620. Problems in Nuclear Engineering. (Var.) I, II, S. Specific studies in current and advanced problems in various phases of nuclear engineering. Pr.: Consult program director.

NE 630. Nuclear Reactor Theory. (3) I. Theory of neutron diffusion and thermalization with application to steady-state nuclear reactors. Three hours rec. a week. Pr.: MATH 240, NE 495.

NE 648. Nuclear Reactor Laboratory. (3) II. Theory and measurement of nuclear and reactor parameters of fundamental importance to nuclear reactors and their operation. Two hour lec. and three hours lab. a week. Pr.: NE 512 and NE 630.

NE 690. Radiation Protection and Shielding. (3) II. Basic concepts of radiation protection, doses, associated risks, and exposure limits. Properties of natural and other radiation sources, and evaluation of internal and external doses. Techniques for shield design including ray, point kernel, and transport theories for both neutrons and gamma rays. Three hours rec. a week. Pr.: NE 495.

NE 761. Radiation Measurement Systems. (3) II in odd years. Principles of systems used to measure radiation. Applications to radiation monitoring, dosimetry, and spectroscopy. Three hours rec. Pr.: NE 512.

NE 799. Special Topics in Nuclear Engineering. (Var.) On sufficient demand. Topical material of importance in nuclear engineering, such as controlled thermonuclear reactions, numerical analysis, Monte Carlo methods in radiation transport, effects of nuclear explosions, etc. Pr.: Consent of program director.

Graduate credit

ME 800. MNE Graduate Seminar/Research Paper. (Var.) I, II. Presentation(oral and written) and discussion of progress in research. Credit hours can be earned by preparing and/or presenting publication quality papers. Topics may be drawn from any current research area in mechanical and nuclear engineering. May be repeated with change in subject matter. Pr.: Graduate standing in Mechanical and Nuclear Engineering.

ME 802. Advanced Mechanics of Materials and Applied Elasticity. (3) I, even years. Two- and three-dimensional deformation analysis, equilibrium, and elastic constitutive laws. Stress-strain transformations between coordinate systems. Governing equations of elasticity. Advanced topics in bending, shearing, torsion and combined loads, with applications to engineering problems. Three hous rec. a week. Pr.: CE 533. Cross-listed with CE 802.

ME 811. Thermodynamic Analysis. (3) II, even years. Basic considerations of the three laws of equilibrium thermodynamics. Availability analysis with applications including multicomponent systems. Three hours rec. a week. Pr.: ME 523, 571, MATH 240.

ME 820. Intermediate Topics in Thermal and Fluid Mechanics. (Var.) On sufficient demand. Topics may include combustion, direct energy conversion, modeling and design of internal combustion engines, nonequilibrium multiphase and multicomponent systems, refrigeration, cryogenics, stability and turbulence. Pr.: ME 720 or ME 773.

ME 830. Intermediate Topics in Automatic Controls. (Var.) On sufficient demand. Topics may include analysis and design of nonlinear, adaptive, optimal, digitals or stochastic control systems and the applications of intermediate control and stability theory. Pr.: ME 730 or EECE 730 or consent of instructor.

ME 831. Boundary Layer Theory. (3) I, even years. The development and solution of various laminar boundary layer problems involving momentum, heat, and mass transfer for a compressible viscous fluid. Three hours rec. a week. Pr.: ME 573.

ME 836. Introduction to Fracture Mechanics. (3) I, odd years. This course provides an introduction to fracture mechanics concepts and applications. Topics include the asymptotic solution for stress at a crack tip, energy balance and crack propagation, computing stress intensity factors, fatigue crack growth, fracture of concrete, applications and current topics. Pr.: ME 802 or CE 802.

ME 840. Intermediate Topics in Solid Mechanics and Machine Design. (Var.) On sufficient demand. Topics may include intermediate elasticity, plasticity, tribology, probabilistic machine design, robotics, computational dynamics and nonlinear mechanics. Pr.: ME 716 or ME 802 or CE 802.

ME 846. Vibrations of Continuous Media. (3) I, odd years. Basic mathematical and physical descriptions for wave phenomena in continuous media, with emphasis on propagations of mechanical disturbance in linearly elastic solids. Other selected topics in wave dynamics, including acoustics, water waves, nonlinear phenomena, will be discussed depending on students' interest. Three hours of rec. a week. Pr.: ME 802 or CE 802.

ME 860. Engineering Analysis II. (3) II. Continuation of Engineering Analysis I. Emphasis placed on continuous systems. Three hours rec. a week. Pr.: ME 760 or consent of instructor.

ME 862. Finite Elements. (3) II. The foundations of the finite element method using weighted residuals and variational methods. Element formulation, assembly and solution are covered in detail. Formulation for dynamic and nonlinear problems. Discussion of advanced topics. The student will develop a complete finite element program. Pr.: ME 760. Pr. or conc.: ME 802 or CE 802.

ME 871. Mechanics of Composite Materials. (3) II, odd years. Topics include classification of composite materials, elasticity theory for anisotropic and in homogeneous materials, basic model for characterization of composite properties, laminated plate theory, textile composites, strength and criteria for composite failure, and fracture modes in composites. Pr.: ME 802 or CE 802.

ME 898. Master's Report. (Var.) I, II, S. Topics selected with approval of major professor and department head.

ME 899. Master's Thesis. (Var.) I, II, S. Topics selected with approval of major professor and department head.

ME 902. Theory of Plasticity. (3) II, even years. Foundations of plasticity. Vectorial and sensorial analysis. Coverage of pressure-dependent and pressure-independent materials. Hyper elasticity-Green elasticity. Deformation theory of plasticity. Flow theory of plasticity. Plastic work rate-equivalent strain. Classical yield criteria. Closed form solution of simple cases. Numerical solutions of more complex cases. Three hours rec. a week. Pr.: ME 802 or CE 802.

ME 910. Computational Methods in Design. (Var) II, even years. Selected topics from optimal design, geometric modeling, and multi-physics finite element methods.

ME 920. Advanced Topics in Thermal and Fluid Mechanics. (Var.) On sufficient demand. Topics may include combustion, direct energy conversion, modeling and design of internal combustion engines, non-equilibrium multiphase and multicomponent systems, refrigeration, cryogenics, stability and turbulence. Pr.: ME 720 or ME 773.

ME 921. Thermal System Analysis. (3) II, odd years. Advanced study of steady-state and dynamic simulation of thermal systems; thermal systems optimization. Thermodynamic availability and probabilistics in thermal system design. Three hours rec. a week. Pr.: ME 721.

ME 930. Advanced Topics in Automatic Controls. (Var.) I, II. On sufficient demand. Topics may include analysis and design of nonlinear, adaptive, optimal, digital, or stochastic control systems and the application of advanced control and stability theory. Pr.: ME 640.

ME 935. Heat Conduction in Solids. (3) I, in odd years. General differential equation of heat conduction and methods of solution for steady-state and transient heat conduction, periodic heat flow, and internal heat sources. Three hours rec. a week. Pr.: ME 573.

ME 940. Advanced Topics in Solid Mechanics and Machine Design. (Var.) On sufficient demand. Topics may include advanced elasticity, plasticity, tribology, probabilistic machine design, robotics, advanced and computational dynamics and nonlinear mechanics. Pr.: ME 802 or CE 802 or ME 716 or ME 846.

ME 942. Convection Heat Transfer. (3) II, odd years. Energy and momentum equations in convective heat transfer, laminar and turbulent thermal boundary layers, steady and nonsteady convection problems. Three hours rec. a week. Pr.: ME 573.

ME 943. Radiation Heat Transfer. (3) I, even years. Basic theories of thermal radiation, shape factors; exact and approximate solutions of integral equations of radiation heat transfer between solid surfaces with absorbing or nonabsorbing medium. Three hours rec. a week. Pr.: ME 573.

ME 947. Boiling Heat Transfer. (3) I, in alternate years. Principles of boiling heat transfer and thermal hydraulics of two-phase flow; computational methods; design and analysis applications. Three hours rec. a week. Pr.: ME 942.

ME 999. Dissertation Research in Mechanical Engineering. Ph.D. level. (Var.) I, II, S. Pr.: Approval of department head and major professor.

NE 806. Neutronics. (3) I. Particle transport, theories of diffusion, numerical analysis of diffusion, transient core analysis. Three hours rec. a week. Pr.: NE 630.

NE 810. Graduate Problems in Nuclear Engineering. (Var.) I, II, S. Specific studies in advanced problems in various phases of nuclear engineering. Pr.: Graduate standing and consent of program director.

NE 851. Nuclear Engineering Laboratory. (2), On demand. Design of experiments for the TRIGA nuclear reactor. Six hours lab a week. Pr.: NE 630 and 648.

NE 860. Advanced Topics in Nuclear Engineering. (Var.) I, II, S. A presentation of various specialtopics covering advanced nuclear engineering specialties. Pr.: Graduate standing and consent of program director.

NE 898. Master's Report. (Var.) I, II, S. Topics selected with approval of major professor and department head.

NE 899. Master's Thesis. (Var.) I, II, S. Topics selected with approval of major professor and program director.

NE 998. Selected Advanced Topics in Nuclear Engineering. (Var.) II. On sufficient demand. Current topics of interest in nuclear engineering at an advanced level, such as controlled thermonuclear reactions, numerical analysis, Monte Carlo methods in radiation transport, etc. Pr.: Consent of program director.

NE 999. Dissertation Research. (Var.) I, II, S. Topics selected with approval of major professor and program director.

For more information

For additional information and application materials please contact:
Academic Program Coordinator
Department of Mechanical and Nuclear Engineering

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Home Page: http://www.mne.ksu.edu/graduate

Marketing

Marketing Courses | For more information

Head:
Kevin Gwinner

Director of graduate studies:
Jeff Katz

Graduate faculty:

David M. Andrus, Ph.D., University of Iowa.

Kevin P. Gwinner, Ph.D., Arizona State University.

Monica Hernandez, Ph.D., University of Texas-Pan American.

Swinder Janda, Ph.D., University of Arkansas.

Kyoungmi Lee, Ph.D., University of Illinois at Urbana-Champaign.

Dawne Martin, Ph.D., University of Colorado.

Richard G. McFarland, Ph.D., Georgia Institute of Technology.

Jaebeom Suh Ph.D., University of Alabama.

Esther Swilley Ph.D., Florida State University.

Yun-Oh Whang, Ph.D., University of Southern California.

See Business Administration in this catalog for additional information and listing of graduate faculty.

Programs

The Department of Marketing supports the Master of Business Administration (MBA) and Master of Accountancy (MACC) degrees.

Marketing courses

Undergraduate and graduate credit in minor field

MKTG 541. Retailing. (3) II. This course is designed to introduce the student to the role retailing performs in the distribution of consumer goods and services. The course will survey the retailing environment and incorporate strategic planning from the management point of view; study retail policies and organizations; merchandise control; personnel management; retail accounting and expense control. Pr.: MKTG 400, MKTG 450.

MKTG 542. Professional Selling and Sales Management. (3) II. Focuses on interpersonal communications between buyers and sellers, both oral and written. The mechanics and intricacies of personal sales presentations, which will be developed through practice. Management of the sales force in non-retail settings including hiring, training, organizing, motivating, supervising, and evaluating sales representatives and techniques of sales forecasting. Pr.: MKTG 400.

MKTG 543. Integrated Marketing Communications. (3) I,II. Focuses on the management of promotional programs which include elements of advertising, personal selling, sales promotion, and public relations. Includes a review of concepts from economics, behavioral sciences, and mathematics which play a role in creating, executing, and evaluating promotional programs. Pr.: MKTG 400 and 450.

MKTG 544. International Marketing. (3) I,II,S. This course deals with the problems and perspectives of marketing across national boundaries. It also focuses on the tools and practices for structuring and controlling marketing programs related to overseas business. Emphasis is on the management of marketing functions in a global context. Topics include international trade organizations, international economic factors, foreign business customs, and the international marketing mix. Pr.: MKTG 400.

MKTG 545. Marketing Channels. (3) I. Study of the quantitative and qualitative factors involved in selecting, developing, managing, and controlling marketing channels of distribution. Includes decision models from industrial marketers through purchasing units. Pr.: MKTG 400.

MKTG 546. Services Marketing. (3) I. An analysis of the unique marketing challenges faced by service organizations. Major topics include the unique characteristics of services, creating and positioning a service in the marketplace, distributing, promoting and pricing services. An evaluation of marketing strategies from the perspective of a service firm. Pr.: MKTG 400.

MKTG 547. International Business. (3) Upon sufficient demand. This course provides students with an appreciation of the opportunities and unique challenges in international business, an understanding of the strategic and operational options available to an international firm, and managerial decision making abilities required to be successful abroad. The course examines strategic and operational issues in management, marketing, accounting and finance from an international perspective. Pr.: MKTG 400, ACCTG 241, MANGT 420, FINAN 450.

MKTG 550. Business Marketing. (3) I. A study of the nature of the industrial marketplace, concentrating on those aspects that differentiate it from the consumer markets. The major topics are analysis of market needs, market segments, organizational buying behavior, purchasing agent functions and activities, marketing strategy and mix for institutional customers, not-for-profit and services marketing, and buyer/seller relationships. Pr.: MKTG 400.

Undergraduate and graduate credit

MKTG 630. Sports Marketing. (3) S. On sufficient demand. This course provides students with the opportunity to study the nature and scope of marketing a sports franchise as well as marketing traditional products or services with the assistance of sports figures. Topics include sports franchise promotion, sports identification, consumer loyalty to a team and consumer loyalty to participation sports. Pr.: MKTG 400 or MKTG 810.

MKTG 635. Electronic Marketing. (3) S. On sufficient demand. This course is designed to provide students with the awareness and understanding of how Internet and Web-based technologies can be utilized to create effective marketing programs. Major topics will include new product development, brand building, promotion, pricing, and distribution in an electronic commerce context. Pr.: MKTG 400 or MKTG 810.

MKTG 642. Marketing Research. (3) I, II. Designed to acquaint the students with the marketing research literature, concepts, methods, and techniques. The emphasis in this course is on how to actually conceptualize and conduct a marketing research project as well as use research as an aid for marketing management decisions. Topics include the marketing research industry, defining the marketing research problem, research design formulation, data collection, data preparation and analysis, communicating the research project, and international and ethical dimensions of marketing research. Pr.: STAT 351, CIS 101, CIS 102, CIS 103, MKTG 400 and MKTG 450.

MKTG 690. Marketing Management. (3) I, II, S. Analysis of marketing situations which lead to appropriate management of the marketing program's objectives. Capstone course integrates knowledge of marketing and other business management principles into marketing strategy, development, implementation, and control. Pr.: MKTG 642 or concurrent enrollment. Undergraduates must be business students admitted in a College Business Administration degree track (major).

MKTG 810. Marketing Concepts and Research. (3) II. Presents marketing concepts and marketing research concepts at the graduate level. Emphasis is directed toward managerial strategy development using marketing theories and applied marketing research techniques. Pr.: Three hours of economics, three hours of statistics, and MATH 205 or 220.

MKTG 842. Advanced Marketing Research. (3) I, In odd years on sufficient demand. Application of advanced research methods to help solve marketing problems. Intensive examination of experimental and survey designs, data collection methods, and selected multivariate analysis techniques are covered. Pr.: STAT 351, MKTG 640, and MKTG 642.

MKTG 844. Advanced International Marketing. (3) Upon sufficient demand. This course is designed to develop the students' managerial decision making ability in international marketing. The course will focus on the internationalization process of firms, the unique issues in international marketing, and international marketing strategy. The course will integrate short lectures, class discussions, and case analysis to achieve its objectives. Pr.: MKTG 810.

MKTG 860. Advanced International Business. (3) On sufficient demand. This course is designed to introduce the student to the nature and scope of fundamental business skills requisite for a career in international business. A unified survey of the international aspects of accounting, finance, management, marketing and related subjects will be made that is useful to a manager in a global business enterprise. Emphasis will be placed on the identification, articulation and implementation of successful global strategies. Pr.: ACCTG 810, ECON 815, FINAN 815, MANGT 820, MANGT 810, MANGT 830, MKTG 810, and STAT 702 or enrollment in the MAcc program.

MKTG 891. Special Topics in Marketing. (3) II, in even years on sufficient demand. Investigation and discussion of a selected topic in marketing. One of the following five topics will be chosen for intensive study: (1) industrial marketing management, (2) advanced consumer behavior, (3) product policy, (4) financial aspects of marketing management, (5) marketing in the service sector. Pr.: MKTG 810 or 6 hours of marketing.

For more information

For additional information and application materials please contact:
Jeff Katz, Assistant Dean
Director of Graduate Studies
College of Business Administration
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Manhattan, KS 66506-0501

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Fax: 785-532-7809
E-mail: gradbusiness@ksu.edu
Home Page: http://www.cba.k-state.edu/departments/marketing/index.htm

Music

Program | Facilities | Careers | Ensembles,org.,conc. | Degree options and requirements | Requirements for individual areas of specialization | Master's report or thesis | Final examination | Problems courses | Symposium in music and workshops | Admission | Supervisory committee | Student's program | Assistantships and financial aid | Music courses | More information

Head:
Gary Mortenson

Director of graduate studies:
Frederick Burrack (Fall/Spring)
Frank Tracz (Summer/Distance)

Graduate faculty:

Frederick Burrack, Ph.D., University of Illinois.

Alfred W. Cochran, Ph.D., Catholic University of America.

Mary Lee Cochran, D.M.A., Catholic University of America.

Cora Cooper, D.M., Florida State University.

Slawomir Dobrzanski, D.M.A., University of Connecticut.

Jennifer R. Edwards, D.M.A., Conservatory of Music at the University of Missouri-Kansas City.

Jana Fallin, Ph.D., University of Texas-Austin.

Jacqueline Fassler-Kerstetter, D.M.A., University of Georgia.

Dale Ganz, M.M., Opera Diploma, University of Cincinnati.

Kurt Gartner, D.A., University of Northern Colorado.

Bruce Gbur, D.M.A., University of Georgia.

Wayne Goins, Ph.D., The Florida State University.

Virginia Houser, D.M.A., University of Oklahoma.

Paul Hunt, D.M.A., Eastman School of Music.

K. Tod Kerstetter, D.M.A., University of Georgia.

David Littrell, D.M.A., University of Texas-Austin.

Gary Mortenson, D.M.A., University of Texas-Austin.

Craig B. Parker, Ph.D., University of California, Los Angeles.

Reginald Pittman, D.M., Indiana University.

Anthony Pursell, D.A., Ball State University.

Amy Rosine, D.M.A., University of Kansas.

Jean C. Sloop, D.M.A., Eastman School of Music.

Mary Ellen Sutton, D.M.A., University of Kansas.

Frank Tracz, Ph.D., Ohio State University.

Rodney G. Walker, M.M.E., Wichita State University.

Craig A. Weston, D.M.A., University of Washington.

Julie Yu, D.M.A., University of North Texas.

Areas of Emphasis:

Bands:	Goins, Tracz, Purcell
Brass instruments:	Burrack, Fassler-Kerstetter, Hunt, Mortenson, Parker
Chamber music:	Cooper, Littrell, Kerstetter, Mortenson
Choral groups:	Yu
Conducting:	Littrell, Tracz, Yu, Purcell
History:	M.L. Cochran, Gbur, Goins, Hunt, Mortenson, Parker
Introductory courses for non-majors:	M.L. Cochran, Mortenson
Jazz studies:	A. W. Cochran, Gartner, Goins
Keyboard instruments:	Dobrzanski, Houser, Sutton
Music education:	Burrack, Fallin, Tracz, Yu
Music history and musicology:	A. W. Cochran, Parker, Sloop, Sutton
Opera and musical theatre:	J. Edwards, Pittman
Orchestras:	Littrell
String instruments:	Cooper, Littrell
Theory:	M.L. Cochran, Fassler-Kerstetter, Kerstetter, Littrell, Sutton, Weston
Voice:	J. Edwards, Ganz, Pittman, Sloop
Woodwind instruments:	A. W. Cochran, M.L. Cochran, Gbur, Kerstetter

Program

Kansas State University's graduate program in music is designed to furnish specialized professional training supported by competence in those fundamental areas needed by all musicians. Emphasis is placed on the personal growth and development of the student toward individual goals. The program is large enough to provide ample variety yet small enough to allow personal attention to each student. While students are given considerable responsibility in all phases of the educational program, faculty guidance is available constantly.

The Department of Music offers the master of music with specialization in the following areas: music education, music history/literature, performance, performance with pedagogy emphasis, and theory-composition.

Facilities

The Department of Music is housed in McCain Auditorium. Ample classrooms, rehearsal halls, practice studios, and offices are supplemented by a small hall for chamber music and an 1,800-seat auditorium. The Music Technology Lab provides 15 midi work-stations with a state-of-the-art teaching/presentation station. The department owns four concert grand pianos, several studio grands, and a number of well-maintained practice uprights. Organs include a concert Austin (40 rks), a Bosch tracker (9 rks), two Reuters (6 rks and 17 rks), and a Walker Continuo organ. An electronic studio centers around digital and analog synthesizers with ample supporting equipment. For the performance of early music, the department owns two harpsichords, a chest of matched viols, and assorted wind instruments.

The music division of Hale Library contains a growing reference and research collection fully adequate to master's level work, as well as an extensive collection of recordings. The Special Collections Division holds a number of rare items, from 16th century prints to one of the two largest collections of the manuscripts of Gail Kubik, world-renowned 20th-century composer. The Graduate Music Seminar-Study Room offers a place in the Music Department in which materials may be placed on reserve for easy, convenient availability to graduate students.

Careers

In addition to enriching the quality of one's life, enhancing the understanding of other epochs and cultures, and providing outlets for self-expression, graduate study in music prepares students for a variety of professions. K-State's music alumni perform professionally with symphony orchestras, military bands, chamber music ensembles, opera and musical theatre companies, choral ensembles, jazz, rock, country, and bluegrass groups, in recording studios, and as soloists and accompanists. Others are active as composers of concert, commercial, liturgical, and/or educational music. K-State graduates also hold prominent positions in the fields of music education (pre-school through collegiate levels), private teaching, church music, music therapy, librarianship, and in the music industry. In addition, several K-State music graduates have used their arts degrees as preparation for professional schools such as law and medicine.

Ensembles, Organizations and Concerts

A full range of performing organizations and small ensembles provides the graduate student with a variety of performance opportunities. These include Concert Choir, Chamber Singers, Collegiate Chorale, Collegium Musicum, Opera Theater and Workshop, Symphony Orchestra, Symphony Band, Concert Band, University Band, University Choir, Concert Jazz Ensemble, Jazz Lab bands, Jazz Combos, Brass Ensemble, Flute Ensemble, and the Percussion Ensembles. Moreover, the Collegium Musicum performs early music on authentic instruments, and chamber music flourishes in a number of small groups of various instrumentation.

The McCain Auditorium Performance Series brings to the campus large musical attractions, world-famous soloists, and chamber music, as well as dance troupes and drama companies. Faculty recitals expand the opportunities to hear performances of professional caliber.

Degree options and requirements

Kansas State University offers the master of music degree with specialization possible in music education, music history/literature, performance, performance with pedagogy emphasis, and theory-composition. The degree requires a minimum of between 32 and 36 credit hours including a master's report (or recital) or a master's thesis. Music education majors may elect to take 36 credit hours without master's report or master's thesis.

Core requirements:
MUSIC 801 Introduction to Graduate Study (2).

Theory and history-literature 11-12 hours, including Music 702: Style Analysis and at least one seminar course or MUSIC 767: Topics in American Music.

- History options include: 530, 531, 532, 570, 601, 650, 707, 766, 803, 807, 830, 832, 834, 836, 837
- Theory options include: 615, 616, 620, 675, 711, 714, 802, 804, 857
- Literature options include: 704, 705, 706, 707, 708, 737, 738, 740

The Placement Examination will determine whether or not academic deficiencies exist. If they are present, the student is required to enroll in the appropriate remedial courses or by doing independent study before re-examination.

See areas of specialization for further explanation. (MUSIC 802, taken during the summer, does not fulfill the seminar requirement.)

Requirements for individual areas of specialization

Performance

Admission
Each student wishing to major in performance must audition in person or send a recording of a recent concert. The audition, or audition recording, must be of substantial length and include music from at least three different style periods. The audition must be approved by the faculty of the appropriate division.

Core requirements as above with the following amplifications:
History-Literature hours must include:

For wind and percussion students: Symphonic Literature (MUSIC 704)

For choral conducting students: Choral Literature (MUSIC 708)

For band conducting students: History of Wind Bands (MUSIC 707)

For string students: Chamber Music Literature (MUSIC 705)

For voice students: Song Literature (MUSIC 706)

For organ students: Organ Literature (MUSIC 737)

For piano students: Piano Literature (MUSIC 738)

Electives
4 to 6 hours.

Major field
A minimum of 12 hours in the division of the student's major performance area, 8 hours of which must be individual instruction. The remaining 4 hours may be in pedagogy, methods, or ensemble. Voice majors who are found deficient in knowledge of foreign language diction will take 1 hour of diction.

Master's report (recital), 2 hours
All graduate students majoring in performance will perform a full recital of not less than one hour. The program for the recital must be approved by the student's advisory committee, and the advisory committee will judge the recital. All solo literature (including concertos) will be played from memory, unless the advisory committee grants an exception in recognition of unusual circumstances. The recital will be digitally recorded and the recording uploaded to EDTR, with supporting material, for presentation as a master's report. The student will also either (a) prepare substantial program notes of a historical and analytical nature, these notes to be bound with the recorded recital; or (b) present a lecture-recital on a major work not included on the master's recital, the lecture-recital to be recorded and uploaded to EDTR with the master's recital. Under both options a and b, the project is to be done under supervision of the major professor or the director of graduate studies. The program notes or the lecture should demonstrate the student's ability to investigate and interpret the historical aspects of a work, to analyze style, and to use commendable English. The literary standards should be comparable to those required for the usual master's report. Under option b the student's choice of a work must be approved by his or her advisory committee.

Additional requirements and policies: students in areas in which ensemble performance plays an important role will be expected to take part in appropriate ensembles and organizations as determined in consultation with the student's advisory committee.

Performance with pedagogy emphasis

Differs from the performance specialization in the following:

Major field
6 hours individual instruction; 3 hours Methods and Materials (MUSIC 828), including supervised practice teaching; 3 hours of Music 805.

Master's report (recital)
Should the student choose to write program notes (option a), these should include discussion of the pedagogical problems and values of the works. Should the student choose to present a lecture-recital (option b), this should be a musically-illustrated presentation on some aspect of pedagogy in his or her field.

In place of a master's recital, the student may write a master's report in the field of pedagogy. The student choosing this option will also play the equivalent of a half recital for the faculty of his or her performance division and advisory committee.

History-literature

Core requirements
As above.

Performance
Collegium Musicum, 2 hours.

Major field
12 hours minimum, including at least 9 hours from 830, 832, 834, 836, and 837.

Master's report, 2 hours.
or
Master's thesis, 6 hours
This option is open by permission to history majors who are not required to take 601 and who have a special interest in research.

Electives
2 to 8 hours.

Additional requirements
Reading knowledge of foreign language; German or French preferred, Italian, Latin, Russian, or Spanish acceptable.

Oral examination
In defense of thesis or report.

Theory-composition

Admission
Entrance to the program normally requires at least 26 undergraduate hours of theory-composition courses. The applicant should submit original scores to the composition faculty for approval.

Core requirements
As above with the following amplification: MUSIC 837: Seminar in 20th-Century Music is required.

Performance
One course (2 hours) in advanced conducting or score reading.

Major field
Total, 16 hours, as follows: 10 to 14 hours, including 802 (Seminar in Music Theory) or 804 (Advanced Analysis), and individual instruction in composition; and master's report, 2 hours or master's thesis, 6 hours. The report or thesis may be either a theoretical paper or a composition in a larger form with an accompanying report.

Electives
Up to 6 hours.

Additional requirements and policies
The composition student must prove his or her proficiency in conducting and in electronic instrumentation, either by class study or by actual performance in the area.

All students receiving individual instruction in composition are required to copy their music in the prescribed professional manner.

Wherever possible, the composer should assume the responsibility of seeing to the performance of his or her own music.

Music education

Admission
An applicant in music education may arrange a personal audition or send a recording demonstrating ability in the major area of performance as part of the admission process. Those who do not do so will audition during the registration period.

Core requirements
As above with the following amplification: MUSIC 807: History and Philosophy of Music Education is required.

Performance
4 hours individual instruction in the major performance area of the student's undergraduate study, or in a chosen secondary performance area, or in advanced conducting.

Major field
Music education core: 805 and 808, 6 hours.

Music education electives
6-7 hours, from 806, 809, 811, and 814; not more than 2 hours of 811 or 814 may be counted.

Master's report, 2 hours
With the approval of the student's advisory committee and the graduate faculty of the area concerned, the requirements may be satisfied by one of the following:

1. A scholarly paper on some aspect of the student's major area of teaching;

2. An original composition of acceptable proportions, with an accompanying report;

3. A recital on the student's major instrument, the recital to be given under the conditions listed under the performance major;

4. Six additional semester hours of graduate courses in music education and/or advanced courses related field, (e.g., art, drama, education, philosophy, psychology, statistics, etc.).

Master's report or thesis

The master's report should demonstrate the student's ability to locate and gather information, to organize this information, and to interpret and evaluate it. While the subject need not be taken from a totally unexplored area, the master's report should reflect originality of thought and approach, and it must represent essentially the student's own work. The report is written with the guidance of the major professor. The director of graduate studies is the second reader and should be consulted early in the work. The other member of the advisory committee also reads the report and should be consulted well before the work is finished.

The master's thesis differs from the report only in the broader scope and greater length required.

Both the thesis and the report must be in clear and commendable English. The form and style should follow *Irvine's Writing About Music*, 3rd edition, revised and enlarged by Mark A. Radice (Portland, Oregon: Amadeus Press, 1999). (Music education majors will use the *Publication Manual of the American Psychological Association,* fourth edition, instead.)

For discussion of the master's report (recital), see above under the performance specialization.

Final examination

All candidates for the master of music degree are required to an oral defense of their master's recital/report/thesis. The total time of the examination is approximately one hour. The purpose of the defense is to expose required learnings from your graduate program of study and should include questions from the three general areas: the candidate's major field, history-literature, and theory. Although focused on the program of study, the candidate will be expected to demonstrate a breadth of knowledge in the field of music beyond that covered in course work, as well as the ability to relate his or her special area to other areas. The responsibility for evaluating the examination lies with the candidate's supervisory committee.

Problems courses

Not more than three hours in MUSIC 799: Problems in Music should ordinarily be applied to the master's degree except that two hours of Problems in Music may be applied to the master's report.

The purpose of the Problems in Music course is to provide opportunity for guided independent study in areas not included in regular course offerings. If scheduling difficulties have made it impossible for the student to take a needed or desired course, Problems in Music may be used to cover that subject matter.

Symposium in music and workshops

MUSIC 811: Symposium in Music and the other short, concentrated workshop courses, designed especially for school music teachers and supervisors, are given during the summer session. Often these are taught by visiting musicians and educators of national prominence. The symposium and various workshops carry graduate credit, but only 2 hours of these courses may be applied toward the master's degree. Further information may be obtained from Professor Jana Fallin, Department of Music, Kansas State University, 109 McCain Auditorium, Manhattan, KS 66506-4702.

Admission

Admission to the Graduate School of Kansas State University is handled through individual departments. Applicants interested in the Graduate Program in Music should send inquiries and application materials to Director of Graduate Studies, Department of Music, 109 McCain Auditorium, Kansas State University, Manhattan, KS 66506-4702.

Applicants should send directly to Frederick Burrack, Director of Graduate Studies, Department of Music:

1. a completed application form and signature sheet
2. a statement of applicant's personal and professional goals
3. a compact disc (CD) demonstrating your performance skills (if your specialization will be music education, performance, or performance with pedagogy emphasis), sample original scores (if you will be a theory/composition major), or an example of scholarly work (if you plan to be a music history/literature major). On-campus auditions for conductors is highly suggested.
4. the application fee. **United States citizens** are required to pay an application fee of $30. **International** students are required to pay an application fee of $55. This should be in the form of a money order payable to the K-State Graduate School. Personal checks can be made payable to the K-State Graduate School.
5. one copy of an official transcript each undergraduate or graduate institution previously attended.
6. three letters of recommendations
7. **International students** are also required to send TOEFL scores and Affidavit of Financial Support (see: http://www.k-state.edu/grad/gsprospective/viewbook/intrnl.htm)

All new graduate students are encouraged to take a physical examination prior to enrollment.

International students, whose native language is not English, even those with a bachelor's degree from a U.S. institution, must present a score of at least 600 on the *Test of English as a Foreign Language* (TOEFL) in order to be admitted to the graduate program in music at Kansas State University. Students scoring less than 600 should enroll in the K-State English Language Program (205 Fairchild Hall, Kansas State University, Manhattan, KS 66506-1106) before beginning graduate course work in music.

Entrance requirements

Admission with full standing
To be considered for admission with full standing, the applicant must have:

1. A bachelor's degree from an approved institution.

2. Adequate preparation in the field of music: normally a B.M., B.M.E., B.S. in music education, B.A. in music, or the equivalent.

3. An undergraduate average of B or better.

If all of the foregoing requirements are not met, probationary admission may be considered, provided there is other evidence that the applicant has the ability to do satisfactory graduate work. Such evidence might include a post-graduate record at another institution or successful professional work.

Probationary admission
Students may be admitted provisionally if there is uncertainty in evaluating transcripts.

Full standing for probationary or provisional students is attained automatically upon completion of at least 9 hours of work for graduate credit with a grade of B or better. Students admitted on probation may be denied continued enrollment if they receive a grade less than B.

Special students
An application for admission to the Graduate School in the Department of Music ordinarily implies the student's intention to work toward an advanced degree. Students who do not plan to work toward an advanced degree, however, may be admitted as special students. Those who later wish to enter the degree program must undergo a full review. No more than 9 semester hours earned as a special student may be transferred into a regular degree program.

Admission to the Graduate School in the Department of Music does not necessarily imply admission to a particular program within the department. For special requirements, see the individual areas of emphasis.

Residence requirements

Graduate School regulations require that candidates for the master's degree spend one academic year, or its equivalent, in residence. Candidates in music, however, are seldom advised to attempt completion of the master's degree in less than two semesters and one summer. Candidates who serve as graduate assistants or hold positions outside of their academic responsibilities are generally advised to take four semesters.

A summer session of six weeks may be regarded as slightly less than half a semester; a candidate whose work is confined to the summer, therefore, will usually require at least five summers, plus some independent work, for completion of the master's degree.

Courses taken more than six years before the completion of the degree generally cannot be credited toward the degree.

Transfer credit

Graduate credit with a grade of B, or better, may be transferred from other accredited institutions. Transfer of more than 6 hours requires special action; in no case may more than 10 hours be transferred.

Course loads

No graduate student in music shall take more than 16 hours of credit during fall or spring semesters. Six credit hours is considered a full load during the summer term. Graduate assistants may not take more than 12 hours, or less than six hours, in any semester.

Registration

Registration procedures are outlined each semester in the *Schedule of Classes and Enrollment Procedures.* First-term graduate students may be required to arrive on campus (for orientation and testing) one week before classes begin. The needed information will be communicated to each student in ample time by the Director of Graduate Studies. All music graduate students will register through the office of the Director of Graduate Studies in Music.

Placement tests

Before registration for the first term, each entering graduate student will take placement tests. The written tests will consist of two sections, theory and music history. The tests will include components equivalent to those of the KSU undergraduate program.

The results of these tests will be used in planning a suitable program of study for each individual. If remedial work is indicated, it may be accomplished either by taking the proper undergraduate course or by doing independent study before re-examination.

Supervisory committee

During the student's first semester, the director of graduate studies shall, in consultation with the student, appoint a major professor for each student. No later than the second semester, the major professor will organize a supervisory committee consisting of himself/herself as chair, the Director of Graduate Studies in Music, and at least one other faculty member.

The duties of the Major Professor will be to (1) meet no later than the student's second semester to review the student's work, (2) meet with the student no later than the second semester in order to formulate and approve the student's academic program, (3) offer counsel and advice to the student throughout his/her academic career and to approve such changes in his/her program as are agreed upon, (4) advise the student in the selection of a topic for the master's thesis or report, or the program for master's recital, and to approve the final choice, (5) The Supervisory Committee will act as the final reading committee of the master's thesis, or report, or as the judging committee for the student's final master's recital, (6) serve as the examining committee for the student's comprehensive examination.

The initial organization of the Supervisory Committee and the scheduling of its first meeting shall be the responsibility of the major professor. Thereafter, the student has the responsibility for consultation with members of his or her committee and for obtaining the approval of the committee on appropriate matters.

Student's program of study

No later than a student's second semester, each student will, at some time before preregistration for the following term, meet with his/her major professor and, in consultation with other members of his/her Supervisory Committee, plan his/her academic program. This program is entered on the official form which the student receives from the Graduate School. When each of the members of the Supervisory Committee and the head of the music department have signified approval by signing the completed form, the student will make six copies and will deliver the original, and all copies, to the Graduate School office.

The student is then responsible for following the program through his/her academic career, for obtaining the Supervisory Committee's approval for any desired or needed changes, and for seeing that his/her major professor registers such changes with the Graduate School office.

Assistantships and financial aid

A limited number of graduate assistantships are available during the regular academic session, but they are not available in the summer. Assistantships are given in specific areas, according to departmental needs. Teaching assistants are usually needed in accompanying, band, choir,

collegium musicum, comprehensive musicianship, music appreciation, orchestra, piano class, tuba, and voice (class and/or studio teaching). Other assistantships involve work in the Music Library, the instrument room, and various aspects of administration.

Graduate assistantships require up to 16-20 hours a week, which is regarded as five-tenths of full time. Such an appointment entitles the student to a full waiver of tuition and out-of-state fees, as well as eligibility to apply for university health insurance. Graduate assistants who are appointed to a .25 tenths position work 8-10 hours per week. All applicants for full-time study in the Master of Music program are automatically considered for assistantships; no additional application form is needed. Assistantships are awarded with the expectation that the student will spend two years in residence and that satisfactory performance of duties and satifactory academic work will bring renewal of the assistantship. Assistanships are not available for more than two years. Graduate assistants are expected to participate in a large ensemble each semester.

For eligible students, work study funds are available for a variety of jobs on campus. Inquiries regarding eligibility for work-study should be addressed to the Office of Aids and Awards, Fairchild Hall, Kansas State University, Manhattan, KS 66506.

All non-native English-speaking applicants, including those with a bachelor's degree from a U.S. college or university, must score at least 600 on the TOEFL and at least 50 on the Speak Test before being appointed to a graduate teaching assistantship in the Kansas State University Department of Music.

Music courses

Graduate credit

Courses in music history, literature, and theory

MUSIC 523. Upper-Division Composition. (Var.) I, II, S. Composition instruction through individual lessons and group seminar instruction. Emphasis on meeting professional standards of composition adn score/part preparation and creation of a varied portfolio of works. Pr.: Submission of a portfolio of pieces for faculty review and approval.

MUSIC 525. Instrumentation and Arranging. (2) I. Study of writing and arranging for the strings, woodwinds, brass and percussion as well as choral ensembles. Functional ranges and practical applications through score study and projects. Pr.: MUSIC 322, 360, 361.

MUSIC 530. Music History I: Ancient Greece through 1700. (3) I. An overview of stylistic trends, major composers, repertoire of ancient Greece, the Middle Ages, Renaissance and early Baroque periods. Pr.: Grade of C or higher in MUSIC 320.

MUSIC 531. Music History II: 1700 to 1850. (3) II. An overview of stylistic trends, major composers, repertoire of the late Baroque, Classical and early Romantic periods. Pr.: Grade of C or higher in MUSIC 320.

MUSIC 532. Music History III: 1850 to the Present. (3) II. An overview of the development of stylistic trends, major composers, and repertoire of the late Romantic period through the present. Pr: MUSIC 322, 360, 361.

MUSIC 570. Musical Comedy. (3) On sufficient demand. The history of operetta and music comedy from Offenbach to the present. Offered jointly by Departments of Music and Speech. Same as THTRE 570.

MUSIC 599. Special Studies in Music. (1-3) I, II, S. Pr.: Background of courses needed for studies undertaken.

MUSIC 601. Western Music Before 1750. (3) II, in alternate years, alternate S. A survey of the development of Western music from early Greek civilization to 1750. Pr.: MUSIC 398 and 406.

MUSIC 603. Percussion Pedagogy Workshop. (2-3) S. Advanced study of percussion instruments and related performance techniques, teaching methods and responsibilities, organization, and literature.

MUSIC 614. Graduate Theory Review. (2) I, S. For graduate students in music for whom additional work in the harmonic and formal aspects of tonal and chromatic music is needed. This course does not fulfill degree requirements.

MUSIC 615. Canon and Fugue. (2) I. Alternate S. Counterpoint in eighteenth century style. Pr.: MUSIC 398, consent of instructor.

MUSIC 616. Twentieth-Century Counterpoint. (2) II, S. Contrapuntal devices used by twentieth-century composers; serial techniques. Pr.: MUSIC 398, consent of instructor.

MUSIC 618. Graduate History Review. (2) I, S. For graduate students in music for whom additional work in music history is needed based on thier performance on the Graduate Music History Entrance Exam. This course does not fulfill graduate degree requirements. A grade of an A or B is required to enroll in graduate level music history courses.

MUSIC 620. Music Calligraphy and Score Preparation. (2) On sufficient demand. Tools and procedures for professional preparation of music manuscript in facsimile editions. Computer applications for typesetting and music publishing. Pr.: MUSIC 201.

MUSIC 631. Technology of the Electronic Music Studio. (2) I, S. Instrumentation and systematic procedures as applied to the construction of electronic music. Principles of voltage-controlled systems, synchronous tape machines, and audio mixing. Individual and team projects. Pr.: MUSIC 521, consent of instructor.

MUSIC 632. Digital Sound Synthesis. (2) On sufficient demand. Exploration of real-time interactive systems. Theory and application pertaining to the creation of instruments and scores using additive and FM techniques. Team projects. Pr.: MUSIC 631.

MUSIC 650. History of the Opera. (3) I, in alternate years. A study of selected masterpieces of musical drama, with emphasis on the relationship of music and drama, and on the unique qualities of opera as a collective artwork. Pr.: MUSIC 201 or MUSIC 250.

MUSIC 675. Arranging for Bands. (2) II, S. Assessing, evaluating, and applying the basic issues, techniques, and possibilities inherent in scoring and arranging for various windband media. Primary attention will be given to concert and marching bands, but students will also spend time learning about various jazz ensembles and other possible combinations of wind and percussion instruments. Pr.: MUSIC 525.

MUSIC 702. Style Analysis. (3) I, alternate S. Training in a comprehensive, systematic analytical approach to all style periods, and in verbalizing analytical perceptions. Pr.: MUSIC 407.

MUSIC 704. Symphonic Literature. (3) II, in alternate years. The development of orchestral music from the late Baroque to the present, with emphasis on selected symphonies of the late eighteenth and nineteenth centuries. PR.: MUSIC 407.

MUSIC 705. Chamber Music Literature. (3) II, in alternate years. A selected survey of masterpieces of small ensemble music from 1750 to the present. Special emphasis on the string quartet. Pr.: MUSIC 407.

MUSIC 706. Song Literature. (3) II, in alternate years. Survey, by historical period and national styles, of major solo vocal works. PR.: MUSIC 407.

MUSIC 707. History of Wind Bands. (3) II, S. Development of the wind band medium from the Renaissance to the present, with focus on the composers and literature. Pr.: MUSIC 407.

MUSIC 708. Choral Literature. (3) II, in alternate years. A study of standard choral masterpieces in both large and small forms from 1450 to the present. Pr.: MUSIC 407.

MUSIC 711. Practical Composition and Arranging. (2) On sufficient demand. Explanation of styles and techniques applicable to contemporary commercial music. Practical arranging for the stage band. Pr.: MUSIC 213 or consent of instructor.

MUSIC 714. Advanced Orchestration. (2) II. The study of orchestra and band scores. Exercises in orchestrating this type of music for different choirs of instruments, as well as scoring for full orchestra and symphonic band. Pr.: MUSIC 525.

MUSIC 737. Organ Literature. (3) I, in alternate years. A survey of significant compositions from the Renaissance to the present with emphasis on performance practice. Pr.: MUSIC 407.

MUSIC 738. Piano Literature. (3) I, in alternate years. Selective survey of music for piano from 1750 to the present. Pr.: MUSIC 407.

MUSIC 740. Studies in Music Literature. (3) On sufficient demand. Study of the repertory of a selected musical genre or medium of performance. Pr.: MUSIC 407.

MUSIC 766. Seminar in the Life and Works of an Individual Composer. (3) I, alternate S. Study of the career and achievements of a selected composer of major stature. Pr.: MUSIC 407.

MUSIC 767. Topics in American Music. (3) On sufficient demand. Studies of the various genres of American music. Pr.: Music 407.

MUSIC 799. Problems in Music. (Var.) I, II, S. Individual guided work in a selected area. No more than three hours of Problems in Music may be applied to the master's degree. Pr.: 6 hours graduate credit in music.

MUSIC 801. Introduction to Graduate Study in Music. (2) I, alternate S. Library procedures, bibliography, research methods, and practice in preparing scholarly papers. Required of all graduate students in music. Pr.: At least 30 hours of music theory and music history.

MUSIC 802. Seminar in Music Theory. (3) II, alternate S. Comparison of major theoretical treatises and historical compositional practices; practical application for the modern musician. Pr.: Twenty hours of music theory.

MUSIC 803. Seminar in Music History. (2) S. The history of music with emphasis on the correlation of stylistic factors and man's cultural environment. Pr.: MUSIC 407.

MUSIC 804. Advanced Analysis. (3) II, in alternate years. An in-depth study of works by later Romantic and modern composers: techniques and styles in relation to form. Pr.: Twenty hours music theory.

MUSIC 830. Seminar in Medieval and Renaissance Music. (3) II, in alternate years. In-depth investigation of a selected area or problem in medieval or Renaissance music. Emphasis on individual research. Pr.: MUSIC 601 and consent of instructor.

MUSIC 832. Seminar in Baroque Music. (3) I, in alternate years. In-depth investigation of a selected area or problem in Baroque music. Emphasis on individual research. Pr.: MUSIC 601 and consent of instructor.

MUSIC 834. Seminar in Classical Music. (3) II, in alternate years. In-depth investigation of a selected area or problem in classical music. Emphasis on individual research. MUSIC 601 and consent of instructor.

MUSIC 836. Seminar in Romantic Music. (3) II, in alternate years. In-depth investigation of a selected area or problem in Romantic music. Emphasis on individual research. Pr.: MUSIC 601 and consent of instructor.

MUSIC 837. Seminar in 20th-Century Music. (3) II, alternate years, alternate S. In-depth investigation of a selected area or problem in twentieth-century music. Emphasis on individual research. Pr.: MUSIC 601, consent of instructor.

MUSIC 857. Advanced Composition. (1-2) I, II, S.

MUSIC 898. Master's Report in Music. (2) I, II, S. Independent directed research leading to master's report. Pr.: sixteen hours graduate credit in music.

MUSIC 899. Research in Music. (Var.) I, II, S. Independent research that may lead to master's thesis. Pr.: sixteen hours graduate credit in music.

Courses in music education

MUSIC 511. Music in the Schools, K-6. (4) II. The music curriculum in grades K-6, including a study of the musical characteristics of children and materials and techniques for teaching instrumental, vocal, and general music at this level. Pr.: Admission to teacher education and junior standing in music.

MUSIC 512. Music Program in Junior/Senior High Schools. (4) I. Organization and administration of the comprehensive music program in junior and senior high schools; including the study of vocal and instrumental ensemble development, as well as techniques and materials for other types of music classes. Pr: Admission to teacher education and junior standing in music.

MUSIC 660. Marching Band Techniques. (2) I, S. Philosophical and practical purposes of the marching band, and the skills necessary to design, organize, instruct, and evaluate a marching band show. Pr.: MUSIC 512.

MUSIC 665. Jazz Techniques. (2) II, S. Basic practices found in jazz education, including literature, teaching techniques, and resource materials. Pr.: MUSIC 512.

MUSIC 670. Advanced Studies in Music Education. (2) I, II, S. Advanced undergraduate studies of various topics related to the teaching of music in grades K-12. May be repeated for credit when topics vary. Pr.: MUSIC 511 or 512.

MUSIC 680. Advanced Rehearsal Techniques. (2) II, S. Explore, evaluate, and develop the musical understanding and skills necessary in leading instrumental ensembles toward significant musical expression through effective rehearsal techniques. Pr.: MUSIC 417.

MUSIC 685. Organization and Administration of School Music Programs. (2) I, S. Provides models and ideas on organizing program/teaching to enable the teacher and students to succeed and enjoy the music making process. Present strategies and philosophies on dealing with administrators, parents, peers, and students will be discussed, as well as motivation of self and student.

MUSIC 805. Theories in Music Education. (3) On sufficient demand. A survey of the history of music teaching in the United States, with emphasis on the relationship of various theories of music, musical perception, and musical cognition to current practices in teaching music at all levels. Pr.: Nine hours graduate credit in music.

MUSIC 806. Psychology of Music. (3) I (alternating years), S (alternating years). Acquaints students with musical acoustics, perception and cognition of music, music learning, nature and testing of musical aptitude and achievement, affective response to music, musical preference, and the functionality of music.

MUSIC 807. History and Philosophy of Music Education. (3) II (alternating years), S (alternating years). The study of history and philosophy of music education in the U.S.

MUSIC 808. Research in Music Education. (3) II, alternate S. An introduction to historical, descriptive, and experimental research in music education, including a study of techniques for the evaluation of music teaching and learning. Pr.: MUSIC 805.

MUSIC 809. Seminar in Music Education. (3) I, alternate S. Advanced studies of various topics related to the instrumental, choral, and general music programs in elementary and secondary schools. May be repeated when topics vary. Pr.: MUSIC 805 or graduate standing in music education and consent of the instructor.

MUSIC 811. Symposium in Music. (1-3) S. Intensive short-term studies of various topics in music, featuring presentations by nationally known scholars in the field. Only two hours of Symposium in Music and Workshop in Music may be applied toward the master's degree.

MUSIC 814. Workshop in Music. (1-2) S. Advanced studies in specialized interest areas. Students may enroll in different areas simultaneously. Only two hours of Symposium in Music and Workshop in Music may be applied toward the master's degree.

Performance organizations

MUSIC 838. Opera Theatre. (Var.) I, II. Opera workshop for graduates. Pr.: Baccalaureate degree and previous experience at the undergraduate level.

MUSIC 839. Vocal Ensemble. (1) I, II, S. Performance and study with established University vocal organization or small ensemble.

MUSIC 840. Instrumental Ensemble. (1) I, II, S. Performance and study with an established University instrumental organization or a small ensemble.

MUSIC 841. Collegium Musicum. (1) I, II. An ensemble devoted primarily to the performance of music written before 1700. Authentic instruments used when possible.

MUSIC 842. Concert Choir. (1) I, II. Pr.: Baccalaureate degree and previous experience at the undergraduate level.

MUSIC 843. Symphony Orchestra. (1) I, II. Pr.: Baccalaureate degree and previous experience at the undergraduate level.

MUSIC 844. Concert Jazz Ensemble. (1) I, II. Pr.: Baccalaureate degree and previous experience at the undergraduate level.

MUSIC 845. Symphony Band. (1) I, II. Pr.: Baccalaureate degree and previous experience at the undergraduate level.

Performance classes

MUSIC 501. Half Recital. (0) I, II, S. Public performance; vocal or instrumental with suggested performing time of 25 minutes.

MUSIC 502. Full Recital. (0) I, II, S. Public performance; vocal or instrumental with suggested performing time of 50 minutes.

MUSIC 517. Choral Conducting. (2) II. Continued mastery of the skills in Conducting I while emphasizing essential techniques and interpretation for choral ensembles. For music majors only. Required before admission to student teaching. Pr.: MUSIC 322, 360, 361, 417.

MUSIC 518. Instrumental Conducting. (2) II. Continued mastery of the skills in Conducting I while emphasizing essential techniques and interpretation for instrumental ensembles. For music majors only. Required before admission to student teaching. Pr.: MUSIC 322, 360, 361, 417.

MUSIC 828. Methods and Materials for the Studio. (1-3) I, II, S. Methods of teaching fundamental techniques; selection of teaching materials outlining courses of study. For graduate students in performance curricula. Taught in divisions according to the major. Practical application through supervised studio teaching. Pr.: MUSIC 391 or MUSIC 492. May be repeated for a maximum of 3 hours.

MUSIC 859. Advanced Conducting. (Var.) I, II, S. Pr.: MUSIC 417 and consent of instructor.

MUSIC 885. Advanced Diction. (1) On sufficient demand. Concentrated study of Italian, German, and French diction for singing. Materials are related to work in the voice studio, and concurrent registration in MUSIC 855 is required. Pr.: MUSIC 466. May be repeated once.

Studio performance

MUSIC 521. Composition. (Var.) I, II, S.

MUSIC 641. Secondary Performance Area. (1-2) I, II, S. For graduate students who wish to study an instrument (or voice) other than the major performance area. Pedagogical methods and fundamentals are stressed.

MUSIC 855. Graduate-Level Performance. (Var.) I, II, S. Instruction is offered every semester in voice and each of the following instruments: baritone, bassoon, clarinet, double bass, early winds, flute, french horn, guitar, harpsichord, oboe, organ, percussion, piano, saxophone, trombone, trumpet, tuba, viola, viola da gamba, violin, and violoncello. Students may enroll in more than one instrument simultaneously and may earn 1 to 4 hours per semester in each instrument.

For more information

For additional information and application materials please contact:

Director of Graduate Studies
Kansas State University
Department of Music
109 McCain Auditorium
Manhattan, KS 66506-4702
Phone: 785-532-3800
E-mail: fburrack@ksu.edu(for fall & spring enrollment) or ftracz@ksu.edu(for summer & distance enrollment)
Home Page: http://www.ksu.edu/music

Public Health

Graduate faculty | About the program | Requirements
Admission | Deadlines | Financial assistance |More information

Director of graduate studies:
Carol Ann Holcomb

Graduate faculty:

Betsy Barrett, Ph.D., R.D., Kansas State University.

Tom Barstow, Ph.D., University of California-Davis.

Melissa Bopp, Ph.D., University of South Carolina.

Deborah D. Canter, Ph.D., R.D., University of Tennessee.

Delores Chambers, Ph.D., Kansas State University.

Edgar Chambers IV, Ph.D., Kansas State University.

M.M. Chengappa, Ph.D., Michigan State University.

David Dzewaltowski, Ph.D., University of Iowa.

Elizabeth Fallon, Ph.D., University of Florida

Daniel Y.C. Fung, MSPH, University of North Carolina, Ph.D., Iowa State University.

Steven J. Galitzer, Ph.D., Kansas State University.

Roman Ganta, Ph.D., All India Institute of Medical Sciences, New Delhi.

Rebecca Gould, Ph.D., R.D., Texas Woman's University.

Kathy K. Grunewald, Ph.D., R.D., University of Kentucky.

Craig Harms, Ph.D., Indiana University.

Mark D. Haub, Ph.D., University of Kansas.

Mary Meck Higgins, Ph.D., R.D., Iowa State University.

Carol Ann Holcomb, Ph.D., C.H.E.S., Oregon State University.

Curtis L. Kastner, Ph.D., Oklahoma State University.

Justin Kastner, Ph.D., University of Guelph.

James L. Marsden, Ph.D., Oklahoma State University.

Mary McElroy, Ph.D., University of Maryland.

Denis M. Medeiros, Ph.D., R.D., Clemson University.

Manuel Moro, Ph.D., Iowa State University.

Derek A. Mosier, Ph.D., Oklahoma State University.

Tim Musch, Ph.D., University of Wisconsin.

T.G. Nagaraja, Ph.D., Kansas State University.

Abbey L. Nutsch, Ph.D., Kansas State University.

Richard D. Oberst, Ph.D., Oklahoma State University.

Frederick W. Oehme, Ph.D., University of Missouri.

Patricia A. Payne, DVM, Ph.D., Kansas State University.

Paula Peters, Ph.D., Ohio State University.

Randall K. Phebus, Ph.D., University of Tennessee.

John Pickrell, DVM, M.S., Ph.D., University of Illinois; ABVT.

David Poole, Ph.D., University of California-Los Angeles.

Valentina Remig, Ph.D., R.D., Ohio State University.

David G. Renter, Ph.D., Kansas State University.

Deanna D. Retzlaff, Ph.D., Kansas State University.

Michael W. Sanderson, D.V.M.,Colorado State University.

J. Scott Smith, Ph.D., Pennsylvania State University.

Ludek Zurek, Ph.D., University of Alberta, Canada.

About the program

Public health is an interdepartmental graduate professional program with faculty participants from many academic departments of the university. The 42 semester hour program is designed to provide graduate-level education for individuals currently employed or anticipating a career in the field of public health. The purpose of public health is to address the physical, mental, social and environmental concerns of communities and populations. Its focus is on prevention of injury and disease in populations while they are still healthy, rather than treating individual patients after they become sick. The field of public health involves programs, strategies, and interventions designed to protect and improve community health through health education, promotion, research, and disease prevention. The final outcome of all public health efforts is to improve the quality of life in communities as well as targeted populations. The MPH program includes the five core areas within the field of public health: environmental health, behavioral sciences/health education, epidemiology, biostatistics, and health services administration. In addition to the five core areas, a student can select an area of emphasis in food safety and biosecurity, infectious diseases/zoonoses, public health nutrition, public health physical activity, or public health nutrition and physical activity.

Program director
Carol Ann Holcomb, PhD, CHES
Department of Human Nutrition
210 Justin Hall
Manhattan, KS 66506-1407
Email: carolann@ksu.edu

Coordinating committee
Deborah Canter, Hotel, Restaurant, Institutional Management and Dietetics
David Dzewaltowski, Kinesiology
Robert Larson, Veterinary Medicine
Daniel Y.C. Fung, Animal Science/Food Safety
Mark Haub, Human Nutrition
Carol Ann Holcomb, Human Nutrition
Mary McElroy, Kinesiology
Manuel Moro, Veterinary Medicine
Deanna Retzlaff, Food Science Institute

Degree requirements

A total of 42 semester hours is required to complete this degree. The program is a professional degree that requires a core of public health courses (16 semester hours), a field experience or master's thesis (6 semester hours), and an area of emphasis determined by the student's program committee (20 semester hours). An area of emphasis may be selected from food safety and biosecurity, infectious disease/zoonosis, public health human nutrition, or public health physical activity.

Public Health Core (16 credit hours)

DMP 708	Principles and Methods of Epidemiology (2)
DMP 854	Disease Epidemiology (3)
DMP 806	Environmental Toxicology (2)
HRIMD 720	Administration of Health Care Organizations (3)
KIN 818	Social and Behavioral Basis of Public Health (3)
STAT 702	Statistical Methods for Social Sciences (3)
	OR

STAT 703 Statistical Methods for Natural Scientists (3)

In addition to the above courses, the same statistics courses listed for the human nutrition emphasis may be taken for the physical activity emphasis.

Area of emphasis (20 credit hours)
Select from one of these five areas. Contact the MPH Program Director for a list of electives in each area.

- Food safety and biosecurity
- Infectious diseases and zoonoses
- Public health nutrition
- Public health nutrition and physical activity
- Public health physical activity

Capstone experience (6 credit hours)
Master's thesis (6)
OR
Master's report (2) and public health field experience (4)
OR
Public health field experience (6)

Total semester hours: 42

Application and admission requirements

A complete application file must be received by the Program Director before the deadlines indicated below in order to be considered by the Coordinating Committee for admission. Requests for financial aid applications (assistantships, scholarships, and/or fellowships) should be directed to the designated coordinator in the area of emphasis found on the Graduate School website. The following items constitute a complete application:

- Completed application for admission to the Graduate School
- Non-refundable application fee of $30.00 for domestic students or $55.00 for international students
- Official record of the GRE scores sent directly from Educational Testing Service (ETS)
- One official copy of transcripts from all universities attended
- Three letters of recommendation from former professors or employers (reference form is on the program website)
- A narrative letter describing objectives in pursuing the degree and plans for completion of the degree requirements
- For applicants whose native language is not English, an official record of the TOEFL score sent directly from ETS
- For international applicants only, a completed affidavit of financial support dated within nine months of desired entry date; Note: substitute documentation other than the affidavit cannot be accepted

To be admitted to the program an applicant must have an undergraduate GPA of 3.0 or higher on a scale of 4.0, a combined GRE score of 1000 or higher for the verbal and quantitative sections combined (This requirement will be waived for applicants who already hold a graduate degree or a graduate professional degree.), a TOEFL score of 550 or higher for applicants whose native language is not English, and at least one year of experience in a public health setting is preferred. One year of an approved internship in the area of emphasis or employment in Extension will also count. For applicants who lack this requirement, a directed field experience concurrent with the program will be required.

Deadlines

International students (***admitted for Fall semster ONLY***):

February 1 - All application items MUST be in the MPH office
April 15 - Notification for admission will be made

Domestic students and international students who are in the United States:

May 1 - All application items MUST be in the MPH office for Fall admission
July 1 - Notification of admission for Fall semester will be made
August 1 - All application itmes MUST bein the MPH office for Spring admission
October 1 - Notification of admission for Spring semester will be made

Summer admission will be available ONLY for graduate students or veterinary students already enrolled at KSU.

Financial assistance

Assistantships, fellowships, and scholarships are awarded through individual faculty members in the program or through the participating departments and colleges. The MPH Program, per se, does not have resources for stipends or tuition waivers.

For more information and application materials please contact:
Carol Ann Holcomb
Department of Human Nutrition
Kansas State University
210 Justin Hall
Manhattan, KS 66506-1407
785-532-0152 or 785-532-5508
E-mail: mphealth@ksu.edu
Web Page: http://www.k-state.edu/mphealth/

Philosophy

Head:
James Hamilton

Graduate Faculty:

Andrew Arana, Ph.D., University of Notre Dame.

John B. Exdell, Ph.D., University of Texas at Austin.

Bruce Glymour, Ph.D., University of California at San Diego.

James R. Hamilton, Ph.D., University of Texas at Austin.

Sandra Lapointe, Ph.D., University of Leeds.

Jon Mahoney, Ph.D., Binghamton University.

Douglass Patterson, Ph.D., University of Pittsburgh.

Charles E. Reagan, Ph.D., University of Kansas.

Marcelo Sabatés, Ph.D., Brown University.

Scott Tanona, Ph.D., Indiana University.

Although Kansas State University does not offer a graduate degree in philosophy, the following courses are available for graduate credit and, when appropriate, may be used to support graduate degrees in other departments.

Philosophy courses

Undergraduate and graduate credit in minor field

PHILO 510. Symbolic Logic II. (3) On sufficient demand. An advanced study of logical systems and problems in logical theory. Pr.: PHILO 220 or PHILO 110.

PHILO 525. Social-Political Philosophy. (3) II. Examines key developments in contemporary political philosophy in such areas as liberalism, libertarianism, communitartianism, Marxism, and feminism, and on topics of special interest where these theories are applied. Pr.: PHILO 125, PHILO 301, or PHILO 330.

PHILO 535. Philosophy of Law. (3) I. Philosophical issues arising in the legal context, such as the nature of legal reasoning, the nature and scope of constitutional protections, the justification of punishment, affirmative action, and civil disobedience. Pr.: One course in philosophy (PHILO 135, PHILO 160, or PHILO 330 recommended), or consent of instructor.

PHILO 550. Philosophy of Social Sciences. (3) I or II, in alternate years. Epistemic methods and metaphysical presuppositions in the social sciences. Topics selected from: models, measurement, reduction, explanation, theories of function, theories of ideal types, and rational choice theory. Pr.: Two courses in philosophy, one of which must be PHILO 100 or 320.

PHILO 570. Aesthetics. (3), on sufficient demand. A study of selected topics in aesthetics and the philosophy of art. Pr.: One course in philosophy or consent of instructor.

PHILO 585. Ethics. (3) I or II. Examines key developments in moral philosophy. May focus on issues in metaethics, ethical theory, or history of ethics. Pr.: PHILO 330.

PHILO 590. Topics in Philosophy. (3) On sufficient demand. A study of selected topics in applied ethics, applied philosophy, or the continental tradition. Pr.: One course in philosophy.

PHILO 595. Environmental Ethics. (3) I or II in alternate years. Ethical issues that arise from the use and exploitation of the environment, such as the value of biodiversity, obligations to future generations, obligations to non-humans, and the ethics of environmental risk management. Pr.: One course in philosophy (PHILO 330 recommended), or consent of instructor.

Undergraduate and graduate credit

PHILO 601. Advanced Issues in the History of Philosophy. (3) I or II, in alternate years. Particular sets of issues in the history of philosophy or in-depth examination of the thought of a particular philosopher. Emphasis on issues in metaphysics and epistemology. Pr.: two courses in philosophy and consent of instructor. Depending on topic, PHILO 300 or 301 required.

PHILO 615. Philosophy of Religion. (3) I or II, in alternate years. Concepts of religion, including truth and faith, God and atheism, reason and revelation, morality and religion, evil, humanity, sin, salvation, eschatology. Pr.: two courses in philosophy. PHILO 305, 320, or 340 recommended.

PHILO 620. The Development of Analytical Philosophy. (3) I or II, in alternate years. The history of analytic philosophy from 1870 to 1960, examining the works of most of the following philosophers: Frege, Russell, Wittgenstein, Moore, the logical positivists, and Quine. Pr.: two courses in philosophy, one of which must be PHILO 110 or 320.

PHILO 625. The Philosophy of Language. (3) I or II, in alternate years. Philosophical problems concerning the nature of language and such concepts as meaning and truth. Pr.: two courses in philosophy, one of which must be PHILO 110 or 320.

PHILO 635. Metaphysics. (3) I or II, in alternate years. A critical examination of theories about objects and their qualities, causality, space, and time. Both traditional and contemporary sources may be used, but emphasis will be placed on the latter. Pr.: two courses in philosophy. PHILO 305, 320, or 340 recommended.

PHILO 640. Epistemology. (3) I or II, in alternate years. Philosophical issues relating to human knowledge. Issues selected from: the difference between knowledge and belief, whether knowledge is really attainable, whether we have epistemic duties and what they might be, what counts as justification for belief. Special topics may include self-knowledge, a priori knowledge, inductive knowledge, and naturalism. Pr.: two courses in philosophy. PHILO 305, 320, or 340 recommended.

PHILO 645. The Philosophy of Science. (3) I or II, in alternate years. Philosophical problems concerning science, its methods. Topics selected from: qualitative and quantitative confirmation theories and the nature of scientific theories, laws, and explanation in the physical and biological sciences. Pr.: Two courses in philosophy, one of which must be PHILO 110 or 320.

PHILO 646. Philosophy of Physics. (3) This course offers an explotation of the conceptual foundations of modern physics, including topics from relativistic space-time theories, quantum mechanics and gauge theories, and related topics in the philosophy of science, inlcuding the nature of physical laws, reduction, the measurement problem and non-locality. Pr: Two courses in philospohy.

PHILO 647. Philosophy of Biology. (3) This course will introduce a range of topics in the philosophy of biology, including: the conceptual foundations of evolutionary theory, interpretations of fitness and selection, group selection, definitions of species, epistemological problems in phylogenetic inference, design arguments, explanation in biological sciences and reliable modeling in ecology and evolutionary biology. Pr.: Two courses in philosophy.

PHILO 648. Philosphy and the Origins of Ancient Science. (3) Examination of the development of ancient science, with special attention paid to the interrelationship in antiquity of philosophical and scientific accounts of the world. Topics will include developments in mathematics, optics, astronomy, mechanics, and medicine, among others. Pr.: Two courses in philosophy.

PHILO 649. Philosophy and the Origins of Modern Science. (3) II of odd numbered years. Examination of the development of modern science from roughly the 16th century, with special attention paid to the interrelationship in early modern philosophical and scientific accounts of the world. Topics will include developments in physics, astronomy, biology, mathematics, and medicine, as well as related areas of metaphysics, epistemology, and philosophy of religion. Pr.: Two courses in philosophy or 4 natural science courses, with at least two of them in physics.

PHILO 650. Rationality and Action. (3) I or II, in alternate years. Philosophical issues connected with human action and reasons for action, such as the existence of objective reasons to act one way rather than another, the existence of reasons to act that do not stem from desires, the difference between reasoning about how to act and reasoning about what is true, the nature of intention and desire and their specific roles in action. Pr.: two courses in philosophy.

PHILO 655. Philosophy of Mind. (3) I, in alternate years. A philosophical examination of major theories about the nature of the mind, mental causation, consciousness, intentionality, cognition and psychological explanation. Pr.: two courses in philosophy. PHILO 305, 320 or 340 recommended.

PHILO 660. Advanced Ethics. (3) I or II, in alternate years. Selected topics in contemporary ethical theory. Pr.: PHILO 330 and one other philosophy course.

PHILO 665. Philosophy of Economics. (3) I or II, in alternate years. Moral and conceptual foundations of modern economic systems. Topics selected from: the relations between "economics rationality" and the quality of life, the just distribution of wealth, the nature of property rights, and the value of technology in society. Pr.: two courses in philosophy.

PHILO 670. Advanced Social-Political Philosophy. (3) I or II, in alternate years. A study of a single topic in contemporary philosophical literature, with application to current political issues. Topic selected from: multiculturalism, minority rights, nationalism, justification of democracy. Pr.: PHILO 525 and one other philosophy course.

PHILO 675. Advanced Philosophy of Law. (3) I or II, in alternate years. A current issue in analytical jurisprudence (such as the nature of law, the relation between law and morality, the proper standards for constitutional interpretation) or normative jurisprudence (such as basis for tort liability, whether and when strict criminal liability is justified, the rights of criminals). Pr.: PHILO 535 and one other philosophy course.

PHILO 680. Independent Study in Philosophy. (Var.) I, II, S. Pr.: Consent of instructor.

PHILO 685. Current Topics in Metaphysics and Epistemology. (3) I or II, in alternate years. Selected philosophical issues of current interest in analytic metaphysics and epistemology. Pr.: PHILO 340 and two additional philosophy courses.

PHILO 690. Special Topics in Philosophy. (3) On sufficient demand. Selected topics in metaphysics, epistemology, philosophy of science, philosophy of language, or philosophy of mind. Pr.: PHILO 320 and additional background courses required for topic.

PHILO 701. Topics in Metalogic. (3) On sufficient demand. Selected topics in the analysis of first-order theories and the foundations of mathematics. Pr.: PHILO 510 or MATH 511.

Home Page: http://www.ksu.edu/philos/

Physics

Program description | Program requirements | Careers | Research facilities | Financial support | Research areas | Physics courses | More information

Head:
Dean Zollman

Director of graduate studies:
Brett Esry (recruit),
Michael J. O'Shea (advise)

Graduate Faculty:

Itzhak Ben-Itzhak, Ph.D., Technion, Israel.

Chander P. Bhalla, (Emeritus) Ph.D., Tennessee.

Timothy A. Bolton, Ph.D., MIT.

Kevin Carnes, Ph.D., Purdue.

Amitabha Chakrabarti, Ph.D., Minnesota.

Zenghu Chang, Ph.D., Chinese Academy of Sciences.

C. Lewis Cocke, Ph.D., Cal. Tech.

Kristan L. Corwin, Ph.D., University of Colorado at Boulder.

Basil Curnutte, (Emeritus) Ph.D., Ohio State.

E. Brock Dale, (Emeritus) Ph.D., Ohio State.

Brett DePaola, Ph.D., Texas at Dallas.

Brett D. Esry, Ph.D., Colorado.

Charles C. Fehrenbach, Ph.D., University of Michigan.

Nathan Folland, (Emeritus) Ph.D., Iowa State.

Thomas J. Gray, (Emeritus) Ph.D., Florida State.

Siegbert J. Hagmann, (Emeritus) Ph.D., Cologne, Germany.

Glenn Horton-Smith, Ph.D., Stanford University.

Hongxing Jiang, Ph.D., Syracuse.

Vinod Kumarappan, Ph.D., Tata Institute of Fundamental Research, Mumbai, India.

Bruce Law, Ph.D., Victoria, New Zealand.

Ronald Lee, (Adjunct) Ph.D., Iowa State University.

James C. Legg, (Emeritus) Ph.D., Princeton.

Chii-Dong Lin, Ph.D., Chicago.

Jingyu Lin, Ph.D., Syracuse.

Igor V. Litvinyuk, Ph.D., Florida State University.

Stephen Lundeen, Ph.D., Harvard University.

Yurii Maravin, PhD, Southern Methodist University.

Michael J. O'Shea, Ph.D., Sussex, England.

Talat S. Rahman, (Emeritus) Ph.D., Rochester.

Bharat Ratra, Ph.D., Stanford

Neville W. Reay, (Emeritus) Ph.D., Minnesota.

N. Sanjay Rebello, Ph.D., Brown.

Patrick Richard, Ph.D., Florida State.

Ronald A. Sidwell, (Emeritus) Ph.D., Indiana.

Christopher M. Sorensen, Ph.D., Colorado.

John D. Spangler, Adjunct, Ph.D., Duke University

Noel R. Stanton, Ph.D., Cornell.

Uwe Thumm, Dr. rer. nat., Freiburg, Germany.

Eckhard von Toerne, Dr. rer. nat., Bonn University, Germany.

Xiao-Min Tong, Ph.D., Institute of Physics, Chinese Academy of Science.

Brian Washburn, PhD, Georgia Institute of Technology.

O. Laurence Weaver, Ph.D., Duke.

Gary M. Wysin, Ph.D., Cornell.

Dean A. Zollman, Ph.D., Maryland.

Theodore J. M. Zouros, Adjunct, Ph.D., Yale University.

Program description

The research programs of the Department of Physics are focused in the areas of atomic, molecular and optical physics, condensed matter physics, educational physics, computational physics, cosmology, and high energy physics. We have concentrated our major research commitments in these areas to maintain strength and balance. The Department of Physics offers graduate programs leading to the Ph.D. degree. These are described here with the research interests of the faculty. Our graduate core curriculum is an excellent foundation for work in a large variety of specialties.

Program requirements

For regular admission to the graduate program, a bachelor's degree in physics, a minimum upperclass GPA of 3.0, and the results of the GRE advanced test in physics are required. Candidates with degrees in mathematics, chemistry or engineering will also be considered. Students from non-English speaking countries are required to show proficiency in English via the TOEFL exam. The minimum acceptable score for admission is 550 (213 for the computer based GRE). Applications for admission to the program in the fall semester should be completed by February 1.

Careers

Graduate study in physics provides training for many varied academic and technological careers. Graduates in physics at all levels have found attractive careers in industrial and governmental laboratories and in academic departments. Graduates from K-State are presently engaged in communications research, x-ray laser development, genetic research, university teaching and research in various areas of physics, petroleum research, and industrial electronics, and many other fields. M.S. graduates generally occupy skilled technical positions and Ph.D. graduates generally occupy positions requiring independent work in a wide range of areas.

Research facilities

Experimental atomic, molecular and optical (AMO) physics research is based in the James R. Macdonald (JRM) Laboratory, which is a Department of Energy funded national user facility attached to the physics building. The JRM lab contains a 7-million-volt Tandem Van de Graaff accelerator coupled with a superconducting linear accelerator, an Electron Beam Ion Source (EBIS), and an Electron Cyclotron Resonance Ion source (ECRIS). With these facilities it is possible to prepare fully stripped ions of atoms from hydrogen to chlorine at all energies between 100 eV and 200 MeV. The Laboratory has a new ultra-short pulse, ultra-high intensity TiS laser. The laboratory also is well equipped with magnetic and electrostatic devices, various particle and photon detectors, and high-power pulsed and CW lasers. Data acquisition and analysis are done using ten VAX Station 4000 workstations and a large collection of PC's.

Facilities for semiconductor material fabrication and device processing include: two MOCVD systems for the epitaxial growth of III-nitride

semiconductor materials (GaN, InGaN, AlGaN); an inductively coupled plasma (ICP) dry etching system; a scanning electron microscope (SEM) based electron-beam lithograph system; and photolithograph systems. The semiconductor laboratory also possesses the world's first (and the present only) picosecond time-resolved laser spectroscopy system with excitation and detection capabilities expanding from IR to deep UV (1.7 microns < (< 0.195 microns). The laboratory is also equipped with other facilities such as SEM and AFM systems for structural characterization, a variable temperature (10 K - 650 K) Hall-effect measurement system for transport characterization, and e-beam evaporator for metalization.

Facilities for magnetic research include a computer controlled sputter system with three sputter guns, a shared x-ray facility with the Department of Chemistry, and a SQUID magnetometer to measure magnetic moment (1.8 - 400 K, applied magnetic fields up to 55 kOe). Electron microscopy facilities are also available at Kansas State and are used regularly by physics faculty.

Facilities for the study of liquid interfaces and layers include phase modulated ellipsometry and a recently developed ellipsometric microscope which possesses submonolayer thickness resolution and micron spatial resolution.

A light scattering laboratory is used for study of liquids, aerosols and particulates. Dynamical properties, growth of particles and fractal geometry are studied.

The high energy physics group operates a 520 square foot clean room with probe station and wire bonder for silicon detector test and fabrication. Further space and facilities for detector development exist in the physics high bay building. The Kansas State-High Energy Physics group also makes extensive use of the Kansas State Electronics Design Laboratory. In addition, the group operates two high performance PC computing networks running the NT and Linux operating systems.

The physics department has a cluster of high-end and low-end Unix and Linux workstations connected via the ethernet. Additionally, a consortium of faculty are part of the Center for Scientific Supercomputing which provides the local backbone for high performance computing through its 48 processors of the HP/Convex Exemplar S-class and V-class machines which are housed in Cardwell Hall. Cardwell Hall is connected via fast switches with large bandwidth to the Internet and Internet 2. Kansas State University is also part of the Great Plains Network (GPN), a six-state consortium of state networks and research universities, for the purpose of providing high performance interconnectivitiy among GPN sites and to provide high bandwidth access to Internet 2. Researchers in the physics department have easy access to all national supercomputer centers.

Financial support

The department is continually awarded outside support for research and teaching. The extramural research support for the department has averaged over $6.5 million during each of the last four years. This support is important for the graduate student because it is an indication that the research conducted by the department is regarded highly by the research peers who review the department's proposals. It also indicates that a large number of graduate research assistantships are available in the department. Exceptional students can compete for university graduate fellowships and graduate fellowships offered by the Graduate School. Applications must be completed by January 15 to be considered for a fellowship. The schedule for teaching assistants is about 8 to 10 hours per week in laboratory sections in the introductory physics courses. Summer appointments as research assistants are generally available. The stipend is sufficient for a comfortable life in Manhattan.

Research areas

Experimental atomic physics

The experimental atomic, molecular and optical physics group is involved in a diverse program that investigates the interaction of highly-charged ions with various target media. The ions are created as beams by several ion sources and accelerators located in the J. R. Macdonald Laboratory for atomic physics. The ion beams used in the experiments have a well-defined charge and energy and are thus ideally suited to investigating the behavior of collisions under a variety of well-defined conditions. Single- and multi-electron atomic and molecular processes are investigated by observing the final ionic species and their decay products. The targets in these collisions consist of ground state and laser-excited atoms and molecules, as well as atomic and molecular ion beams. Many measurements are precise enough to provide information about the specific quantum mechanical states involved in the reaction. The results of these observations are compared to the theoretical predictions made by the Kansas-State theory group as well as by theorists elsewhere. The close interplay between theorists and experimentalists often leads to a better understanding of the physics and in some cases suggests new phenomena, experimental methods, or improved calculation methods. The combination of strong groups in both theory and experiment within the same department makes Kansas State one of the leading atomic physics groups in the world. Because of this, we have attracted researchers from around the world to come to Kansas State to carry out their experiments.

A new ultra-short pulse, ultra-high intensity laser system is being used to study the interaction of the laser light with atoms, ions and molecules. High harmonic generation, ionization, electron re-scattering adn molecular breakup are a few of the problems being investigated. The theorists are working in close collaboration with the experimentalists in these endeavors.

Experimental condensed matter physics

The experimental condensed matter group at K-State is conducting research in a wide range of often inter-related areas.

Research on condensed phases include the physics of aggregates, their optics (scattering and absorption), morphology, how they form and how they move; particularly in the context of aerosols, synthesis and properties (magnetic and optical) of nanoparticles and their assemblies (such as superlattices and gels) and of water, especially supercooled, and aqueous solutions.

Semiconductor research within the condensed matter physics group focuses on III-nitride wide bandgap semiconductors, GaN, AlGaN, and

InGaN. These semiconductors are recognized as important technological materials for the fabrication of optoelectronic devices operating in the blue/UV spectral region and electronic devices capable of operating under high power and high temperature conditions. Our effort can be divided into four areas:

- Optical Studies. Our objectives are to investigate the mechanisms of optical transitions and their dynamic processes and to study the physics components of nitride-based optoelectronic devices.
- Transport Studies. Our objectives are to study the mechanisms of p-type doping and properties of deep level impurities in GaN and AlGaN epilayers and the electronic transport properties in two-dimensional electron gas system in AlGaN/GaN heterostructures.
- Materials Growth by MOCVD. Our objectives are to develop innovative approaches for synthesizing III-nitride epitaxial layers, heterostructures, and quantum wells (QWs) with reduce dislocations and to fabricate novel device structures.
- Device Fabrication. Our effort is focused on the III-nitride micron and submicon-size optoelectronic devices, including optically and electrically pumped micro-disks, micro-rings, micro-waveguides, and micro-pyramids. Our objective here is to develop a knowledge base for future optoelectronic devices based on III-nitrides, in particular for UV/blue micro-size LEDs, microcavity LEDs, microcavity lasers, and vertical cavity surface emitting lasers. The physical realization of microstructures and micro-devices based on III-nitrides is achieved by e-beam- and photo-lithography patterning, advanced inductively-coupled-plasma etching technique, metal contact metalization.

Phase transitions at liquid surfaces and within multilayer liquid films are being studied via optical techniques in order to better understand the physics at the boundaries of bulk materials. Surface structure is strongly influenced not only by the interactions at interfaces but also by any phenomena which is occurring in the adjacent bulk medium. We have therefore been studying (i) the coupling between bulk second order phase transitions and surface phenomena where we have observed universal surface critical behavior in both semi-infinite systems and within thin films and (ii) surface interactions and how these influence and govern surface phase transitions and surface dynamics on a molecular level. A more complete understanding of surface phenomena will be of benefit for many important technological and biological processes, such as, surface chemical reactions, lubrication, and fluid flow through biological membranes or porous media.

Magnetic nanostructures such as nanoscale particles, single layers and multilayers containing rare-earths are prepared by sputter deposition. Making materials small modifies their properties in a number of interesting ways and in this work we look at how the properties of permanent magnets based on $Nd_2Fe_{14}B$ and $SmCo_5$ are modified. Magnetic properties down to 1.8 K are studied in fields up to 55 kOe and the structure of the materials is characterized with x-ray diffraction and electron microscopy. Our effort can be divided into two areas: 1) improving the hard magnetic properties of permanent magnets (coercivity, energy product) by preparing these materials in very small form, 2) understanding how the observed improvements can be explained in terms of size and interfacial effects.

Experimental high energy physics

The High Energy Physics group has strong research programs in collider physics. Kansas State physicists are playing a key role in building the silicon vertex detector for the next upgrade of the D0 experiment at Fermilab, and are now analyzing data from the frontier of high energy proton-antiproton collisions from the previous D0 experiment. To remain at the energy frontier, they are also heavily involved in preparations for the CMS experiment now under construction at CERN.

The High Energy Physics group is also strong in neutrino physics. K-State physicists have major roles in data analysis and Monte Carlo simulation for the KamLAND experiment and the proposed Double CHOOZ and Braidwood experiments. HEP group members are leaders in the background working group of Braidwood and the on-line group of Double CHOOZ, and have initiated several local research projects to advance the future development of Braidwood, Double CHOOZ, and KamLAND.

Theoretical and Computational Physics

The department offers a diversified program in theoretical and computational physics, including atomic, solid state, soft condensed matter, molecular and surface physics, statistical mechanics, materials physics, cosmology and particle astrophysics. There is significant interaction between experimentalists and theorists within the department and there is also collaboration with faculty in chemistry, biochemistry and engineering. Seminars are held weekly in several of these areas.

Computational physics students are trained to solve accurately and efficiently problems in physics using a wide range of computational techniques. An important aspect of the training is the presentation of problem solutions in a way that can be easily visualized and understood. Various algorithms for molecular dynamics simulation, Monte Carlo methods, ab-initio electronic structure calculations and solutions of generalized Langevin equations are being developed. A strong focus in this area is in the development of efficient algorithms to best exploit the benefits of parallel architecture in modern computers.

A broad range of computational facilities is available in our department with the main computations being carried out using the departmental cluster of Compaq Alpha workstations, high-end and low-end Unix and Linux workstations, and the high performance computational environment provided by clusters of Linux computers. A number of faculty members and their students use supercomputers at national centers in their work, in addition to facilities housed on our own campus.

Some studies of mathematical methods in physics have also been carried out by our faculty and graduate students. These include: studies in group theory with application to atoms, molecules, and nuclei; development of the method of hyperspherical coordinates; and development of complex integration with application to Coulomb wavefunctions. Mathematical aspects of formulations of the few-body and many-body problem have also been developed in our department.

There is strong national and international collaboration with other colleagues. We have a steady exchange with scientists in Argentina, Brazil, China, Denmark, England, France, Finland, Germany, India, Italy, Japan, Korea, Pakistan, Portugal, Spain, Sweden, and Taiwan. We participate actively in conferences ranging from regional to international. Professors, graduate students and post-doctoral fellows all take part in these meetings.

Theoretical atomic and molecular physics

A broad range of topics in both scattering theory and atomic and molecular structure are studied. These studies are often initially motivated by the need to understand experimental results; they provide broader perspectives on electronic interactions in atoms that are then further tested in experiments. To complement this focus on experimentally driven results, investigations of a fundamentally theoretical nature are also carried out including the development of novel theoretical and computational methods. Theoretical models for collisions of ions, electrons, and photons with atoms and molecules over a broad range of energies are being developed to understand the transfer of energy and momentum among the collision partners. These studies are developed to understand the results of experiments performed at Kansas State and at other laboratories. The study of atomic structure covers a detailed mapping of the de-excitation of atoms and ions produced in such collisions. Our studies of multiply excited states of atoms using hyperspherical coordinates are revealing the similarity between the collective electronic excitations of atoms and the rotational-vibrational modes of polyatomic molecules. Our investigations of interactions of ions (atoms) with surfaces and clusters (such as C60) contribute to a better understanding of corrosion, catalysis, and the still new field of fullerene chemistry.

Theoretical condensed matter physics

The Theoretical Condensed Matter Physics group works in a number of related areas, trying to understand structural, physical, chemical, electronic, vibrational, magnetic, optical, and other properties of solids and condensed phases. The types of systems studied include polymer mixtures and block copolymers, polymer films on rough substrates, metals and semiconductors and their alloys, surfaces, nanocrystallites and nanostructures, chemisorbed gases, magnetic layers, and fine magnetic particles. Theorists working in condensed matter theory apply quantum mechanics, statistical mechanics and advanced computational techniques such as ab-initio electronic structure calculations and classical and quantum Monte Carlo and molecular dynamics simulations, to model the fundamental interactions between atoms and molecules in a material. All of our theorists use computation as an important tool. In addition to achieving a basic theoretical understanding of how atomic interactions lead to interesting macroscopic behavior, an important goal of our condensed matter theorists is to describe many phenomena of technological importance, such as corrosion, catalysis, wetting, phase changes, magnetic and electronic data storage, and friction and nanotribology. Ultimately, theory developed in collaboration with experimentalists will contribute towards the development of novel materials and new and interesting devices based on those materials.

Cosmology and particle astrophysics

The K-State cosmology group focuses on developing and testing models for the large-scale matter and radiation distributions in the universe. Of particular interest are the predictions these models make for the cosmic microwave background radiation anisotropy and other cosmological tests. Other interests include dark energy, inflation, dark matter, cosmological simulations of low- and intermediate-redshift large-scale structure, cosmological magnetic fields, and the analysis of cosmic microwave background radiation anisotropy data sets from satellite and ground- and balloon-based observations.

Physics education

The Physics Education Research Group at K-State investigates and develops ways to improve physics teaching. In recent years the work of this group has concentratted on the development of learning materials for the high school and college level, the use of modern technology, and the training and support of science teachers, and research on student difficulties in learning physics. Current research is focusing on measuring and tracking changes in students' states of understanding through instruction, providing real-time feedback on students' states to students and instructors and developing tools that instructors can use in thier classes to learn more about students' states of understanding. A major component of the Education Group's research focuses on investigating students' mental models about the physical principles underlying everyday devices, measuring the change of these models with instruction, measuring transfer of learning from the classroom to everyday contexts or from one everyday context to another and developing curriculum based on this research by addressing physics used in everday devices. Another project is designing assessment tools that address the materials students learn and their retention in core engineering science courses in math and physics, the level of understanding of the students (facts and procedures versus the broader picture) and to what extenet the students can transfer what they have learned in these math and physics courses to thier engineering courses. The most recent component of research is creating a proof-of-concept demonstration of a new type of digital library for physics teaching. This concept goes beyond simply creating a collection of teaching and learning materials. It provides continuously improving assistance and expertise for teachers and students of all levels.

Physics courses

Undergraduate and graduate credit

PHYS 506. Advanced Physics Laboratory. (3) II. The completion of experiments of current and/or historical interest in contemporary physics. Students develop skills in and knowledge of measurement techniques using digital and analog instruments. Various data analysis techniques are used. One hour rec. and six hours lab per week. Pr.: PHYS 325 and the ability to write computer programs in one of the following languages: Java, BASIC, Pascal, FORTRAN, C, or C++.

PHYS 515. Physics for Science Teachers. (1-4) Study of current topics in physics, with laboratory experience and demonstration of the processes or phenomena under consideration. Topics and activities will be directed toward providing teachers with material for demonstrations

and student experiments or projects. Examples of topics are: solar power, laser applications, holography, and subnuclear particles, relativity, or the historical development of some physical concept. May be repeated for a maximum of 6 hours credit. Pr.: One year of college physics.

PHYS 522. Mechanics. (4) II. Principles of statistics and dynamics of systems of particles and rigid bodies. Topics include Newton's laws for one particle, non-inertial reference frames, central forces, system of particles, rigid body statics and motion in a plane and in three dimensions, Lagrangian mechanics and Hamilton's equations, oscillating systems and normal coordinates. Three hours of lec. and one hour rec. per week. The recitation will focus on mathematical methods and techniques applied to problem solving. Pr.: PHYS 224.

PHYS 532. Electromagnetic Fields I. (4) I. An introduction to electricity and magnetism. The first of a two semester study of Maxwell's equations in both integral and differential forms. Topics include electrostatics with vector calculus; electrostatic potential solutions in rectangular, cylindrical, and spherical coordinates; dielectrics; electrostatic energy and capacitance; magnetostatics with vector calculus; Biot-Savart law; vector and scalar potentials for magnetisml magnetic permeability; Faraday's law in integral and differential form; magnetic energy and inductance; displacement current; lumped oscillations and LCR systems; impedance. Three hours of lec. and one hour recitation per week. The recitation will focus on mathematical methods and techniques applied to problem solving. Pr.: PHYS 224 and MATH 240.

PHYS 553. Introduction to the Physics of Lasers. (3) I. A study of the physics of lasers. Survey of current laser systems. Technological applications. Pr.: PHYS 214.

PHYS 620. Teaching University Physics. (3) in alternate years. A discussion of techniques which will aid in the development of understanding the concepts in physics. Emphasis is placed on models of learning and teaching techniques which can be applied to the teaching of contemporary physics to university students. These models and techniques are used to analyze a teaching approach of topics, such as quantum mechanics, which is important to today's physicist. Three class hours per week. Pr.: PHYS 562.

PHYS 623. Oscillations, Waves, and Relativity. (3) I, in alternate years. A study of the theoretical aspects of linear and non-linear oscillating systems and the theory of special relativity. Topics include periodic motion, coupled oscillations, Fourier analysis, mechanical and electromagnetic waves. Special relativity is introduced through its foundation in electromagnetism. Pr.: PHYS 472, 522, and 532.

PHYS 633. Electromagnetic Fields II. (3) II. Second of a two semester study of Maxwell's equations in both integral and differential forms. Special relativity; Lorentz transformations; relativistic invariants; transformation properties of electric and magnetic fields and potentials; Lorentz force and electrodynamics; electromagnetic fields of a point charge; electromagnetic waves; solutions to the wave equation in rectangular, cylindrical, and spherical geometries; wave propagation in matter; reflection, refraction, and transmission; wave guides and fiber optics; Fresnel equations; polarization; dipole radiation. Three lectures per week. Pr.: PHYS 532.

PHYS 636. Physical Measurements Instrumentation. (5) II. A laboratory-oriented course to acquaint students with electronic circuits, their interfacing with measuring instruments, and their use in making physical measurements. Two hours lec. and six hours lab a week. Pr.: PHYS 214 or 224.

PHYS 639. Computations in Physics. (3) II, in alternate years. An introduction to applying computational and numerical techniques to solve problems of interest to physicists. Topics include the application of computational analysis and solution to physical problems in both classical, and quantum physics including particle structure and motion, interaction of particles with fields, and model building for simulation of physical phenomena. A practicum is an integral part of the course. Students will use both personal computers and advanced workstations. One hour lecture, two hours of computer lab per week. Pr.: PHYS 472.; one physics course at the 500 level; and a working knowledge of FORTRAN, BASIC, C or Pascal computer language.

PHYS 642. Nuclear Physics. (3) An introduction to the structure of the nucleus, radioactivity, and nuclear energy; the application of quantum mechanics to describe nuclear physics. Offered on sufficient demand. Pr.: PHYS 562.

PHYS 651. Introduction to Optics. (4) I, in alternate years. Introduction to modern concepts in optics: electromagnetic waves, propagation of light through media, geometrical optics of lenses, mirrors and simple optical instruments, polarization, interference, coherence, and diffractions. Taught in a studio format; three hours of lecture and two hours of laboratory per week. Pr.: PHYS 214.

PHYS 652. Applied Optics and Optical Measurement. (3) II, in alternate years following PHYS 651. Topical approach oriented toward measurements including coherence, Fourier Optics, holography, light scattering, interferometry, laser technology. Three hours of lecture per week. Pr.: PHYS 651.

PHYS 655. Physics of Solids. (3) I, in alternate years. An introduction to the physics of solids with an emphasis on energy band structures, electrical and optical properties of solids and solid state devices. Three hours of lecture per week. Pr.: PHYS 662.

PHYS 662. Introduction to Quantum Mechanics. (4) II. Concepts and mathematical models of quantum physics. Solutions to the time independent Schrödinger equation, descriptions of one-electron and multi-electron atoms, electron spin and magnetic moments. Three hours lec. and one hour reciation per week. The recitation will focus on mathematical methods and techniques applied to problem solving. Pr.: PHYS 325, 522.

PHYS 664. Thermodynamics and Statistical Physics. (3) I. An introduction to thermodynamics developed from the concepts of statistical physics. Applications include the gas laws, concepts of heat and work, phase transitions, and kinetic theory with applications to statistical physics. Pr.: PHYS 522; MATH 240.

PHYS 691. Introduction to Astrophysics. (3) II, in alternate years. An introduction to the application of physical principles to understanding

astronomical objects. Topics include properties of stars, stellar evolution, galaxies, and cosmology. Three hours of lec. per week. Pr.: PHYS 325, 522, 532.

PHYS 692. Introduction to Cosmology. (3) II, in even years. An introduction to the physics and astrophysics of the hot big bang model to the Universe. Three hours lecture a week. Pr.: PHYS 522.

PHYS 694. Particle Physics. (3) II, in alternate years. An experimental and phenomenological introduction to high energy physics. The course will emphasize understanding the experimental basis of what is known about the subnuclear domain. Students will be asked to design simple conceptual experiments in addition to solving problems. Three hours of lec. per week. Pr.: PHYS 325.

PHYS 701. Cosmology. (3) I, in even years. A general-relativity-based discussion of the physics of the hot big bang model of the Universe. Pr.: PHYS 692.

PHYS 707. Topics in Physics. (Var.) I, II, S. Special topics courses. Topics and credits announced for the semester in which offered. May be given in conjunction with lecture series by visiting scientists. Pr.: Graduate standing or senior standing and consent of instructor.

PHYS 709. Applied Quantum Mechanics. (3) I. A study of Schrödinger's theory of quantum mechanics and its application to one electron atoms, multielectron atoms, quantum statistics, spectra of molecules and selected topics in quantum excitations of solids, nuclear physics, and elementary particles. Three hours of lec. per week. Pr.: PHYS 662.

Graduate credit

PHYS 800. Problems in Physics I. (1) II. Independent study of the solution of advanced problems in physics at a level appropriate to the M.S. degree. Pr.: Graduate standing and consent of instructor.

PHYS 801. Mathematical Methods of Physics. (3) I. Mathematical techniques for the solution of physical problems. Mathematical topics employed include vector and tensor analysis, matrices, group theory, complex variable theory, differential equations, Sturm-Liouville theory, orthogonal functions, special functions, Fourier series, integral transforms, and the calculus of variations. Pr. PHYS 522 and PHYS 532.

PHYS 802. Computational Methods in Physics. (4) II. Methods of solving physical problems using digital computers including numerical differentiation and integration, error analysis and curve fitting, interpolation, ordinary and partial differential equations, matrix operations, eigenvalues, special functions of mathematical physics. Monte Carlo simulations, and stability of solutions. Two hours lec. each week and a self-paced practicum. Pr.: CIS 580 or MATH 655, PHYS 801, and a working knowledge of FORTRAN, C or C++.

PHYS 806. Journal Club. (Var.) I. Seminar in current topics in physics. Pr.: Graduate standing in physics.

PHYS 807. Graduate Physics Seminar. (1) I, II. Lecture by faculty and graduate students on topics of current research interest. Pr.: Graduate standing in physics. May be repeated.

PHYS 808. Advanced Problems. (Var.) I, II, S. Independent study in a special problem in physics at the graduate level chosen with the advice of a faculty mentor. Pr.: Graduate standing and consent of instructor.

PHYS 811. Quantum Mechanics I. (3) II. Fundamental concepts and general formalisms of quantum theory and its applications to bound states, scattering or few state systems. Introduction to quantum applications of operators and state vectors. Pr. PHYS 709 and 801.

PHYS 821. Advanced Dynamics. (3) II. Study of Lagrangian and Hamiltonian mechanics. Includes canonical transformations, the Hamilton-Jacobi equation, and elements of classical chaos theory. Pr.: PHYS 801.

PHYS 831. Electrodynamics I. (3) I. The interaction of electrical charges with each other and radiation as described by the theory of Maxwell and Lorentz. Topics include Coulomb's law and vector fields, Ampere's law and magnetic fields. Faraday's law and inductive fields, continuity relations and conservation laws. Pr.: PHYS 532 and 801.

PHYS 841. Lasers and Quantum Optics. (3) The theory of lasers and laser-matter interactions: rate equations, line broadening, mode structure, Q-switching, three and four wave mixing, linear and stimulated light scattering. Pr.: PHYS 662 or equiv.

PHYS 850. Theory of Atomic Structure and Atomic Interactions. (3) I, in alternate years. The quantum mechanics of atomic structure and spectra: one and two electron atoms, many electron atoms, molecular structure and spectra, atomic collision theory for electron-atom and ion-atom collisions. Pr.: PHYS 662.

PHYS 860. Electron and Ion Impact Phenomena. (3) II, in alternate years. Atomic collision phenomena; experimental techniques in accelerator-based atomic physics; charged particle and photon spectroscopy; elastic, inelastic, and rearrangement collisions; and applications. Pr.: PHYS 662.

PHYS 881. Introduction to Solid State Physics. (3) I, in alternate years. Introduction to the physics of condensed matter: crystal lattices; lattice dynamics; electron energy bands; fermi surfaces; optical, magnetic, and transport properties of insulators, semiconductors, and metals. Pr.: PHYS 662 or conc. enrollment.

PHYS 899. Research in Physics. (Var.) I, II. S. Master's level research. Pr.: Consent of instructor.

PHYS 907. Advanced Topics in Physics. (Var.) Critical studies of selected advanced topics. Pr.: Comparison of graduate introductory courses in the field of study or permission of the instructor.

PHYS 910. Problems in Physics II. (1) Independent study of the solution of advanced problems in physics at a level appropriate to the Ph.D. degree. Pr.: PHYS 800 and consent of instructor.

PHYS 911. Quantum Mechanics II. (3) I. Formalisms and applications of quantum theory, including symmetry in quantum systems, space-time symmetries, the rotation group, many body systems, and an introduction to relativistic quantum mechanics. Pr.: PHYS 811.

PHYS 912. Advanced Quantum Mechanics. (3) On sufficient demand. Relativistic quantum mechanics; scattering theory; second quantization and the many-body problem. Introduction to quantum electrodymatics. Pr. PHYS 911.

PHYS 913. Advanced Topics in Mathematical Physics. (3) Critical studies of selected advanced topics. May be repeated once for credit. Pr.: PHYS 801.

PHYS 914. Quantum Field Theory. (3) On sufficient demand. Topics may include second quantization, quantization of the free scalar and Dirac fields, quantum electodynamics, quantization of the electromagnetic fild, propagators and Feynman rules, or other contemporary topics in quantum field theory. Pr.: PHYS 911.

PHYS 931. Electrodynamics II. (3) II. The interaction of electrical charges with each other and radiation as described by the theory Maxwell and Lorentz. Topics include the propagation and production of radiation, Lorentz transformations and relativistic dynamics. Pr.: PHYS 831.

PHYS 953. Advanced Topics in Atomic Interactions. (Var.) Critical studies of advanced topics in atomic interactions. Pr.: PHYS 662.

PHYS 971. Statistical Mechanics. (3) I. The study of equilibrium states of physical systems involving many particles. Introduces basic concepts of statistical ensembles and presents applications to non-interacting systems for both classical and quantum-mechanical particles. Discusses aspects of interacting classical systems, including a brief introduction to phase transitions and critical phenomena. PHYS 662, 664, 821.

PHYS 981. Solid State Physics. (3) II, in alternate years. Continuation of PHYS 881. Quantized lattice vibrations, methods of band structure calculations, effective mass formulations, applications to optical absorption, excitons, magnetism, and superconductivity. Pr.: PHYS 811, 662.

PHYS 982. Advanced Topics in Solid State Physics. (3) Critical studies of selected advanced topics. May be repeated once for credit. Pr.: PHYS 881.

PHYS 999. Research in Physics. (Var.) I, II. S. Doctoral level research. Pr.: Consent of instructor.

For more information

For additional information and application materials please contact:
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Regional and Community Planning/Environmental Planning and Management

Program description | Program requirements | Admission requirements
Financial assistance| MS - Community Development | Graduate certificate
Regional and community planning courses | More information

Head:
Dan W. Donelin, FASLA, AICP

Director of graduate studies:
Claude A. Keithley, AICP

Graduate Faculty:

Vernon P. Deines, (Emeritus) Ph.D., University of Pittsburgh.

Claude A. Keithley, MArch and MRCP, Kansas State University.

John W. Keller, Ph.D., Rutgers State University of New Jersey.

Larry Lawhon, Ph.D., URP, Texas A & M University.

Sheri Smith, Ph.D., Texas A & M University.

Ray B. Weisenburger, MRP, Cornell University.

La Barbara J. Wigfall, MRCP, Harvard University.

Master of Regional and Community Planning

Program Description

The Kansas State University Graduate School and the Department of Landscape Architecture / Regional and Community Planning offers a 150 credit hour non-Baccalaureate Master of Regional and Community Planning degree and a 48 credit hour post-Baccalaureate program leading to the degree Master of Regional and Community Planning. The non-Baccalaureate program can be completed within ten semesters of course work and a required summer internship between the eighth and ninth semester. The post-Baccalaureate program can be completed within four semesters of course work, with a recommended internship between the second and third semester. International students are required to obtain a 1 credit hour internship during this period to obtain their MRCP degree. The post-Baccalaureate MRCP program is fully accredited by the Planning Accreditation Board of the American Planning Association and the Association of Collegiate Schools of Planning.

The primary mission of the MRCP program is to educate young professional planners to become directors or managers of community development / city planning departments, economic development agencies, housing or related departments and agencies in cities, small communities, counties and regions. Some graduates may use the same educational background to become directors of planning or related activities in private consulting firms and research organizations, while others may enter the field of real estate development and a host of related disciplines.

The major objective of the program is to integrate the concept of comprehensive community development planning in an environmental context with considerations for social, economic, cultural and political issues in the community while recognizing the importance of financial management, private enterprise-government relations, and citizen participation in community decision making. Core courses reflect the impact of these key concerns on traditional planning activities, while exploring related ethical issues in depth.

With a firm educational foundation in basic planning and analytical techniques, management, human relations, and ethics, today's MRCP graduate will have the skills and judgment to become tomorrow's successful practicing planner.

Program Requirements

Non-Baccalaureate Master of Regional and Community Planning
Study leading to the five-year non-Baccalaureate Master of Regional and Community Planning degree requires a minimum of 150 credit hours, of which a minimum of 48 credit hours are graduate level credit hours, plus a required internship in planning experience. Support courses are offered within the College of Architecture, Planning and Design, as well as well as from other colleges within the university. Students entering the College of Architecture, Planning and Design will typically complete the first year of the Environmental Design program, during which they will elect to enter one of the four available degree programs (Master of Architecture, Master of Interior Architecture, Master of Landscape Architecture, and Master of Regional and Community Planning) or another program offered in other colleges. Transfer students may apply for entry into the MRCP program at any time.

First Semester

DSFN 203	Survey of the Design Professions	1
MATH 100	College Algebra	3
SPCH 105	Public Speaking 1A	2
	Humanities/Design elective*	3
	Social Science/History elective*	3
	Social Science/Sociology elective*	3
		15

Second Semester

ENGL 100	Expository Writing 1	3
	Humanities/Design elective*	3
	Social Science/History elective*	3
	Free elective*	3
	Natural Science elective with lab*	4
		16

While the third through sixth semester of study may vary by student and by time of entry into the MRCP program, the following courses provide a recommended path that encompasses the university general education requirements (UGE) and supporting courses which provide an entre' to the breadth of the planning profession:

Third Semester

PLAN 315	Introduction to Planning	3
LAR 440	Natural Systems and Site Analysis	3
	Humanities Elective*	3
	Social Science/History Elective*	3
	Social Science/Economics Elective*	3
		15

Fourth Semester

ENGL 200	Expository Writing II	3
GEOG 302	Cartography/Thematic Mapping	3
LAR 322	Environmental Issues & Ethics	3
PLAN 716	Seminar in Planning	1
	Literature/Communications Elective*	3
	Social Science/Geography Elective*	3
		16

Fifth Semester

GEOG 508	Introduction to GIS	3
	Statistics Elective*	3
PLAN 660	Community Development Planning	3
	or	
PLAN 745	Urban Design & Preservation Theory	3
	Natural Science Elective*	3
	Design/Resource Elective*	3
		15

Sixth Semester

LAR 500	Site Analysis and Planning	3
FINAN 552	Real Estate	3
PLAN 650	Housing Policies and Programs	3
	or	
PLAN 748	Urban Visual Analysis	3
PLAN 655	Land Development Planning	2

	Social Science/Political Science Elective*	3
		14
Seventh Semester		
PLAN 631	Computer Applications in Planning 1	1
PLAN 801	Planning Methods 1	2
PLAN 803	Community Research Methods	3
	Electives	9
		15
Eighth Semester		
PLAN 632	Computer Applications in Planning 2	1
PLAN 699	Special Studies/(Lab for PLAN 752)	1
PLAN 721	Infrastructure Planning & Financing	3
PLAN 752	Physical Process of Plan Implementation	2
PLAN 802	Planning Methods II	2
PLAN 815	Planning Theory, Ethics and Practice	2
	Elective	3
		14
Ninth Semester		
PLAN 753	Planning Law	3
PLAN 820	Planning Administration	3
	Civil Engineering/Transportation Planning Elective	3
	Electives	3-6
PLAN 880	Topics in Planning (Proposal Writing)	1
	or	
PLAN 898	Thesis Proposal Writing (if electing thesis)	3
		16
Tenth Semester		
PLAN 836	Community Plan Preparation	3
PLAN 899	Research (Master's Report/Capstone Project)	2
	or	
PLAN 899	Research (Thesis)	3
	Electives	8-9
		14
Total Credits Required for the Non-Baccalaureate MRCP Degree		150

General Notes:
*At least 18 credit hours of the undergraduate electives must be university general education (UGE) elective credits, of which at least 6 must be in courses numbered 300 or above. Of these 18 UGE credits, 3 must be taken within the College of Architecture, Planning and Design. None, however, can be in the student's major field. No more than 2 UGE courses may be taken in a single discipline. UGE courses must be taken at K-State. Transfer credits may reduce the number of lower level UGE courses required (see sliding scale at http://www.k-state.edu/uge/aboutuge/policies.htm#transcredit). Students who participate in study abroad programs approved by K-State will meet UGE credit at the 300 level upon successful completion of the program.

There are numerous other elective courses offered in the various colleges which support the planning professions and are acceptable as electives on an interest and case by case basis, with the approval of the planning faculty.

During the Sixth Semester, the student will apply for graduate school admission in the Master's of Regional and Community Planning program, and the seventh through tenth semesters in the Non-Baccalaureate MRCP program will be similar to that of the Post Baccalaureate MRCP program described below, with the following exceptions. Students who have taken PLAN 315 (Introduction to Planning) will not be required to take the PLAN 715 (Planning Principles and Process), and the Non-Baccalaureate students will have additional elective courses to include on their programs of study, for a minimum of 14-15 credit hours per semester. (Post-Baccalaureate MRCP students will average 12 credit hours per semester.)

Post-Baccalaureate Master of Regional and Community Planning
A program of study must be filed by all graduate students pursuing a master's degree. The program of study is a planning document developed by the student, the major professor, and the supervisory committee, which outlines the course work that the student must complete in order to develop adequate expertise in "planning" and be awarded the MRCP degree.

Study leading to the two-year Post-Baccalaureate Master of Regional and Community Planning degree, requires a minimum of 48 graduate credit hours, plus a recommended internship in planning experience. (International students seeking the MRCP degree are required to complete a 1 credit hour Internship, increasing their degree requirements to 49 credit hours.) Support courses are offered throughout the university, subject to the approval of the faculty.

The Post-Baccalaureate Master of Regional and Community Planning degree requires 35 core credit hours minimum and 12 specialization credit hours minimum. One (1) credit hour in PLAN 805, Internship in Planning, usually taken during the summer between the first and second year of course work, is recommended, and may be added to the program of study, above the 48 credit hour minimum. International students are required to complete a 1 credit hour Internship during the program, increasing their Program of Study requirements to 49 credit hours. The core course work required for the Post-Baccalaureate MRCP degree is noted below:

The Post-Baccalaureate MRCP "Core":

PLAN 631	**Computer Applications in Planning 1**	**1**
PLAN 632	**Computer Applications in Planning 2**	**1**
PLAN 715	**Planning Principles and Process**	**3**
PLAN 752	**Physical Processes of Plan Implementation**	**2**
PLAN 699	**Special Studies in Planning (Lab for PLAN 752)**	**1**
PLAN 721	**Infrastructure Planning and Financing**	**3**
PLAN 753	**Planning Law**	**3**
PLAN 801	**Planning Methods 1**	**2**
PLAN 802	**Planning Methods 2**	**2**
PLAN 803	**Community Research Methods**	**3**
PLAN 815	**Planning Theory, Ethics and Practice**	**2**
PLAN 820	**Planning Administration**	**3**
PLAN 836	**Community Plan Preparation**	**3**
GEOG 508	**Introduction to Geographic Information Systems**	**3**
CE 572	**Highway Engineering, Planning and Management**	**3**
Total MRCP "Core"		**35**

Students entering the program without a design background or equivalent knowledge should consider including the following course in their Program of Study as an elective for the MRCP degree

LAR 500	**Site Planning and Design**	**3 hours**

Recommended course sequencing for the Post-Baccalaureate MRCP degree is as follows:

First Semester

PLAN 631	Computer Applications in Planning 1	1
PLAN 715	Planning Principles and Process	3
PLAN 801	Planning Methods 1	2
PLAN 803	Community Research Methods	3
	Electives	3
		12

Second Semester

PLAN 632	Computer Applications in Planning 2	1
PLAN 699	Special Studies/(Lab for PLAN 752)	1
PLAN 721	Infrastructure Planning & Financing	3
PLAN 752	Physical Process of Plan Implementation	2
PLAN 802	Planning Methods II	2
PLAN 815	Planning Theory, Ethics and Practice	2
	Elective	1
		12

Third Semester

PLAN 753	Planning Law	3
PLAN 820	Planning Administration	3
	Civil Engineering/Transportation Planning Elective	3
GEOG 508	Introduction to GIS	3
PLAN 880	Topics in Planning (Proposal Writing)	1
	or	
PLAN 898	Thesis Proposal Writing (if electing thesis)	3
		13

Fourth Semester

PLAN 836	Community Plan Preparation	3
PLAN 899	Research (Master's Report/Capstone Project)	2
	or	
PLAN 899	Research (Thesis)	3
	Electives	3-6
		11

Total Credits Required for the Post-Baccalaureate MRCP Degree **48**

(International Students will be required to complete an additional 1 cr hr of Internship in Planning)

During the last semester of study, students will be required to complete either a comprehensive examination and to submit a specialization paper in their area of expertise according to program guidelines or complete a master's report (2 credit hours) or thesis (6 credit hours) and provide an oral defense of the research. One (1) credit hour of PLAN 880, Topics in Planning, under their major professor, is awarded for the specialization paper. No credit is given for the Comprehensive Examination per graduate school guidelines. Students will be expected to discuss their specialization paper with their designated committee at the completion of the Comprehensive Exam session. Work on the specialization paper/Master's Report/Thesis usually begins in the third semester to ensure timely completion. An option exists for the student to enroll in PLAN 898 Thesis Proposal Writing for 3 credit hours if the thesis route to completion is selected. At various times throughout the program, students will be given mini-components of a traditional comprehensive exam to determine progress in synthesizing concepts and methods. The Analysis Diagnostic will be administered at the completion of PLAN 802 and 632 for the purpose of insuring a good grasp of the use and interpretation of analytical techniques developed in the methods / computer applications sequence of courses.

Specializations in the planning curriculum:

The specialized course work, or emphasis areas, may be in any one of two regular specializations listed, or, in the case of uniquely qualified students, a larger range of independent specializations designed by the student's academic advisor and committee. The specialization strengths in the department are as follows, with recommended courses listed for consideration under each specialization title:

1. Specialization in Community Planning and Development

Suggested for the Community Planning and Development Specialization Electives: (Select 12 credit hours from the Suggested Electives list below)

Suggested Electives

General:

PLAN 655	Land Development Planning	3
PLAN 731	Solid Waste Planning and Management	1
PLAN 660	Community Development Planning	3
PLAN 661	Community Development Workshop	1-3

Contextual:

ECON 555	Urban and Regional Economics	3

Housing:

PLAN 650	Housing and Development Programs	3
ID 710	Housing and Facilities Mgmt	3
ID 725	Community Housing Assessment	3

Techniques:

LAR 759	Landscape Resource Evaluation	3
PLAN 630	Computer Applications (CAD/GIS)	1-3

PLAN 633	Computer Applications in Planning III	1
PLAN 717	Seminar in Grant Preparation	2
CE 786	Land Development for CE's & Planners	3

Suggest a minimum of 6 credit hours from the above listing of elective specialization courses and 6 credit hours from the following list of Emphasis Area Electives:

Emphasis Area Electives in the Community Planning and Development Specialization

Rural Planning Emphasis:

PLAN 740	Small Community & Rural Area Planning	3
PLAN 765	Community Growth Management	3
SOCIO 533	Rural Society	2-3
GEOG 555	Urban and Rural Geography	3

Urban Planning Emphasis

PLAN 655	Land Development Planning	3
PLAN 748	Urban Visual Analysis	3
SOCIO 532	Urban Sociology	3
POLSC 618	Urban Politics	3
GEOG 750	Urban Geography	3
FINAN 552	Real Estate	3

Design Emphasis:

PLAN 745	Urb Design & Preservation Plan Theory	3
PLAN 746	Urb Des & Preservation Planning Studio	4
PLAN 747	Urb Des & Preservation Plan Field Study	1-3
PLAN 748	Urban Visual Analysis	3
PLAN 804	Environmental Planning Methods	3
LAR 646	Community Planning and Design	5
LAR 704	Environ Landscape Planning & Design	5
LAR 756	Design of Parks and Recreation Areas	3
LAR 757	Design for Special Populations	3
ARCH 656	Preservation Documentation	3
ARCH 657	Preservation Principles	3
ARCH 680	Development Analysis	3

TOTAL Specialization hours	**6**
TOTAL Emphasis Area hours	**6**
TOTAL Core hours	**35**
TOTAL hours MRCP	**48 (minimum)**

2. Specialization in Regional Resource Planning and Management
Suggested for the Regional Resource Planning Specialization: (Select 12 credit hours minimum from the following list of electives)

Suggested Electives

General: (Suggested 3 cr hr minimum)

BIOL 529	Fundamentals of Ecology	3
GEOG 535	Solid Waste Planning and ManagementFundamentals of Climatology	3
GEOG 760	Human Impact on the Environment	3
GEOG 720	Geography of Land Use	3
GEOG 725	Geography of Water Resources	3
BIOL 822	Landscape Ecology	3

LAR 741	Seminar/Environmental Issues and Ethics	3

Contextual: (Suggested 3 cr hr minimum)

PLAN 765	Community Growth Management	3
LAR 748	Natural Systems & Site Analysis	3
GEOG 720	Geography of Land Use	3
GEOG 725	Geography of Water Resources	3
GEOG 830	Rural Resource Management	3
BIOL 822	Landscape Ecology	3

Resource Economics: (Suggested 3 cr hr minimum)

ECON 527	Environmental Economics	3
GENAG 582	Nat Resource/Environ Science	3
AGEC 525	Nat Resource & Environ Economics	3
AGEC 610	Current Ag/Nat Resource Policy Issues	3
GEOG 730	World Agricultural Systems	3

Techniques: (Suggested 3 cr hr minimum)

PLAN 804	Environmental Planning Methods	3
	or	
LAR 704	Environmental Land Planning and Design	5
LAR 758	Land Resource Information Systems	3
LAR 759	Landscape Resource Evaluation	3
RRES 635	Methods of Environmental Interpretation	3
GEOG 705	Remote Sensing of the Environment	3

TOTAL Suggested Electives: 12 (Minimum)

Emphasis Areas:

The student may select from any of the above listings for this specialization in regional resource planning and management or from the courses listed as available in the specialization in community planning and development option to build their own emphasis area.

TOTAL Emphasis Area hours	**12**
TOTAL Core hours	**35**
Specialization Paper/Report/Thesis	**1-6**
TOTAL hours MRCP	**48 (minimum)**

3. "Design Your Own" Track

Students who have demonstrated a prior professional career or who have an academic interest in a specific planning related profession may negotiate other specializations in planning, using tracks and other external courses within the university. Independent specializations require formal coordination with one or more programs or Colleges, and require coordination between the student, major professor and external committee members. Proposals for a non-traditional or non-advertised specialization interest must be submitted to the RCP faculty for approval at a general RCP faculty meeting. The minimum credit hours associated with this "design your own" track is 12 credit hours above the designated 35 credit hour planning "core". Either a Masters Report or Thesis in this particular option may be required by the faculty as a demonstration of proficiency in the selected and approved specialization area.

Some courses in the core and specialization curricula may be waived by the faculty based upon a case by case review of a student's upper-division undergraduate work, prior graduate work, and professional practice. Waiver is not a routine occurrence, however, and it does not reduce the total credit hours of course work required for the MRCP degree. Requests for course waivers based on prior experience or training is the responsibility of the student, forwarding such to the program director.

Admission Requirements:

Non-Baccalaureate MRCP program:

Students applying for the Non-Baccalaureate MRCP program during their second semester of study, must have a minimum of a 2.500 cumulative GPA. Students in this program will apply for Graduate School admission during their sixth semester, and must meet graduate school admission

standards. Students who have not completed an undergraduate statistics course prior to the completition of their sixth semester will be required to enroll in either STAT 330 Elementary Statistics for the Social Sciences or STAT 702 Statistics for the Social Sciences during their seventh semester.

Post-Baccalaureate MRCP program:
Entering students are required to have a bachelor's degree from an accredited institution. Applicants with undergraduate degrees in administration, agriculture, architecture, business, construction science, economics, ecology, education, engineering, geology, geography, government, human ecology, landscape architecture, pre-law, planning, political science and sociology, and who meet the requirements of the Graduate School for admission, are fully acceptable for graduate study in planning. Applicants with other academic backgrounds may be accepted upon recommendation of the program faculty and subject to such conditions as the faculty may impose. Prerequisites for admission include satisfactory completion of an elementary statistics course or equivalent (or inclusion of a graduate level statistics course in the program of study), and evidence of an understanding of the American political system and government.

Admission to Graduate School may be in one of three categories: full standing, provisional or probational. Recommendations regarding an applicant's qualifications and admission are made to the Graduate School by the faculty of the graduate program in regional and community planning. Final decisions regarding admission are made by the dean of the Graduate School. Admission in full standing requires a minimum grade point average of 3.0 ("B" average) in the last two years of undergraduate work in an institution whose requirements for the bachelor's degree are equivalent to those of Kansas State University. Applicants with GPA's between 2.65 - 2.99 will be considered for probational admission provided there is evidence that the applicant has the ability to do satisfactory graduate work. Provisional admission may be granted to applicants who have subject deficiencies in undergraduate preparation or if there is uncertainty in evaluating the transcripts. Normally, deficiencies will be made up by enrolling in courses for undergraduate credit. A statistics deficiency may be completed by enrolling in Stat 702 (Statistics for Social Science, or equivalent) for graduate credit and be counted toward the required 48 credit hour minimum for the MRCP degree.

International applicants are required to take the TOEFL exam and submit results to the department for evaluation. TOEFL scores of 600 (250 via on-line evaluation) are required for entry into the graduate program in regional and community planning and a score above 620 (260 via on-line evaluation) is required for consideration of financial aid. The GRE is recommended, however is not required for admission to the program.

Financial Assistance for graduate study:

A limited number of 0.4 time teaching and research assistantships are typically available to incoming and continuing students in the program on a competitive basis. Students entering the post-baccalaureate MRCP program and students in the non-baccalaureate MRCP program who have completed 120 credit hours of the program are eligible for consideration of receipt of these teaching and research assistantships. In addition, HUD funding is generally sought and received for minority and economically disadvantaged American students as a financial aid package designed to increase minority involvement in the planning profession in the United States. All international students who are awarded financial aid in the form of a Graduate Teaching Assistant must pass the Test of Spoken English (TSE), administered by the KSU English Language Program at Kansas State University prior to the start of the Fall and Spring semesters.

For further information on financial aid, interested students should contact the Department of Landscape Architecture/Regional and Community Planning, as well as the Office of Student Financial Aid, located in Fairchild Hall. Some scholarships are available to qualified applicants.

Internships and responsibilities:
Graduate students in the MRCP program should consider assignment to a planning staff for a period of at least eight weeks (full time equivalent), and supervision by a professional planner with periodic reports of activities to the planning faculty. It is recommended that students enroll in no more than one credit hour for this experience regardless of the duration of the internship should they wish credit for this work shown on their Program of Study. Doing so will increase the Program of Study requirements for the MRCP degree to 49 credit hours. International students are required to enroll in one credit hour of internship credit, increasing their Program of Study requirements to 49 credit hours for the MRCP degree.

Career Opportunities:
Graduates who possess the masters degree in regional and community planning are typically employed by cities, regions, or state planning agencies, in the various community planning and/or development departments. Since "planning" is a management degree, the opportunities for planning positions or planning related positions are limitless, both in the public/private realm and in geographical area of coverage and interests. Opportunities abound in the areas of city planning, regional planning, neighborhood planning, transportation planning, community economic development agencies, city management, health planning, social planning, housing departments, area agencies on aging, resource planning and a preservation of ecosystems and the environment, urban design and historic preservation agencies, geographic information system analysts, demographic analysts, research and market analysis agencies, policy analysts, private consulting organizations (architects, engineers, and land planners), land development, developers and real estate appraisers, non-profit information dispersion agencies, land use law firms, etc. Planning as a profession deals with not only current problems in the provision of our quality of life, to the future problems and growth management to insure that the future contains a "better" quality of life for future generations. Through "planning" is the promise and hope of a better tomorrow. To not only participate in the process, but to make things happen for future generations, the planning profession is poised to lead the way. Planning is a "change element" in evaluating alternative outcomes and in directing the course of future actions to insure the controlled progress of humanity, both in the social, political, economic and physical aspects of life. The masters degree in regional and community planning is but one of the keys to understanding the past and managing the future on Planet Earth.

Information and Contact:
For further information, interested students should contact the program director at the following address:

Director, Graduate Program in Regional and Community Planning
Department of Landscape Architecture / Regional and Community Planning
302 Seaton Hall
Kansas State University
Manhattan, KS 66506-2909
phone: (785) 532-5961
FAX: (785) 532-6722
e-mail: la-rcp@ksu.edu

Master of Science Degree in Community Development (Distance Education):
This MS degree program in Community Development is a 36 credit hour program which is an Online Collaborative Inter-Institutional Degree program offered in the Department of Landscape Architecture/Regional and Community Planning through the Graduate School at KSU in cooperation with the Great Plains Interactive Distance Education Alliance (IDEA). Participating universities include Kansas State University, Iowa State University, North Dakota State University, University of Missouri, University of Nebraska, and South Dakota State University. The format of the program delivery focuses on the distance learning environments using the internet for course delivery and contact with instructors. Students interested in obtaining this MS degree in Community Development may enroll in this collaborative program at any of the participating universities. While the program name and degree name may vary by university, the curriculum will be essentially the same, and courses offered in the program will be the collaborative result of a divergent faculty from within the participating universities. The basic requirements for the Master of Science in Community Development at Kansas State University are as follows:

Core Requirements:
Successful completion of the following courses with a minimum overall grade requirement of 3.0:

Core:
CDPLN 705 Principles and Strategies of Community Change 3
CDPLN 710 Community Analysis 3
CDPLN 715 Organizing for Community Change 3
CDPLN 720 Community and Regional Economic Analysis 3
CDPLN 725 Community and Natural Resource Management 3

Total Core Hours Required: 15 Credit Hours

Track Options:
Completion of this Community Development Specialization will require that the student complete a minimum of 15 credit hours of elective courses within two of the four tracks (taking a minimum of six credit hours per track) available within the Community Development specialization, as described below:

Working with Native Communities Track:
This track is designed for students working within or in partnership with native communities. The purpose is for students to understand the unique characteristics of native communities, culture and governance which affect community development. This track incorporates a variety of methods for understanding and working in native communities including historical analysis, case studies, asset-based approaches, talking circles, narratives, GIS and other mapping techniques, and Appreciate Inquiry. Students will utilize team learning and cross cultural comparisons throughout the track. Topics covered in one or more courses include partnerships with native communities, effective community development strategies within native communities, and wellness approaches to community economic development. Special topics may include youth, natural resources, and health.

Natural Resource Management Track:
This track provides specific tools that enhance the ability of community development professionals engaged in planning, water and wastewater, forest, park or range management, recreation, and similar areas to work with their communities to plan, develop and monitor the conservation and development of natural resources with multiple functions.

Building Economic Capacity Track:
The purpose of this track is to strengthen the competencies of students interested in community economic capacity building. This will be accomplished through five courses that include information strategies, and appropriate tools and will include courses on: Building institutional capacity for community economic development, Economic development strategies/programs, Cost-benefit analysis, Community economic base study, and Impact analysis.

Administration and Management Track:
This track will involve the interface between administration and management models and community development. Courses will be tailored to community practitioners and managers in a variety of sectors (non-profit, for-profit, social entrepreneurial and government-sector organizations). This track will work to prepare people to take on managerial and administrative roles within those sectors. The track will help students understand how these organizations can more successfully engage in community development efforts. Lastly, students will learn skills necessary to assist organizations in these three sectors to manage community development projects and programs, such as budgeting, planning, personnel, facilities, volunteer management, and fundraising.

Program Faculty:
In that this program is one of collaboration between six universities in the Midwest, courses will be offered and taught by distinguished faculty members from each of the participating universities. As such, students enrolling, for example at Kansas State University, in a KSU listed course

can expect to experience having a lead instructor from another participating university, who is simultaneously teaching the course to others who have enrolled at other participating universities under a different course name as approved at that institution. In this manner, the program faculty assembled will be the most experienced and knowledgeable instructors in their areas of expertise from within the participating universities.

The following faculty members will serve as the initial program faculty for this Community Development Specialization Option:

Kansas State University:
Al Keithley Department of Landscape Architecture/Regional & Community Planning
Sheri Smith Department of Landscape Architecture/Regional & Community Planning
Ray Weisenburger Department of Landscape Architecture/Regional & Community Planning

Iowa State University:
Tim Borich Department of Community and Regional Planning
Cornelia Flora North Central Regional Center for Rural Development
Jan Flora Department of Sociology

North Dakota State University:
Gary Goreham Department of Sociology
Barbara Schmitt United Tribes Technical College

South Dakota State University:
Janet Gritzner Department of Geography
Donna Hess Department of Sociology
Meredith Redlin Department of Rural Sociology

University of Missouri:
Mary Simon Leuci Community Development

University of Nebraska at Omaha:
Teresa Lamsam School of Communication and Native American Studies

University of Nebraska at Lincoln:
Gary Lynne Department of Agricultural Economics and School of Natural Resources

American Indian Higher Education Consortium:
John Phillips USDA Tribal College Liaison

Program coordinators will be assigned at each participating institution.

Admission Requirements:
Admission to the Community Development specialization under the MS program is predicated upon graduation from an undergraduate program with a Bachelors Degree, and meeting the admission requirements of the Graduate School at Kansas State University. Regular admission requires a GPA of 3.0 during the students last two years of their undergraduate program. Probationary admission status may be granted to those applicants who have a cumulative GPA of at least 2.65 and who have shown the capability to complete graduate level course work through individual research and work experiences. Potential students who do not meet these admission guidelines may petition the program director for a review of the students credentials and seek exceptions to the admission policy on a case by case merit evaluation.

Completion Requirements:
At the completion of the Community Development specialization in the MS program, the student will be required to complete a comprehensive examination administered by the degree granting program. No credit is given for the examination per Graduate School policy. The form, content and grading of the exam will be the responsibility of an assigned three member committee, comprised of a minimum of one faculty member from within the department (from the home institution), plus two additional committee member from the students track concentration (from any of the participating universities). The committee must be members of the Graduate Faculty at their respective institutions. An option to complete a Master's Report (2 credit hours) or Thesis (6 credit hours) will exist, pending approval by the student's academic advisory committee of a proposal prepared by the student following completion of 24 credit hours in the program.

Program of Study Requirements:
Students are encouraged to select elective course work that meets the Program of Study requirements of the Graduate School at KSU, as outlined in Section C., Chapter 2 of the Graduate Handbook (http://www.k-state.edu/grad/gscurrent/handbook/chap2.htm) A Program of Study is required to be filed with the Graduate School prior to entering the last semester of the program.

Transfer Credits from Other Accredited Institutions of Higher Learning:
Information concerning the transfer of credits from other accredited institutions is contained in the KSU Graduate Handbook, Section D.6, Chapter 2, which may be perused via the Internet using the following url: http://www.k-state.edu/grad/gscurrent/handbook/chap2.htm.

Program Administration:
The MS program in Community Development is officially administered by the Graduate Program in Regional and Community Planning, under the auspices of the Graduate School at Kansas State University, and in conjunction with the Institute for Academic Alliances at Kansas State

University. The degree is awarded by the Graduate School, through the Department of Landscape Architecture/Regional and Community Planning, College of Architecture, Planning and Design. All courses in this program option will be taught through the Division of Continuing Education at KSU as an on-line offering. Additional information may be obtained by contacting either the department at the following address or the GP IDEA Program Coordinator:

Director, Graduate Program in Regional and Community Planning
Department of Landscape Architecture / Regional and Community Planning
Kansas State University
302 Seaton Hall
Manhattan, KS 66506-2909

or

GP IDEA Program Coordinator
Great Plains Interactive Distance Education Alliance
College of Human Ecology
Kansas State University
Manhattan, KS 66502-2909

Combining Planning Courses in Other Degree Programs, and Graduate Certificate in Community Planning and Development

To assist the student wishing to gain an exposure to the planning program and/or profession, the following represents a listing of what could be considered as a reasonable start, in gaining an insight to the benefits of planning in other degree programs. Students are encouraged to check with their academic advisors concerning applicability of planning courses as electives in their designated degree programs.

Students seeking entry into the management professions via the Master of Public Administration, or Master of Business Administration: Integration of a selection of the following RCP courses into other management programs could provide the student with an appreciation of the interrelationship between physical planning and other community based management activities in small to medium sized cities. Course recommendations are as follows:

PLAN 660	**Community Development Planning**	**3**
PLAN 661	**Community Development Workshop**	**3**
PLAN 715	**Planning Principles and Process**	**3**
PLAN 721	**Infrastructure Planning and Financing**	**3**
PLAN 752	**Physical Process of Plan Implementation**	**2**
PLAN 753	**Planning Law**	**3**
PLAN 765	**Community Growth Management**	**3**
PLAN 820	**Planning Administration**	**3**

Selection of fifteen credit hours from the above list would constitute a concentration in planning with an emphasis in community planning and development, and would qualify the student for award of the Graduate Certificate in Community Planning (see below).

Students in the Design Professions seeking a concentration in Regional and Community Planning:
Those students planning to enter the design professions upon graduation, might wish to consider acquiring the Graduate Certificate in Community Planning and Development, as such may make them a better informed citizen within the community, as well as at work in the professions.

Graduate Certificate in Community Planning and Development.
Graduate students in other disciplines are encouraged to seek entry into the Graduate Certificate program in Community Planning and Development if an interest in planning exists. The certificate is administered by the Graduate School in consultation with the Department / Program, and operates in a manner similar to the undergraduate minor. The intent of the Certificate program is to encourage or improve the graduate students' professional knowledge of community planning and development issues. The basic requirements for the Graduate Certificate in Community Planning are as follows:

Core Requirements: Successful completion of the following courses with a grade of "B" or better.

PLAN 715	**Planning Principles and Process**	**3**
(Waived if prior completion of PLAN 315 Intro to Planning with "B" or better)		
PLAN 752	**Physical Process of Plan Implementation**	**2**

Planning Elective Course Requirements: Successful completion of an additional 12 credit hours of the following planning courses (unless an external elective option is elected by the student) with grades of "B" or better completes the Graduate Certificate in Community Planning and

Development:

PLAN 633	**Computer Applic. In Planning III**	**1**
PLAN 650	**Housing and Development Programs**	**2**
PLAN 655	**Land Development Planning**	**2**
PLAN 660	**Community Development Planning**	**3**
PLAN 661	**Community Development Workshop**	**1-3**
PLAN 699	**Special Studies in Planning (if approved)**	**1-2**
PLAN 716	**Seminar in Planning**	**1**
PLAN 721	**Infrastructure Planning & Financing**	**3**
PLAN 731	**Solid Waste Planning and Management**	**1**
PLAN 740	**Small Community and Rural Area Planning**	**3**
PLAN 745	**Urban Design and Preservation Planning Theory**	**3**
PLAN 746	**Urban Design and Preservation Planning Studio**	**4**
PLAN 747	**Urban Design and Preservation Field Study**	**1-3**
PLAN 748	**Urban Visual Analysis**	**3**
PLAN 753	**Planning Law**	**3**
PLAN 765	**Community Growth Management**	**3**
PLAN 803	**Community Research Methods**	**3**
PLAN 815	**Planning Theory, Ethics and Practice**	**3**
PLAN 820	**Planning Administration**	**3**

External Elective Options: The Graduate Certificate in Community Planning and Development program recognizes the value of planning related course work offered in other degree programs, thus successful completion of 3 credit hours of planning related course work with a "B" grade or better from the following listing, above the 500 level if external to the student's home department, or above the 600 level within the student's home department, would be considered an acceptable substitute for one of the courses listed in the planning elective area above. Several such courses above the 800 level exist in the Department of Architecture as well, and can be applied towards the Certificate in Community Planning and Development.

LAR 500	**Site Planning and Design**	**3**
LAR 648	**Landscape Arch. Design Studio VI**	**4**
LAR 646	**Community Planning and Design**	**5**
LAR 704	**Environmental Landscape Planning & Design**	**3**
LAR 758	**Land Resource Information Systems**	**3**
LAR 759	**Land Resource Evaluation**	**3**
ARCH 656	**Preservation Documentation**	**3**
ARCH 657	**Preservation Principles**	**3**
ARCH 680	**Development Analysis**	**3**
ARCH 703	**Environmental Aesthetics**	**3**
ARCH 720	**Environment and Behavior**	**3**
ARCH 730	**Environment and Aging**	**3**
SOCIO 531	**Urban Sociology**	**3**
ECON 555	**Urban and Regional Economics**	**3**
POLSC 520	**State and Local Government**	**3**
POLSC 618	**Urban Politics**	**3**
GEOG 508	**Fundamentals of GIS**	**3**
GEOG 705	**Remote Sensing of the Environment**	**3**
GEOG 708	**Geographic Information Systems**	**3**
GEOG 750	**Urban Geography**	**3**
CE 572	**Highway Engineering, Planning & Mgmt**	**3**
CE 786	**Land Development for CE's & Planners**	**3**
FINAN 552	**Real Estate**	**3**

Criteria for Admission and Enrollment Procedures for the Graduate Certificate in Community Planning and Development: Graduate Students enrolled at KSU may apply for admission to the Graduate Certificate program by contacting the departmental office .

Completion of Requirements: The student will be expected to notify the departmental office of graduation status the semester prior to planned

graduation from their program. The staff will notify the Graduate School of completion of all requirements for the Graduate Certificate in Community Planning and Development, and the Graduate School will insure the proper notation on the student's official transcript. The Certificate will be awarded concurrent with the student's graduate degree.

Contact for Information on the Graduate Certificate in Community Planning and Development
Students interested in the Graduate Certificate in Community Planning and Development should contact the Department of Landscape Architecture/Regional and Community Planning, College of Architecture, Planning, and Design, phone (785) 532-5961. Specific questions may be directed to the Director of the Graduate Program in Regional and Community Planning.

Regional and Community Planning Courses - Course Descriptions

Number in ( ) = credit hours
Var. = variable credit hours
Pr = prerequisite
I = fall semester
II = spring semester
S = summer semester
IS = intersession

UNDERGRADUATE AND GRADUATE CREDIT

PLAN 630. Computer Applications in Planning and Design. (1-3) I, intersession. Application of computer aided design. Basic skill development in the use of CAD software for general mapping, design, and data display, with extension to GIS software applications in the planning and design professions. Pr.: Junior standing.

PLAN 631. Computer Applications in Planning I. (1) I. The application of computer concepts to problem solving and data analysis in the planning profession, including the development of user skills in the application of various software packages for data analysis. Included is an extension of the basic knowledge level to advanced spreadsheet design for demographic analysis used in the planning profession, and the data search process using the Internet. Coreq.: PLAN 801.

PLAN 632. Computer Applications in Planning II. (1) II. The application of computer concepts to problem solving and data analysis in the planning profession, for community economic analysis, market analysis, including the development of user skills in the application of various software packages for producing multimedia presentations. Included are elements of producing video and multimedia presentations of planning projects for use in public meetings, as well as professional report preparation and graphic displays of the material for public viewing. Material developed in PLAN 631, 801 and 802 form the subject matter of the presentations. Pr.: PLAN 631, PLAN 801 and concurrent enrollment in PLAN 802.

PLAN 633. Computer Applications in Planning III. (1) II, intersession. The application of computer concepts to planning project management, including the development of user skills in the application of various software packages for producing project management reports. Network analysis techniques of PERT, CPM, and Gantt Charts are explained and applied to the development of planning process flow diagrams, time management, and work scheduling. Pr.: Junior standing.

PLAN 650. Housing and Development Programs. (2) II. Review and evaluation of historical and current housing issues, production, and financial systems, including consideration of racial, ethnic, income, and gender issues as they relate to the role of housing developments and programs in community development. Pr.: PLAN 315 or PLAN 715; ENG 200.

PLAN 655. Land Development Planning. (2) II, in odd years. Examination of the process of land development in the United States, and its impacts from the perspective of developers, financial institutions, community planners, and city administrators. Focus is on the understanding of the land development process in meeting community goals and shaping land development to meet community expectations for the improvement of the community. Conflict resolution and negotiation skills represent a communication emphasis. Pr.: PLAN 315

PLAN 660. Community Development Planning. (3) II. Examination of past and present approaches to community development planning in the United States. Review and assessment of community development planning policies, programs and practices. Pr.: Junior standing.

PLAN 661. Community Development Workshop. (Var.) I, S. The organization, planning, design, development, and evaluation of community development projects with real clients and actual locations. Pr.: PLAN 660.

PLAN 699. Special Studies in Planning. (1-3) I, II, S. Independent study on special topics of interest in planning and the planning environment. Within context, special course offerings that would appeal to both graduate and undergraduate students may be offered on demand. Pr.: Plan 315.

PLAN 715. Planning Principles. (3) I. Examination of the principles and process of regional and community planning, including historical development of growth patterns and form, the role of the architects, landscape architects, geographers, politicians and government, engineers and planners in the historical development of regions and cities. Discussion topics include: the role of citizen involvement in the planning process; citizen interaction with community leaders and planners in the planning process; and, individual rights versus governmental right to regulate development in the best interest of the general public. The course undertakes an in-depth investigation of the Comprehensive Plan, its elements, its role in determining the future vision of the city, and its implementation through local government regulatory tools. Visionary concepts, "Utopia" and new

towns are examined in the context of creating sustainable futures through planning. Pr.: ENGL 200, senior or graduate standing.

PLAN 716. Seminar in Planning. (1-3) I, II, S, intersession. Discussion of contemporary issues in planning within the framework of professional education as a basis for understanding how planners approach societal issues in practice. Pr.: PLAN 315 or PLAN 715.

PLAN 717. Seminar in Grant Preparation. (2), II. Locating and preparing grants for the purpose of funding community improvements, including developing grant writing skills and learning about the process of seeking funds from federal and other outside sources to facilitate community development. Pr.: PLAN 715.

PLAN 721. Infrastructure Planning and Financing. (3) II. Examination of infrastructure systems, and development standards; consideration of policy options and strategies; review of financing options and regulatory requirements associated with the various infrastructure elements. The course also reviews social and other issues that affect and are affected by infrastructure related decisions. Pr.: PLAN 315 or PLAN 715.

PLAN 731. Solid Waste Planning and Management. (1-3) II, intersession. The focus is on federal and state policies and programs for solid waste management as a framework for private sector and local government response to solid waste issues for resource recovery (recycling, incineration and composting) and landfilling. Pr.: PLAN 315 or PLAN 715.

PLAN 740. Small Community and Rural Area Planning. (3) I. Synthesis of small community and rural area change, including socio-economic-political determinants as bases for community design and planning. Pr.: PLAN 315 or PLAN 715.

PLAN 745. Urban Design and Preservation Planning Theory. (3) I. Review of recent historical developments of urban form and space, presented through lecture and accompanying slide show. Criteria and methodology for urban design, planning and the role of historic preservation are examined and applied to the elements of cities. Pr.: PLAN 315.

PLAN 746. Urban Design and Preservation Studio. (4) II. An interdisciplinary design studio involving large-scale design projects having an extensive time implementation sequence and components of historic significance that must be resolved within the design process. Design methods are applied to selected urban areas of the Midwest. Pr.: PLAN 315; PLAN 745 recommended.

PLAN 747. Urban Design and Preservation Field Study. (1-3) I, II, S, IS. On demand. Field investigation of varied large-scale institutions, central business districts, and other mixed-use developments which may or may not include structures of historic significance that should be preserved. Pr.: PLAN 745.

PLAN 748. Urban Visual Analysis. (3) II, in even years. Survey and analysis of urban form and space in relation to aesthetic theories and values. Methods of visual perception and analysis are reviewed and applied to contemporary urban form and space. Pr.: PLAN 745.

PLAN 752. Physical Processes of Plan Implementation. (2) II. Introduction to legislation and interpretation of codes and ordinances related to planning, design, and construction. Focus is on the planning process and technical studies of housing, land use, building condition, and parking, as well as staff responsibilities in professional practice. Pr.: PLAN 315 or PLAN 715.

PLAN 753. Planning Law. (3) I. Examination of the evolution and current state of land use regulation within constitutional limits. Introduction to zoning, subdivision, and other police power controls within the comprehensive planning process.

PLAN 765. Growth Management. (3) II, in even years. Study of the process of city growth and change in relation to planning techniques and socio-economic-political determinants. Criteria and methodology for the growth management are reviewed and applied to the contemporary city. Pr.: PLAN 315 or PLAN 715; and PLAN 752.

GRADUATE CREDIT ONLY

PLAN 801. Planning Methods I. (2) I. Introduction to quantitative methods in planning used to measure change in the demographic characteristics of communities, and changes in the economic structure of the community. Emphasis is on the location and interpretation of Census data, population projection methodologies, and processes of community economic analysis. Pr.: PLAN 715 or concurrent enrollment, and concurrent enrollment in PLAN 631.

PLAN 802. Planning Methods II. (2) II. Expansion of the analytic techniques discussed in PLAN 801, Planning Methods I, to include selection, collection, analysis and interpretation of planning data and the development of associated information systems. Topical coverage of such elements as community economic analysis, and presentation techniques (verbal, written, multimedia, and graphic). Includes both individual and collaborative participation. Pr.: PLAN 631, PLAN 801, and concurrent enrollment in PLAN 632.

PLAN 803. Community Research Methods. (3) II. Focus is on the analytical tools for the selection, collection, analysis, and interpretation of regional and community policy planning activities. Included is the development of survey instruments and interpretation, work flow and work measurement skills, performance standards and program evaluation techniques for policy planning and analysis at the local governmental level. Pr.: STAT 330 or STAT 702.

PLAN 804. Environmental Planning Methods. (3) II. Introduction to and understanding of environmental planning issues related to the development of a comprehensive community plan. Regional landscapes, watersheds and ecosystems surrounding the community selected for study in PLAN 836 will form the basis of the application of geoprocessing theory and methods. Pr.: GEOG 508. Coreq.: PLAN 836.

PLAN 805. Internship in Planning. (1-4) I, II, S. Assignment to a planning staff for a period of at least 10 weeks; supervision by a professional

planner with periodic reports of activities to planning faculty. Pr.: Completion of two semesters of graduate study in planning.

PLAN 810. Practicum in Planning and Development. (1-4) I, II, S. Supervised experience in professional planning and development, including internships, field research, public service, and professional workshops. Pr.: PLAN 715.

PLAN 815. Planning Theory, Ethics and Practice. (2) I. Review of the basic theories of regional and community growth and change, analysis of the process of urbanization in relation to societal determinants and environmental constraints, and the study of a process of planning for professional practice. Exploration of societal and human values in relation to issues of equity, social justice, economic welfare, and efficient use of resources, as well as ethical approaches to these issues. Pr.: PLAN 715 or concurrent enrollment.

PLAN 820. Planning Administration. (3) I. Functions of a planning administrator, including city organizational structures and the role of the planner in city administration and management; budgeting and capital improvements programming, including a study of the roles that bonds, taxation and intergovernmental grants play in the financing of various community based activities. Pr.: PLAN 815.

PLAN 836. Community Plan Preparation. (3) II. Review of the principles and elements of city growth and change, with application to the preparation of a comprehensive community plan for a community in Kansas. Criteria, standards, and methodology for city analysis and planning are applied to the practice of planning. Emphasis is on collaborative group participation in a practical planning process using skills developed in the RCP program. Pr.: PLAN 802.

PLAN 880. Topics in Planning. (Var.) I, II, S. Independent study of selected concepts and trends in regional and community planning and development. Pr.: PLAN 715 and PLAN 803.

PLAN 898. Thesis Proposal Writing. (3) I. Exploration of procedures of planning, design, scheduling, organizing, and managing of a community planning based research project leading towards the students' completion of their master's thesis. This course will be cross listed with LAR 898. Pr.: PLAN 803.

PLAN 899. Research in Planning. (Var.) I, II, S. Original research and advanced study in regional and community planning, urban design, and related fields for the master's report/thesis. Pr.: PLAN 803 or LAR 725 or ARCH 725 and completion of two semesters of graduate study in planning.

On-Line Courses for Undergraduate and Graduate Credit

CDPLN 601. Orientation to Community Development. (1) I, II, S. An Introduction to the Community Development program. Focus is on on-line delivery methods, graduate level research and writing, and technology skills necessary for student success in the program.

CDPLN 610. Introduction to Native Community Development. (3) I, II, S. This course is a base knowledge course for students currently working with native communities. Students taking this course will develop a basic understanding within the context of community development of the diversity of tribal structures and cultures and the unique history and jurisdictional considerations of these nations.

CDPLN 611. Building Native Communities and Economic Capacity. (3) II. This course will focus on non-western approaches to helping native communities build their capacity. Students will learn to take a participatory, culture-centered, and strength-based approach to development. Pr.: CDPLN 610.

CDPLN 612. Indian Country Agriculture and Natural Resources. (3) S. An introduction to the historical and contemporary issues related to natural resource management on Native American lands. Study will include a variety of ecological settings across Native American lands, along with an analysis of tribal sovereignty as it relates to land tenure and water rights. Arguments concerning natural resource conservation, preservation and extraction will be explored. Pr.: CDPLN 610.

CDPLN 613. Youth Development in Native Communities. (1) I, II, S. Focus on contemporary issues impacting native youth including: Demographics (Criminal justice, early parenting, poverty, education, suicide and morbidity), identity formation (risky behavior and achievement opportunities), health care (diabetes, obesity, fetal alcohol), prevention activities (4H, BGC, horse clubs, running strong), and influx of youth leadership (youth-elder connections). Pr.: CDPLN 610.

CDPLN 614. Wellness in Native Communities: Challenges and Opportunities. (1) I. Healthcare issues challenging Native communities, and strategies and practices to address those challenges. Focus on the impact of the Indian Health System, other bureaucratic systems, and current consumer practices that impact healthcare for Native peoples and the ways tribes are working to create healthier communities and improve the lifestyle of Indian people. Pr.: CDPLN 610.

CDPLN 615. Role of Tribal Colleges in Economic Development. (1) S. Focus: the role of tribally-chartered colleges/universities in economic development within Native communities. Topics include the use of bonding/bridging social capital, the historical and contemporary case for tribally-chartered higher education, the economic impact of tribal colleges on their local economies, and opportunities/challenges of broad and diverse collaborative networks.

CDPLN 620. Ecological Economics. (3) I. Synthesis across the notion of "utility" as represented in environmental/natural resource economics, as well as the notion of "ecology" in ecological economics. Focus will be on the influence the community and ecosystem have on one another, and the potential for complementarity between the two.

CDPLN 621. Sustainable Communities. (3) I. The management of natural capital as linked to other community-based actions around resource

allocation and the impacts on quality of life. The literature on community-based natural resource management will be examined and alternative ways of valuing natural capital will be assessed. Contrasting theories of the role of natural capital in communities.

CDPLN 622. Impact Analysis. (1) II. The basics of economics and fiscal impact analysis are explored, including the scenario construction, basics of input-output analysis, careful use of multipliers, estimations of local revenues and expenditures and discounting.

CDPLN 623. Local Economic Analysis. (1) II. This course teaches economic base theory, a theory of regional economics, multipliers and how local economics are affected by external events. Basic methods for the analysis of a local economy are covered, including trend analysis, location quotients, shift share analysis and retail trade analysis.

CDPLN 630. Governance and the Community Development Process. (3) I, II, S. Course focus is on the understanding of the various levels of government and the diversity of governmental forms across the states, reservations, and among nations. Students will compare roles of governments in international settings in relation to community development, and study strategies of evaluating policies that impact community development opportunities.

CDPLN 631. Leadership for Change. (3) I, II, S. Course focus is on the role of leadership in community development and change, including situating leadership in the community development process, reviewing the effectiveness of different leadership styles, and relating leadership to community. Skills and processes that facilitate effective shared leadership, including facilitation, conflict resolution, use of participatory techniques, etc, are explained.

CDPLN 632. Nonprofit Management. (3) I, II, S. Managing nonprofits including the role of nonprofit organizations in addressing various social problems. Focus: growth of the nonprofit sector and impact on the community as a source of citizen empowerment. Topics include individual giving/volunteering, board and executive leadership, government and nonprofit relationship, ethics and accountability, and issues and challenges in nonprofit management.

CDPLN 633. Grantwriting. (3) I, II, S. The intricacies of grantsmanship provide the focus of this course. Topics covered will include identification of fund sources, procedures for proposal preparation, composition of grants, and the effects of organizational and personal linkages. Students will prepare a grant application based upon an RFP or to a continuous funding source.

CDPLN 650. Community Economic Development for the 21st Century. (3), I, II, S. Study of the basic theories, concepts, and skills necessary to be a part of a productive community economic development team. Focus is on the importance of organizational values, mission and vision, as well as six approaches to development. The course will cover the five community functions, development strategies, action planning, and organizing for action.

CDPLN 655. Land Development Planning. (3) I, II, S. An examination of the process of land development in the United States, and its impacts from the perspective of developers, financial institutions, community planners, and city administrators. Focus is on the understanding of the land development process in meeting community goals, and shaping land development to meet community expectations for the improvement of the community.

CDPLAN 699. Special Studies in Community Development. (1-3) I, II, S. Independent study on special topics of interest in community development. Pr.: Completion of a minimum of fifteen (15) credit hours in the Community Development program and proposal acceptance by their academic advisor.

CDPLN 705. Organizing for Community Change. (3) I. Examination of the role of society in community planning efforts. Focus on change within communities and the roles of government, planners, and citizens in reacting to or shaping change. Dimensions of social capital and the context of change and the implications of economic and demographic shifts on strategies and tactics for change will be explored.

CDPLN 710. Community Analysis. (3) II, S. An introduction to research methods relevant to community development. Topics include how to formulate and begin a research effort, methods of data collection and how conceptual frameworks are used to develop the questions and analyze data. Also included are strategies for reporting findings and applying findings in community action. Pr.: CDPLN 705 or concurrent enrollment, access to and proficiency in using an office productivity suite of software, including word processing and spreadsheets (such as Microsoft Office XP).

CDPLN 715. Principles and Strategies of Community Change. (3) II. An analysis of the principles and practices of community change and development, using case studies and the students' communities of reference. the course will relate Community Development approaches to conceptual models from diverse disciplines. Conceptual models include conflict, neo-classical economic growth, participatory democracy, and others. Pr.: CDPLN 705 and CDPLN 710.

CDPLN 720. Community and Regional Economic Analysis. (3) I. The course introduces concepts of communities and regions, theories of economic growth, drivers of economic growth, the economic base of a community, sources of growth or decline in the community, roles of local government and institutions, analytical tools, and strategies for local economic development.

CDPLN 725. Community and Natural Resource Management. (3) I, II, S. An introduction to the breadth of consideration involved in community resource management. Included are theoretical frameworks, methodological investigation and applied practices to enhance the ability of community development professionals to work with their communities to plan, develop, and monitor the conversion and development of natural resources with multiple functions.

GRADUATE CREDIT ONLY

CDPLN 880. Topics in Community Development. (1) I, II, S. Independent study of selected concepts and trends in community development. Students electing this course offering will be preparing a specialization paper as their final project. Pr.: Completion of a minimum of twenty (20) credit hours in the Community Development program, and proposal acceptance by their academic advisor.

CDPLN 899. Research in Community Development. (2) I, II, S. Original research and advanced study in community development, and related fields for the master's report. Pr.: Completion of a minimum of twenty (20) credit hours in the Community Development program and proposal acceptance by their academic advisor.

For more information

For additional information and application materials, please contact:
Department of Landscape Architecture/Regional and Community Planning
Director, Graduate Program in Regional and Community Planning
Kansas State University
302 Seaton Hall
Manhattan, KS 66506-2909
785-532-5961
FAX: 785-532-6722
E-mail: la-rcp@ksu.edu
http://capd.ksu.edu/larcp/

Plant Pathology

Description and mission | Departmental research and teaching emphasis | Facilities and equipment | Degree options | Admission | Financial assistance | Plant pathology courses | More information

Head:
John F. Leslie

Director of graduate studies:
Bill Bockus

Graduate Faculty:

Eduard D. Akhunov, Ph.D., Institute of Genetics, Russia.

Jianfa Bai, Ph.D., Kansas State University.

William W. (Bill) Bockus, Ph.D., University of California, Davis.

Robert L. (Bob) Bowden, (Adjunct) Ph.D., University of Wisconsin-Madison.

Larry E. Claflin, Ph.D., Kansas State University.

Forrest Chumley, Ph.D., University of California, Berkeley.

Erick D. De Wolf, Ph.D., North Dakota State University.

Justin D. Faris, (Adjunct) Ph.D., Kansas State University.

John P. Fellers, (Adjunct) Ph.D., University of Kentucky.

Bernd R. Friebe, Ph.D., Free University of Berlin.

Karen A. Garrett, Ph.D., Oregon State University.

Bikram S. (Bik) Gill, Ph.D., University of California, Davis.

Scot H. Hulbert, Ph.D., University of California, Davis.

Douglas J. (Doug) Jardine, Ph.D., Michigan State University.

Lowell B. Johnson, (Emeritus) 0h.D. Purdue University.

Megan A. Kennelly, Ph.D., Cornell University.

Jan E. Leach, (Adjunct) Ph.D., University of Wisconsin.

John F. Leslie, Ph.D., University of Wisconsin-Madison.

Hei Leung, (Adjunct) Ph.D., University of Wisconsin-Madison.

Christopher R. Little, Ph.D., Texas A&M University.

James Clare Nelson, Ph.D., Cornell University.

Dorith Rotenberg, Ph.D., University of Wisconsin-Madison.

Fred W. Schwenk, Emeritus, Ph.D., University of California, Berkeley.

James P. Stack, Ph.D., Cornell University.

Donald L. (Don) Stuteville, Emeritus, Ph.D., University of Wisconsin-Madison.

Xiao Yan Tang, Ph.D., Purdue University.

Timothy C. (Tim) Todd, M.S., Oklahoma State University.

Joe M. Tohme, (Adjunct) Ph.D., Michigan State University.

Harold N. Trick, Ph.D., Florida State University.

Barbara A. Valent, Ph.D., University of Colorado.

Frank F. White, Ph.D., University of Washington-Seattle.

Anna E. Whitfield, Ph.D., University of Wisconsin.

Robert Zeigler, Ph.D., (Adjunct) Cornell University.

Jian-Min Zhou, Ph.D., Purdue University.

Description and mission

Plant pathology is the study of plant diseases, their cause, effects, and control. The discipline is closely integrated with the other biological sciences, and we have unique strengths in basic and applied research.

Departmental research and teaching emphasis

- The major field crops in Kansas: wheat, corn, sorghum, alfalfa, and soybeans, plus horticultural plants (trees, turf, vegetables, fruits).
- The major pathogen groups: bacteria, fungi, nematodes, and viruses. Molecular genetics is a departmental strength.
- Specialty areas: bioinformatics; biological control; cell and tissue culture, plant transformation and regeneration; disease diagnostics; disease management; disease physiology; epidemiology; host/parasite genetics, cytogenetics; microbial ecology

Our Department administers the campus-wide Plant Biotechnology Center; the 3-state, 4-institution Great Plains Cereals Biotechnology Consortium; and the Wheat Genetics Resource Center, which is international in scope.

Invited seminars

Our Department has an exceptionally strong invited seminar series, averaging 18 speakers per year from universities, research centers, government agencies, and private industry around the world. All seminars are open to the rest of the academic community and to the public. Seminars are presented throughout the year.

Personnel

Our Department currently has 23 state faculty, 7 adjunct faculty, 35-40 graduate students, about 25 post-doctoral fellows and visiting scientists, and about 20 technical assistants, who come from 20 countries on 5 continents. We are a diverse Department with a global climate in which ideas thrive and people excel.

Facilities and equipment

Our Department has 39,000 sq. ft. of modern office, laboratory, and classroom space, most on the top floor of a 4-story building that is attached to 100,000 sq. ft. (2.3 acres, or about 1 hectare) of greenhouse space. This has been described as the largest university plant science complex in the country. Faculty have individual research labs, all well-equipped for the types of research they do. We share equipment, materials, and ideas across the Department.

Degree options

The department offers a full range of courses leading to the M.S. and Ph.D. degrees. These cover diseases caused by bacteria, fungi, nematodes, and viruses; bacterial and fungal genetics; disease control, diagnosis, ecology, epidemiology, and physiology; host plant resistance to disease; plant pathology methods; plant tissue culture and regeneration; plant cytogenetics; and student seminar, special problems and topics, and research.

For students coming into our program, we like to see background coursework in the biological sciences (such as botany or biology, plant pathology, entomology, mycology, microbiology, genetics); chemistry (such as inorganic, organic, biochemistry); mathematics; physics; statistics; and soil science or geology. Some coursework to remedy background deficiencies can be taken along with graduate courses, and some of this can be taken for graduate credit. Grades in relevant courses should be A or B, with an overall grade point average of at least B. We do not require a GRE score.

Two options are available to Ph.D. students in the Department (all M.S. students receive background training that will fit into either option later on). The traditional option gives a broader base of training in plant pathology. It will be most useful for those students who want to have a working knowledge of all pathogen groups but without the additional training in genetics and molecular biology. The genetics/molecular biology option is designed for students who intend to focus on the genetics and molecular biology aspects of plant pathology during their career and who don't feel a need for comprehensive training in the pathogen groups. Regardless of the option, the degree will still be in Plant Pathology; the difference is in coursework. The goals of the student should determine which option is most appropriate. Coursework requirements are listed on our departmental home page at http://www.plantpath.ksu.edu.

Some of our faculty also participate in the interdepartmental program in Genetics, described elsewhere, which leads to a degree in Genetics.

Admission

Applications are accepted at any time of the year, and graduate studies can begin during fall, spring, or summer terms. Applying early increases the probability of being awarded an assistantship. Application blanks can be obtained from the Department and from the Graduate School. All application materials should be sent to the department.

Financial Assistance

Financial support may be available to qualified students, with priority to U.S. students. Departmental graduate research assistantships for 2008-2009 are $20,900 for students working toward an M.S. degree and $21,900 (Tillman Scholarships at $24,400) for students working toward a Ph.D. degree; assistantships increase about $400 per year. Out-of-state (but not in-state) tuition is waived with either of these appointments. All applications are evaluated for available assistantships. Students may also be eligible to apply for fellowships from private and federal sources. In addition, a new College of Agriculture Doctoral Tuition Scholarship program for outstanding students entering the Ph.D. program, when available, pays the student's tuition and fees at the time of enrollment and continues throughout the student's doctoral program, as long as they maintain good academic standing.

Departmental assistantships are limited to 30 months for M.S. from B.S., 48 months for Ph.D. from M.S., and 60 months for Ph.D. from B.S. degree. Duration of assistantship from grants and other sources is determined by the faculty member in charge. Continuation of all assistantships depends upon continued satisfactory progress toward the degree and availability of funding.

All students on half-time assistantships are required to enroll in at least 6 credit hours during each regular semester and 1 credit hour during the summer. Research hours can be taken as needed to fill in these credits. This requirement will be waived during the semester in which the degree is granted, although students must be enrolled in enough credits during that semester to meet University requirements.

Although there are no formal GTAs in plant pathology, all graduate students assist in teaching at least one course in the department during their graduate studies. In consultation with the student's advisor and the faculty member responsible for the course, the student can sign up for 1-2 credits of either PLPTH 750 (Problems in Plant Pathology; for assisting in courses numbered 699 and below) or PLPTH 920 (Topics in Plant Pathology; for assisting in courses numbered 700 and above).

Students on departmental assistantships are expected to serve as teaching assistants in departmental undergraduate courses (numbered below 699) as needed, but not more than once each year.

Students whose native language is not English are required to first score at the appropriate level on an English comprehension test administered by the English Language Program at K-State. Cost of this test is borne by the department.

Plant pathology courses

PLPTH 500. Principles of Plant Pathology. (3) II. An introductory class in the nature of plant pathogens and the cause, effect, and control of plant diseases. Diseases of field and horticultural crops will be addressed. Two hrs. lec., one 2-hr. lab a week. Pr.: BIOL 198, or 210.

PLPTH 575. Special Topics in Plant Pathology (1-3) I,II,III. Special topics in plant pathology not treated in other courses. Pr.: Consent of instructor.

PLPTH 585. Crop Diseases. (2) I. An overview of plant diseases associated with Kansas crops, with an amphasis on identification and management strategies. Two hr. lecture and four hr. lab a week. To meet first half of the semester. Pr.: PLPTH 500.

PLPTH 590. Landscape Diseases. (2) II. An overview of plant diseases associated with Kansas greenhouse and nursery production systems as well as landscape settings, with an emphasis on identification and management strategies. One hour lec. and one lab a week. Pr.: PLPTH 500.

PLPTH 599. Undergraduate Research in Plant Pathology. (0-3) I, II, S. Research experience is offered in classical and molecular plant pathology and biotechnology. Pr.: Consent of instructor.

PLPTH 610. Biotechnology. (3) I. The use of biotechnology and molecular genetic approaches in plant and animal sciences. Emphasis is on the use of molecular techniques for plant and animal improvement. Three hours lec. per week. Pr.: ASI 500. Same as AGRON 610.

PLPTH 635. Introduction to Plant Resistance to Pests. (2) I, in even years. To meet first half of semester. Basic concepts of the biology, ecology, genetics and breeding for pest resistance in plants. Four hours lec. and discussion a week. Pr.: ENTOM 300 or PLPTH 500 or ENTOM 312 and ENTOM 313, and one course in plant or animal genetics. Same as ENTOM 635.

PLPTH 676. Fusarium Laboratory Workshop. (1) S. A one-week laboratory/lecture course on the identification, systematics, physiology, mycotoxicology, genetics, and molecular biology of fungi in the genus Fusarium. Students should not be enrolled in any other class while attending this workshop. Credit/No Credit. Pr.: BIOL 455 or BIOL 604, and consent of instructor.

PLPTH 730. Plant Nematology. (3) II, in even years. An introduction to the morphology, taxonomy, and ecology of phytoparasitic and free-living nematodes found in plants, soil, and fresh water. Emphasis is on the identification and control of plant parasitic nematodes and on lab

techniques used in their study. Two hrs. lec., one 2-hr lab a week. Pr.: PLPTH 500.

PLPTH 750. Problems in Plant Pathology. (1-3) I, II, S. Work is offered in general plant pathology, plant virology, plant nematology, disease physiology, epidemiology, and disease diagnosis. Pr.: Consent of instructor.

PLPTH 755. Plant Resistance to Diseases. (2) I, in even-numbered years. To meet second half of semester for four hours per week. Survey of recent literature on conventional and novel strategies for obtaining durable resistance to plant diseases. Several well-characterized host/pathogen systems will be selected for in-depth analysis. Pr. PLPTH/ENTOM 635.

PLPTH 768. Population Genetics. (3) II, in odd years. Theoretical basis for and applications of population genetic principles to populations of humans, domesticated plants and animals, and natural ecosystems. Three hrs. lec./discussion per week. Pr.: ASI 500, BIOCH 521, MATH 220, and STAT 510 or STAT 703.

PLPTH 780. Spotted Microarray Workshop. (1) S or Intersession. One-week lecture and laboratory on RNA handling, isolation, and amplification; microarray design, fabrication, hybridization, scanning, and data analysis. Rec. Pr.: One of the following courses: PLPTH 610, AGRON 610, BIOCH 521, BIOCH 522, BIOL 675, BIOL 676.

PLPTH 785. Real-Time PCR Workshop. (1) I, S. Four half-day lecture and laboratory on real-time PCR primer/probe design, experimentation, and data analysis. Rec. Pr.: one of the following courses: PLPTH 610, AGRON 610, BIOCH 521, BIOCH 522, BIOL 675, BIOL 676.

PLPTH 835. Plant Virology. (2) I, in odd years. A study of the composition, symptomatology, diagnosis, isolation, replications, molecular biology, genetics, and evolution of plant-infecting viruses. Two hours lec. a week. Pr.: ASI 500, BIOCH 521, BIOCH 522, and PLPTH 500.

PLPTH 840. Plant Pathogenic Bacteria. (2) II, in odd years. Emphasizes the diversity, mechanisms of pathogenicity, host-parasite relations, control measures, and the principles and methods of identifying plant pathogenic bacteria. The course will meet for half of the semester. Four hours lec/week. Pr.: BIOCH 521, PLPTH 500.

PLPTH 845. Plant Pathogenic Fungi. (3) I, in even years. The isolation, handling, storage, inoculation, terminology and taxonomy of fungal pathogens of plants. Particular attention will be given to techniques used to study fungi and to the genus and species concepts for important plant pathogenic fungal genera. Two hr lec., and one 3-hr lab a week. Pr.: PLPTH 500 and BIOL 604.

PLPTH 870. Seminar in Plant Pathology. (1) I, II. Reports in the field of plant pathology. Pr.: consent of instructor.

PLPTH 880. Plant Molecular Biology. (3) I, in even-numbered years. A study of plant genes and genome organization, plant gene expression and regulation, and functional analysis of plant genes. Three hours lecture a week. Pr.: BIOCH 521, PLPTH 610, or BIOL 541.

PLPTH 890. Introduction to Genomic Bioinformatics. (4) II, in odd years. Tools and methods for computational analysis of genomic and related data. Three hours lec. and two hours lab per week. Pr.: BIOCH 521, STAT 703, BIOL 450.

PLPTH 898. Master's Report. (2) I, II, S.

PLPTH 899. Research in Plant Pathology for the M.S. degree. (Var.) I, II, S. Work is offered in each of the major pathogen groups, genetics of plant-microbe interactions, disease physiology, ecology, and epidemiology.

PLPTH 905. Ecology and Epidemiology of Plant Pathogens. (2) I, in even-numbered years. Experimental and theoretical approaches to the study of plant disease ecology in agricultural and natural systems. Pr.: A course in Statistics, a course in Calculus, and one of the following: PLPTH 500, PLPTH 730, PLPTH 835, PLPTH 840, PLPTH 845, or a course in Ecology.

PLPTH 910. Molecular Plant-Microbe Interactions. (3) I, in odd-numbered years. Discussions of molecular and genetic perspectives of resistant and susceptible interactions between plants and bacterial, viral and fungal pathogens. Evaluation of current hypotheses on the nature of disease resistance. Pr.: PLPTH 500, BIOCH 521, and BIOL 500; BIOL 450 or ASI 500; and one of BIOL 800, PLPTH 835, PLPTH 840, or PLPTH 845.

PLPTH 911. Plant Tissue Culture and Regeneration. (3) II, in odd-numbered years. Plant tissue culture principles, techniques, and applications, with emphasis on plant regeneration from protoplasts and the use and potential of this procedure for crop improvement through genetic engineering. Research-level skills in this area will be taught. Two hrs. lecture and 3 hrs. lab a week. Pr.: ASI 500, BIOL 500, and one of BIOCH 521 or 755.

PLPTH 915. Chromosome and Genome Analysis . (3) I, in odd years. An advanced course in eukaryotic chromosome biology and genome analysis, especially of higher organisms (crop plants, insects, and mammals) emphasizing basic features of chromosome structure, behavior in mitosis and meiosis, structural aberrations, numerical changes (aneuploidy, polyploidy) evolution, and manipulation for crop improvement and human health. Three hrs. lec. a week. Pr.: AGRON 770.

PLPTH 916. Chromosome and Genome Laboratory. (1) I, in odd years. An advanced laboratory course in classical and molecular cytogenetic techniques, C-banding, and flourescence in situ hybridization techniques. Three hours lab a week. Pr.: PLPTH 915 or conc.

PLPTH 920. Topics in Plant Pathology. (Var.) I, II, S. Discussions and lectures on important areas and contributions in the field of plant pathology. Pr.: Consent of instructor.

PLPTH 927. Fungal Genetics. (3) II, in even-numbered years. A study of the classical, molecular, and population aspects of fungal genetics in both model and commercially important systems. Topics to be discussed include genetic analysis via mitosis and meiosis, models of recombination, genetic control of fungal development, basic molecular genetics of fungi, and genetic factors affecting fungal population structure and stability. Three hrs. lecture discussion a week. Pr.: BIOCH 521, ASI 500; recommended: BIOL 604 and a 600-level or higher course in genetics.

PLPTH 999. Research in Plant Pathology for the Ph.D. degree. (Var) I, II, S. Work is offered in each of the major pathogen groups, genetics of plant-microbe interactions, disease physiology, ecology, and epidemiology.

For more information

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Pathobiology

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Department Head:
M.M. Chengappa

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Roman Reddy Ganta, Ph.D., All India Institute of Medical Sciences.

Richard Allen Hesse, Ph.D., University of Nebraska Medical Center.

Justin Kastner, Ph.D., University of Guelph.

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John Pickrell, DVM, M.S., Ph.D., University of Illinois; ABVT.

Doug Powell, Ph.D., University of Guelph, Canada.

David G. Renter, Ph.D., Kansas State University.

Donald C. Robertson, Ph.D., Iowa State University.

R. Robert R. Rowland, Ph.D., University of New Mexico.

Deon Van Der Merwe, Ph.D., North Carolina State University.

Melinda Wilkerson, DVM, Ph.D., Washington State University, ACVP Diplomate.

Carol R. Wyatt, Ph.D., Washington State University.

Ancillary Graduate Faculty:

Michael Apley, DVM, Ph.D., Kansas State University, ACVCP Diplomate

Frank Blecha, Ph.D., Washington State University.

Robert Larson, DVM, Ph.D., Kansas State University, ACT, ACVPM Diplomate

Randall K. Phebus, Ph.D., University of Tennessee.

Dolores Takemoto, Ph.D., University of Southern California.

Daniel Thomson DVM, Ph.D., Texas Tech University.

Mark Weiss, Ph.D., University of Pennsylvania.

Samantha Wisely, Ph. D, University of Wyoming.

Ludek Zurek, Ph. D., University of Alberta, Edmonton, Canada.

Adjunct Graduate Faculty:

Jason Ackleson, Ph.D., Adjunct, The London School of Economics.

Cathleen Alma Hanlon, Ph.D., University of Pennsylvania.

Gail R. Hansen, DVM, University of Minnesota.

Kelly Lechtenberg, DVM, Adjunct, Ph.D., Kansas State University.

Janice M. Sargeant, DVM, M.S., Ph.D., Adjunct, McMaster University, Ontario, Canada.

George C. Stewart, Ph. D., Adjunct, University of Missouri, Columbia, MO.

Jepkoech Tarus, Ph. D., Adjunct, Louisiana State University.

Mark D. Tucker, Ph.D., Adjunct, University of New Mexico, Las Cruces, NM.

Program description

The Pathobiology Graduate Program of the College of Veterinary Medicine offers graduate programs leading to M.S., (Veterinary Biomedical Science), Ph.D., and combined D.V.M./M.S. degrees. Degree candidates may specialize in research areas represented by the expertise of the members of the Graduate Group. Requirements for the Ph.D. degree include full-time study equivalent to at least 90 semester hours [78 for individuals with a D.V.M. degree] including at least 30 hours of research credit for the dissertation and generally 30-39 hours of formal course work, a preliminary examination, research, a written dissertation, and a satisfactory defense of the dissertation at the final oral examination. The Ph.D. degree normally requires at least three years of full-time study. Students who hold a master's degree may request transfer of up to 30 hours of that degree toward a Ph.D. Demonstration of proficiency in foreign languages is not required. The University operates on a semester basis plus an eight-week summer session.

See Veterinary Medicine in this catalog for additional information.

Program requirements

Minimum entrance requirements, include a B average in the junior and senior undergraduate years for applicants not holding a D.V.M./V.M.D. degree. All applicants are required to take General GRE and submit the scores with the application. International students must demonstrate proficiency in English by earning a satisfactory score on the TOEFL and must provide health and financial certificates. Candidates for admission to the Graduate School must be approved by the Pathobiology Graduate Program. Most incoming students have a degree in veterinary medicine, but some have degrees in animal science, microbiology, biology, biochemistry/pharmacology, genetics, or food science. The most important considerations for applicants are documented academic achievement and an interest in continued study and research in Pathobiology. Sufficient training in biology and a strong background in biochemistry are important requirements. Application for admission to the program in a fall semester should be made in the preceding late fall or early winter.

Financial support

Assistantships and temporary assistant instructor positions are available for qualified candidates on a limited, competitive basis. Prospective students are encouraged to apply for federally sponsored fellowships and traineeships from agencies such as the USDA, NASA, NDEA, NIH, and NSF. Application information is available from the Dean of the Graduate School, Kansas State University, Manhattan, KS 66506.

Research facility

Housed in a spacious modern building complex with up-to-date equipment to provide excellent opportunities for graduate research. Major equipment include cell counters, an electron microscope, environmental chambers, cryostats, densitometers, fluorometers, chromatography equipment, high-vacuum evaporators, neurophysiological recording devices, recording spectrophotometers, spectrometers (atomic absorption, respiratory mass, scintillation), biohazard safety hoods, stereotaxic instruments, ultracentrifuges, ultramicrotomes, ultrasonic membrane destructors, flow cytometer and high-performance liquid chromatography units. Surgery and housing facilities for large and small animals, intensive library holdings and facilities, and easy access to the University's computer center are also available. Extensive research potential in food animals is enhanced by an interstate cooperative program with the University of Nebraska-Lincoln.

Pathobiology courses

DMP 650. Fundamentals of Public Health and Food Safety. (3) I. Organization and function of food inspection services; principles of disease transmission; diseases transmitted to humans through the food chain. (Jointly with HRIMD 650.) Pr.: BIOL 198.

DMP 705. Principles of Veterinary Immunology. (2) II. Innate and adaptive defense mechanisms in domestic animals. Topics include vaccinology, immunopathology, autoimmunity, immunodeficiency, and immunomodulation. Pr.: BIOCH 521 and BIOL 455.

DMP 708. Principles and Methods of Epidemiology. (2) II. Ecologic and epidemiologic concepts in the study of diseases in populations: epidemiologic methods emphasizing problem solving and application to epidemiologic principles of disease control. Pr.: DVM 700 and BIOL 455.

DMP 712. Veterinary Bacteriology and Mycology. (5) I. Morphology, biology, and classification of pathogenic bacteria and fungi and their relation to the causes of disease. Three hours rec. and six hours lab a week. Pr.: DMP 705 and BIOL 455.

DMP 715. General Pathology. (5) I. Etiology, pathogenesis, lesions, and termination of processes of disease, including inflammation, necrosis, regeneration, oncology, and disturbances of metabolism, circulation, and growth. Three hours lec. and six hours lab a week. Pr.: AP 700, AP 705 and AP 710.

DMP 718. Veterinary Parasitology. (5) I. Study of helminth, arthropod, and protozoan parasites of companion and food animals. Emphases are on diagnosis, clinical signs, lesions, treatment, control, epidemiology, and public health aspects of parasitic disease. Three hours lec. and six hours lab a week. Pr.: AP 710 and DMP 708; or consent of instructor.

DMP 720. Systemic Pathology. (5) II. Pathology of the organ systems of domestic animals including gross and microscopic study of lesions. Three hours lec. and six hours lab a week. Pr.: DMP 715.

DMP 722. Veterinary Virology. (3) II. Morphology, biology, and classification of viruses and their relation to the causes of disease. Two hours rec. and three hours lab a week. Pr.: DMP 705 and DMP 712.

DMP 753. Zoonoses and Preventive Medicine. (3) II. Bacterial, viral, parasite, and mycotic diseases shared by animals and humans. The role of the veterinarian in wholesomeness and quality assurance of foods of animal origin including regulatory requirements. Pr.: DMP 708.

DMP 759. Laboratory Animal Science. (2) II. Management and health of common species of laboratory animals. Pr.: DMP 715.

DMP 770. Fundamental Concepts in Emerging Pathogenic Diseases. (3) II, even years. Topics discussed will include why epidemics occurred historically, a review of the reasons for current emerging diseases and the potential for epidemics to occur in the future. Pr.: 3 hours of Biology above a 700 level.

DMP 775. Clinical Pathology. (3) II. Principles, application, and interpretation of clinical laboratory procedures, and experience with applicable techniques. Two hours lec. and three hours case discussion or lab a week. Pr.: DMP 705 and DMP 715.

DMP 777. Laboratory Diagnosis. (1) I. Laboratory techniques in hematology, cytology, bacteriology, mycology, urology, and clinical chemistry as applied to the diagnosis of animal diseases. Three hours of lab a week. Pr.: DMP 775.

DMP 785. Diagnostic Medicine. (2) I, II, S. Practical experience in necropsy procedures and laboratory findings. Pr.: Fourth-year standing in the College of Veterinary Medicine.

DMP 790. Introduction to Research in Laboratory Medicine. (6) I, II, S. Methodology to conduct research in laboratory medicine. A laboratory study to introduce the procedures to plan, conduct, and evaluate research in clinical pathology, microbiology, parasitology, immunology, or epidemiology. Students will develop a research proposal, including preliminary data, following the guidelines of a peer-reviewed granting agency. One hour rec. and twelve hours lab per week. Pr.: DMP 705, DMP 720, and DMP 777.

DMP 801. Toxicology. (3) I. Effects of harmful substances on the animal body. Emphasis placed on toxicologic principles and management of the poisoned patient. Three hours lecture a week plus three one-to three-hour field trips. Pr.: Third-year standing in the College of Veterinary Medicine, BIOCH 521, and AP 747.

DMP 803. Advanced Toxicology. (3-6) I, II, S. An advanced course in toxicology stressing independent problem-solving utilizing data bases and technical resources to identify toxicological concerns, to define the problem, to consider possible remedial alternatives, and to select and implement the most appropriate management and recommendations for correction and future prevention. May be repeated once per student. Pr.:

Fourth-year standing in the College of Veterinary Medicine, or graduate students in toxicology.

DMP 805. Toxins in the Biological System. (2) I, in odd years. An advanced toxicology course concerned with the cellular land subcellular effects of various groups of toxins on the intact animal organism. Pr.: BIOCH 521, CHM 531 or 550, AP 770 or consent of instructor.

DMP 806. Environmental Toxicology. (2) II, in odd years. An advanced toxicology course concerned with the occurrence, biological effect, detection, and control of foreign chemicals in the environment. Pr.: Consent of staff.

DMP 807. Current Topics in Toxicology. (2) II, in even years, and summers. An advanced toxicology course providing in-depth examination of toxicological area of current relevance to and/or controversy on mammalian health. Specific topics will change from semester to semester. Student in Ph.D. programs may repeat the course. Pr.: BIOCH 521 and AP 747.

DMP 809. Problems in Toxicology. (Var.) I, II, S. Individual investigations into the interactions of chemical compounds with living systems. Pr.: DMP 801.

DMP 810. Diagnostic Methods in Feedlot Management. (3) S. Practical experience in feedlot operation and bovine necropsy diagnosis consisting of 40 hours in bovine necropsy and 320 hours of an on-location practicum in a cattle feedlot. Pr.: Successful completion of the first-year professional curriculum in the College of Veterinary Medicine with a cumulative GPA of 3.0 or better and no grade below 2.0

DMP 811. Fundamentals of Feedlot Management. (3) S. Practical experience in feedlot operational management consisting of 320-400 hours of an on-location practicum in a cattle feeding environment. Pr.: DMP 810. Successful completion of the second-year of the professional curriculum in the College of Veterinary Medicine with a cumulative GPA of 3.0 or better and no grade below 2.0.

DMP 815. Multidisciplinary Thought and Presentation. (3) I, II. Training in critical thinking, writing, and speaking for the food, veterinary, plant, health, and related sciences. With emphasis on writing, students prepare technical reports, news releases, abstracts, and commentaries. Students prepare meeting agendas and present seminars. Committed students will emerge with enhanced critical-thinking and written-presentation skills.

DMP 820 Rumen Metabolism. (3) II, in even years. Metabolism, absorption, digestion, and passage of nutrients in the rumen; factors affecting the environment of the rumen; certain aspects of rumen function and dysfunction; techniques used in rumen research. Three one-hour lectures a week. Pr.: ASI 318 and BIOCH 521 or 755.

DMP 821. Advanced Clinical Pathology Laboratory. (1) I, II, S. Practical training in advanced techniques of clinical chemistry and hematology used in a large clinical pathology laboratory. Three hours lab per week. Pr.: DMP 777.

DMP 830. Quantitative Analysis in Food Production Veterinary Medicine. (3) I. Practical experience manipulating numerical data bases and turning that information into usable knowledge to aid veterinary diagnostic strategies, implementing health management programs, and food animal production decision making processes. Pr.: Successful completion of the first year in the veterinary curriculum.

DMP 840. Public Health Field Experience. (3-6) I, II, S. Supervised field experience in an international, state, local, or district health agency or other appropriate health agency. May be taken more than once, but only 6 hours may be applied toward the MPH degree. Pr.: Enrollment in MPH Program. Same as HN 840.

DMP 849. Pathologic Technique and Diagnosis. (3) I, II. Practical experience in mammalian necropsy, avian necropsy, histologic techniques, and diagnostic laboratory procedures. Nine hours lab per week. Pr.: DMP 720.

DMP 850. Immunology of Domestic Animals. (3) I. This course is designed to introduce graduate students to immune responses of domestic animals to pathogens and parasites. Pr.: BIOL 541.

DMP 851. Pathology of Body Fluids. (4) I, in even years. Alterations of the components of body fluids occurring in disease processes, and interpretations of these changes. One hour rec. and six hours lab per week. Pr.: DMP 777.

DMP 852. Histopathology. (3) I, S. Advanced general and systemic histopathology. Extensive microscopic evaluation of organ systems for degeneration, circulatory disturbances, inflammation and neoplasia. One hour lec. and six hours lab per week. Pr.: DMP 720.

DMP 853. Veterinary Exfoliative Cytology. (2) I, in odd years. Preparation, examination, and interpretation of aspiration, biopsies with emphasis on the recognition of inflammatory and neoplastic processes. Exfoliated material derived from various body fluids, tissues, and organs of the living clinic patient will serve as the basis of the study. One hour lec. and three hours lab a week. Pr. DMP 720 and DMP 775.

DMP 854. Veterinary Epidemiology. (2) I, in even years. Epidemiologic principles relative to infectious and noninfectious diseases transmissible from animals to humans, and application of these principles by use of case investigations. Pr.: DMP 708 and DMP 753.

DMP 856. Advanced Veterinary Parasitology. (3) II, in odd years. Structure, life cycle, pathology, immunology, public health significance, diagnosis, and treatment of protozoan and metazoan parasites of veterinary significance. One hour lec., one hour rec., and four hours lab per week. Pr.: DMP 718 or BIOL 625.

DMP 859. Surgical Pathology. (1-2) I, II, S. Practical experience in examining and processing surgical biopsy specimens and writing histopathological reports. Three or six hours lab per week. Pr.: DMP 852.

DMP 860. Pathogenic Mechanisms. (3) II, in odd years. Virulence factors of infectious microorganisms and the host response to infection. Topics include pathogenesis of human and animal diseases and mechanisms of immunity. One hour rec. and two hours lec. per week. Pr.: DMP 712 or BIOL 690.

DMP 861. Advanced Diagnostic Pathology. (3) I, S. Pathologic alterations of disease with emphasis on diagnostic characteristics. Nine hours lab per week. Pr.: DMP 852.

DMP 863. Advanced Principles of Pathology. (3) I. Disease and its effects with emphasis on etiology and pathogenesis; morphologic change will be correlated with changes in chemical composition and function. Two hours lec. and three hours lab per week. Pr.: DMP 720.

DMP 865. Diagnostic Veterinary Virology. (3) I, in odd years. Viruses associated with diseases of veterinary medical significance with emphasis on diagnosis. Clinical observations, pathogenesis, lesions, epidemiology, immunity, and control will be considered. One hour rec. and six hours lab a week. Pr.: DMP 722 or BIOL 730.

DMP 866. Pathology of Diseases of Laboratory Animals, Fish and Wildlife. (3) I, in even years. Pathology of diseases affecting laboratory animals, fish, and wildlife. Nine hours lab per week. Pr.: DMP 852.

DMP 867. Advanced Topics in Comparative Pathology. (1-3) I, II, S. Selected topics to assist pathology majors in their area of specialization. Pr.: DMP 852 and DMP 863.

DMP 870. Pathobiology Seminar (MS). (1) I, II, S. Oral presentations on topics in epidemiology, food safety, immunology, microbiology, molecular biology, parasitology, pathology, and toxicology. Reports will include critical review of the relevant literature; experimental design and methodology; and presentation and critical evaluation of data. The course is for MS students.

DMP 871. Molecular Diagnostics of Infectious Diseases. (2-3) II. Review and evaluation of new, molecular-based diagnostic techniques for infectious diseases. Current literature will be used extensively as a course resource. Pr.: A 3 hour course in basic molecular biology.

DMP 877. Advanced Laboratory Diagnosis. (1-2) I, II, S. Practical training in evaluation, interpretation, and written description of selected clinical pathology case materials. Course may be repeated by pathology and microbiology majors for a maximum of four credit hours (M.S.) and eight credit hours (Ph.D.). Pr.: DMP 777.

DMP 878. Applications of Flow Cytometry. (1-3) I, II, S. Theory and practical experience in the use of flow cytometry in diagnosis and research. Pr.: Graduate standing.

DMP 880. Problems in Pathobiology (MS). (Var.) I, II, S. A special problems course for graduate students working toward the MS degree in Pathobiology. The course is generally problems- or techniques-based in any of the disciplines in the Pathobiology program, conducted under the supervision of a graduate faculty in the Pathobiology Graduate Program.

DMP 890. Veterinary Hematology. (3) II, in odd years. Morphology, physiology, and pathology of the blood of domestic animals. Emphasis is placed on the species variations and clinical application. Pr.: DMP 775.

DMP 895. Topics in Pathobiology (MS). (Var.) I, II, S. A special course for graduate students working toward the MS degree. Lectures, readings, and discussion of topics of current interest in any of the disciplines of Pathobiology.

DMP 899. MS Research in Pathobiology. (Var.) I, II, S. For graduate students working towards the PhD degree in pathobiology. Individual research in the fields of epidemiology, food safety, immunology, microbiology, molecular biology, parasitology, pathology, and toxicology.

DMP 925. Rumen Microbiology. (3) II, in odd years. Lecture dealing with the microorganisms of the rumen, their habitat, diversity, structure, interactions, and biochemical activities. Techniques for enumeration, isolation and identification of ruminal microorganisms. Pr.: BIOL 455.

DMP 935. Necropsy Diagnosis. (1-3) I, II, S. Necropsy procedures and diagnosis. May be repeated each semester by pathology majors for a maximum of 10 credit hours. Pr.: DMP 852.

DMP 947. Advanced Systemic Pathology I. (5) I, in odd years. Etiology, pathogenesis, gross and microscopic characteristics, and systemic effects of diseases of cardiovascular, respiratory, gastrointestinal, urinary, and endocrine systems. Two hours lec., one hour rec., and six hours lab per week. Pr.: DMP 852 plus fours credits of DMP 935.

DMP 950. Advanced Systemic Pathology II. (5) II, in odd years. Etiology, pathogenesis, gross and microscopic characteristics, and systemic effects of diseases of the skin, of musculoskeletal, genital, and nervous systems, and of special senses. Two hours lec., one hour rec., and six hours lab per week. Pr.: DMP 947.

DMP 965. Cellular and Molecular Pathology. (4) II. Biochemistry of the injured cell, relationship of intracellular parasitism to cellular metabolism, metabolic and genetic basis of inherited disease. Pr.: BIOCH 755 or BIOL 860.

DMP 970. Pathobiology Seminar (PhD). (1) I, II, S. Oral presentations on topics in epidemiology, food safety, immunology, microbiology, molecular biology, parasitology, pathology, and toxicology. Reports will include critical review of the relevant literature; experimental design and methodology; and presentation and critical evaluation of data. The course is for PhD students.

DMP 980. Problems in Pathobiology (PhD). (Var.) I, II, S. A special problems course for graduate students working toward a PhD degree in

Pathobiology. The course is generally problems- or techniques-based in any of the disciplines in the program, conducted under the supervision of a graduate faculty in the Pathobiology Graduate Program.

DMP 995. Topics in Pathobiology (PhD). (Var.) I, II, S. A special course for graduate students working toward the PhD degree. Lectures, readings, and discussion of topics of current interest in any of the disciplines of Pathobiology

DMP 997. Postdoctoral Research. (1-6) I, II, S. Postdoctoral research in collaboration with a faculty member, involving projects in any area of pathology or microbiology. Pr.: Ph.D. degree.

DMP 999. PhD Research in Pathobiology. (Var.) I, II, S. For graduate students working towards the PhD degree in pathobiology. Individual research in the fields of epidemiology, food safety, immunology, microbiology, molecular biology, parasitology, pathology, and toxicology.

For more information

For additional information and application materials please contact:
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Political Science

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Master of Arts (30 hours)

The master of arts program meets the educational and professional needs of three groups of students: (1) working professionals and other adults desiring to improve their qualifications or seeking a greater understanding of political life; (2) those planning to become high school teachers or instructors in two-year colleges; and (3) students wishing to prepare for Ph.D. or other advanced study. The degree requirements are structured, therefore, to provide students with an education which prepares them for a mature grasp of politics, a respect for intellectual integrity, and an ability to communicate effectively.

Graduate work in political science is offered in American government and politics, comparative government and politics, international relations, and political thought. All candidates for the master of arts degree are required to take the following:

Required courses

POLSC 700	Research Methods in Political Science (3)
POLSC 805	Seminar: American Government Problems (3)
POLSC 811	Seminar: International Politics (3)
POLSC 821	Seminar: Political Thought (3)
POLSC 841	Seminar: Comparative Politics (3)

No more than three hours of "non-class" seminars or courses (e.g., readings, problems, internships) are allowed to count toward the 30 hours required for the M.A.
Written comprehensive examinations.

A written research requirement (see below)

Please note: Master's students should earn 60% or more of their credit hours in courses numbered 700 or higher.

Students may choose, in consultation with their advisers, one of three options for the writing requirement:

Option A
This option requires 30 hours of graduate credit, including 6 hours of credit for a thesis. Of the remaining 24 hours, at least 18 must be in political science.

Option B
This option requires 30 hours of graduate credit, including 2 hours of credit for a written research report. Of the remaining 28 hours, at least 19 must be in political science.

Option C
This option requires 30 hours of graduate credit in political science, of which at least four courses should be 800-level seminars taken from at least three different professors. In addition, students in this option submit four seminar research papers acceptable to the professors involved.

Comprehensive examination

All master of arts degree candidates must successfully complete a comprehensive examination, normally between the end of the course work and execution of the master's thesis or report. Students shall receive evaluation of their performance approximately two weeks after the examination. Passing performance requires three-quarters majority of the committee. The committee will give as an overall grade one of the following: pass with honors; pass; fail.

If a candidate fails a master's examination, he or she may be allowed to take a second examination, which cannot take place fewer than two months or more than 15 months after the failed examination unless an extension is granted by the Dean of the Graduate School. No third examination will be allowed.

Oral defense of thesis/report

If the student chooses Option A, he or she must attend an oral defense of the thesis. Reports may also be subject to oral defense.

The student's oral defense of the thesis is composed of two parts:

1. Defense of the thesis.

2. Questions of a general nature pertaining to the field of political science.

Prior to the defense, students must obtain approval forms from the Graduate School, and have them signed by the members of the examining committee. The Graduate School will then prepare notices and a ballot for each examination.

The oral examination is taken when the student's committee certifies that a satisfactory copy of the report has been presented. Passing performance requires three-quarters majority of the committee.

Students taking the nonthesis, nonreport option must complete their internships, papers, and related course requirements before they are eligible to receive their degrees.

Students must be enrolled for a minimum of 1 credit hour the semester they expect to receive their degrees.

Prior to the end of the second semester of graduate work, each student should meet with the graduate advisor to identify a major professor and supervisory committee. This committee (including the major professor) shall be composed of at least three members. One committee member may be from outside the political science department.

Each student should file a program of study form prior to the end of the candidate's second semester. The program of study form must be obtained at the Graduate School Office in Fairchild Hall or from the department office in Waters Hall. After consultation with the supervisory committee, the student should type on the form the list of courses completed and/or to be completed. The form must be signed by all committee members and the department head. The form may then be photocopied and forwarded to the Graduate School.

The Graduate School has issued the following important statement concerning student responsibility:

Graduate students are held responsible for knowing the academic policies and degree requirements set forth in the *Graduate Catalog*. They are likewise held responsible for knowing the regulations concerning the degree they plan to take and any special requirements within the department

or academic unit. In addition, it is the student's responsibility to be informed regarding the university's policies as to the standard of work required for continued enrollment in the Graduate School. The Graduate School should be consulted if additional information is needed.

Master of Arts with a Certificate in International Service (42 hours)

The purpose of the M.A. degree in Political Science with a Certificate in International Service is to prepare students for a career in a variety of areas including: Diplomacy, Intelligence, International Business, International Agriculture, the Military, Non-Governmental Organizations, the United Nations, and many others.

The certificate program is part of the M.A. program, and the basic requirements of the M.A. program must be met in order to obtain the degree and the certificate. The certificate cannot be earned without the degree.

Requirements For Certificate Option

All candidates for the certificate in International Service with an M.A. in Political Science must fulfill the following requirements:

Language examination: No credit will be given for language courses, but the student must pass a language examination. Choice of language will depend on the student's area of specialization and will be chosen in consultation with his/her advisor. Except in the most exceptional cases, language examinations will be administered by the Department of Modern Languages.
In addition to the five core classes listed above under the MA program, all students must take the following Political Science courses.

POLSC 647	International Law
POLSC 651	International Organizations
POLSC 754	The Professional Diplomat and Foreign Policy Formulation
Total Units	24 (including 15 core hours)

Other Required Courses
One graduate course in history selected in consultation with advisor and either:

ECON 681	International Economics
	or
POLSC 756	International Political Economy
Total Units	6

The remaining 12 hours will consist of specialized courses which must be at the 600 level or higher, have an international focus and must be on a par with those required for the political science MA. A three credit internship in the student's area of specialization may be substituted for one of these courses.
Written Requirement
Candidates must meet a written requirement. The written requirement can be satisfied in one of the following ways:

The candidate may take the four seminar paper option.

The candidate may take the three hour internship option under the specialized course requirement. The internship will include a written report. The written portion of the internship would be the equivalent of the two hour report offered in the traditional MA program.

The candidate may take under the specialized course requirement, a two hour report instead of the internship.

The candidate may take under the specialized course requirement the traditional six hour thesis option. With this option the candidate would be allowed to combine the three hour reading option with the two hour report option plus an additional one hour reading to provide the six hours required for the thesis. If this option is taken, the 12 hour specialized course requirement would consist of six hours of traditional course work and six hours of thesis. Oral examination will take place as indicated in the MA description above.

Comprehensive Examination MA With International Service Emphasis

All Master of Arts degree aspirants selecting the International Service emphasis must successfully complete comprehensive written and oral examinations, normally in the last semester of study. Students shall receive evaluation of their performance on the written examination approximately two weeks after the examination. Notification of performance on the oral exam will typically take less time. Passing performance on both the written and oral components of the comprehensive require three-quarters majority of the student's committee. The committee will give as an overall grade one of the following: Pass with Honors; Pass; Fail

If a candidate fails either component of a master's examination, he or she may be allowed to take that component a second time. This cannot take place fewer than two months or more than fifteen months after the failed examination unless an extension is granted by the Dean of the Graduate School. No third examination will be allowed.

Students are reminded that they must complete their internships, reports, and related course requirements before they are eligible to receive their degrees. Also, students must be enrolled for a minimum of one credit hour the semester they expect to receive their degrees.

Master of Public Administration (42 hours)

The Master of Public Administration degree is a professional degree for those who wish to hold administrative positions primarily in the public sector. This degree prepares individuals for administrative careers in a wide range of environments by offering a program of study which is comprehensive, flexible, and interdisciplinary.

The program is committed to meeting the needs of both pre-service and in-service students. Pre-service students without administrative experience have enjoyed success in obtaining both valuable internships while pursuing their degree and challenging positions upon graduation. In-service students have found this program especially attractive since, through careful scheduling, courses required for the degree may be completed in the evenings.

Degree requirements

The degree requires 42 hours of graduate credit including core public administration courses, an area of specialization, electives, and, for pre-service students, an internship. Full-time students are normally able to complete the degree in two years. The core courses are designed to familiarize all students with the fundamentals of public administration. The six courses in this category are Research Methods, Public Personnel Administration, Policy Analysis and Evaluation, Public Organization Theory, Public Budgeting, and Seminar in Public Administration.

Each student is also required to develop an interdisciplinary area of specialization, such as budgeting and finance, personnel administration, planning, or international and comparative administration. However, other areas of interest specific to individual students are met on a case-by-case basis under special circumstances with the advice of the director of the program.

Students also take two political science electives, one of which must be a seminar. This component of the curriculum helps students to gain a better appreciation of the political environment in which public administrators operate. Students may choose from an extensive range of graduate courses and advanced seminars regularly offered by the Department of Political Science.

Pre-service students are required to complete an internship, involving a minimum of ten weeks of full-time employment in an administrative capacity. This may involve appointments with public and not-for-profit sector employers. Students in this degree program have been unusually successful in previous competitions for prestigious internships such as the Kansas Governor's Fellows Program and the U.S. Presidential Management Fellowship Program.

Career

The degree prepares students for employment in a variety of public sector administrative positions with state, federal, and local governments; not-for-profit corporations; public interest groups; international agencies; and private corporations that provide public services under government contract or franchise. Recent graduates of this program include those employed by the U.S. Office of Personnel Management; U.S. Department of Justice; the Kansas Departments of Commerce, Administration, and Transportation; the Legislative Auditor; and several Kansas cities and communities.

Admissions

To be eligible for admission, a student must have a bachelor's degree with a minimum of 3.0 GPA (on a four point scale). Others with at least a 2.7 GPA may be admitted on probation, or on special student category. Application materials for admission to either the M.A. program or the MPA program must be returned to the department and should include a completed application form including application fee, two official transcripts from all colleges previously attended, three letters of recommendation (on official letterhead), and a statement of the candidate's personal objectives. Graduate Record Exams (GRE) are also recommended for all students applying to be Graduate Teaching Assistants. Foreign students, in addition to the above materials, need to submit a TOEFL score (a minimum of 550) and a financial support form.

Admission to the MPA and MA programs and financial assistance are based on academic accomplishment and promise. Admission applications are welcome at any time. A processing fee of $30 for domestic applicants and $55 for foreign graduate student applicants can be paid online during the application process using a credit card. Foreign students applicants can pay the fee online by credit card or mail in a money order or cashiers check; no personal checks accepted.

Financial assistance

The Department of Political Science provides financial aid for assistance with teaching, or research, or both. Specific assignments to teaching or research depend on the needs and abilities of the graduate assistant, and the needs of the department.

Selection criteria

Awards reflect the following criteria:

a. Academic performance, promise, and intellectual ability.

b. Past performance as a departmental assistant, if applicable.

c. Teaching and research needs of the departmental faculty.

d. Financial need.

e. Minimum 6 hour enrollment during term of assistance, under ordinary circumstances.

f. Reasonable progress toward master's degree.

Amount of assistance

Graduate assistantships are measured in "tenths" time, ranging from one-tenth to four-tenths, each tenth corresponding to a dollar amount which changes annually with university and department appropriations. In addition, graduate assistants are eligible for waivers and reductions of tuition fees, depending on legal residence and amount of assistance.

Duties

Each tenth of assistance corresponds to an average of four hours of work each week, or 16 hours of work for a full four-tenths assistantship. Faculty supervisors are responsible for arranging an equitable correspondence of tenths' assistance and duties, and each graduate assistant is responsible for keeping his or her principal faculty supervisor informed on how this obligation is met.

Supervision

Each assistant is assigned to one or two faculty members, depending on the department's needs and the student's preference. Graduate assistants may be asked to help any member of the department faculty, subject to clearance with the student's principal advisors.

Conditions of assistance

All teaching assistants are expected to maintain a 3.0 GPA during the period of appointment with the department, and to perform their duties satisfactorily. The department reserves the right to withdraw support if academic performance falls below the 3.0 GPA or if the job performance is not satisfactory.

Application procedure

Applicants should submit the following to the head of the Department of Political Science not later than November 1 for the spring term, or April 1 for the fall term or for the nine-month academic year:

1. One copy of an application form available from the department secretary.

2. A formal covering letter of application. This letter may also be used to expand on items in the application form, and to document financial need.

All applicants will be notified of the department's decisions, and award recipients will be asked formally to acknowledge acceptance.

Selection committee

The department's Admissions and Assistance Committee consists of three faculty members.

Announcement dates.

Awards are announced on or about April 15, and November 15. Ordinarily, there are no summer term graduate assistantships.

Political science courses

Graduate courses

American government and politics

POLSC 508. The Mass Media and Political Campaigns. (3) I. Roles of the mass media in the electoral process. Dynamics of voter decision making and the impact of the media on voter attitudes and choices. Pr.: POLSC 325.

POLSC 525. U.S. National Government and Politics. (3) II. Advanced overview of U.S. National Government. Especially tailored to meet content area needs of prospective K-12 teachers. Topics to be addressed include: the constitution and the American founding; political and electoral processes; institutional structure and function; and, public policy. Non-majors only. Pr.: POLSC 325.

POLSC 603. Political Parties and Elections. (3) I. Origins, structure and function of political parties. Dynamics of the two-party system. Roles of third parties. Analysis of election results and voting behavior. Pr.: POLSC 110, 325 or junior standing.

POLSC 604. Interest Groups and Public Opinion. (3) II. Group theory and politics. Structure, internal politics, and techniques of interest groups and their impact on public policy. Formation and measurement of public opinion. Pr.: POLSC 110 or 325.

POLSC 605. The American Presidency. (3) The presidency as an institution, its evolution, congressional relationships, executive organization. Pr.: POLSC 110, 325 or junior standing.

POLSC 606. Gender and Politics. (3) II. Analysis of the role of gender in political behavior, including gender differences in voting and political participation, legal and cultural restrictions on women's rights and political activity, and women's liberation and other gender-based political movements. Pr.: SOCIO 545 or POLSC 325.

POLSC 607. Administrative Law. (3) II. Legal analysis of the rule-making, adjudicatory, and enforcement functions of administrative agencies, with emphasis on constitutional framework, judicial review, requirements of procedural fairness, and rights of public employees. Pr.: One course in political science, U.S. history, or legal or political philosophy.

POLSC 611. The Legislative Process. (3) II. Legislative decision-making in modern democracy with emphasis on the United States, the concept of representation, and political behavior of participants in the legislative process. Pr.: POLSC 110, 325, or junior standing.

POLSC 612. The Judicial Process. (3). The structure, process, and politics of the American judicial system. Analysis of important issues concerning law and courts. Pr.: POLSC 325 or junior standing.

POLSC 614. Constitutional Law I. (3) I. Principles of the American political system as prescribed by the Constitution and interpreted by Supreme Court decisions, with emphasis on the institutions and powers of the national government, federalism, and property rights. Pr.: One course in political science, U.S. history, or legal or political philosophy.

POLSC 615. Constitutional Law II. (3) II. The Constitution as a limitation on governmental power, with emphasis on Supreme Court decisions defining fundamental civil rights and liberties. Pr.: One course in political science, U.S. history, or legal or political philosophy.

POLSC 618. Urban Politics. (3) I. Fundamental problems of political power and decision making in urban suburban governmental settings. Pr.: POLSC 110 or 325.

POLSC 620. State and Local Government. (3) II. The U.S. system of federalism with emphasis on a comparative analysis of the government and politics of the fifty states and their subdivisions. Pr.: POLSC 110 or 325.

POLSC 650. Not-For-Profit Management. (3) Unique management issues in terms of policy setting, participation, administrations, and accountability of non-profit organizations. Pr.: Senior or Graduate standing.

POLSC 708. Public Personnel Administration. (3) I. Personnel aspects of administration at all levels of government, including recruitment, selection, discrimination law, pay, and motivation. Emphasis on to those features unique to the public sector, e.g. civil service systems, public unions, and public sector ethics law. Pr.: POLSC 507 or 607.

POLSC 735. Public Organization Theory. (3) I. Theories of the structure and mission of public organizations. Explores the use of analytical questioning of various theories, to solve organizational problems. Pr.: POLSC 325 or 507.

POLSC 737. Public Budgeting. (3) I. Budgeting as apart of our political system and as a fiscal process assists in allocating scarce resources.

Overview of the budgetary decision-making process and the various budgetary approaches. Pr.: POLSC 507 or MANGT 420.

Comparative government and politics

POLSC 504. Political Sociology. (3) II, in even years. An introduction to the principles of political sociology. Processes of political socialization, participation within and outside established organizational channels, recruitment of elites, communication and influence, power, decision making, and policy outputs. Data are presented from a cross-national perspective. Pr.: SOCIO 211; POLSC 110. Same as SOCIO 504.

POLSC 505. South Asian Civilizations. (3) I, in even years. Interdisciplinary survey of recent and contemporary civilization in India, Pakistan, Sri Lanka, Bangladesh, Nepal, Bhutan, and Afghanistan, including geography, philosophy, social, economic, political institutions, and historical movements. Pr.: 3 hours of Social Science or junior standing. Same as GEOG 505, HIST 505, ECON 505, ANTH 505.

POLSC 525. U.S. National Government and Politics. (3) II. Advanced overview of U.S. National Government. Especially tailored to meet content area needs of prospective K-12 teachers. Topics to be addressed include: the constitution and the American founding; political and electoral processes; institutional structure and function; and, public policy. Non-majors only. Pr.: POLSC 325.

POLSC 545. The Politics of Developing Nations. (3) II. Comparative analysis of politics in emergent states with emphasis on process of modernization and nation building. Pr.: POLSC 110 or 344 or sophomore standing.

POLSC 619. Comparative Agriculture Politics and Policy. (3) I, in even years. Comparative examination of agricultural politics and policy with emphasis on decision making processes and the socio-political impacts of agricultural policy. Pr.: POLSC 110, 344, or junior standing.

POLSC 621. West European Politics. (3) I. Comparative analysis of British, French, German, and Italian democracies, political systems. Pr.: POLSC 344.

POLSC 622. Latin American Politics. (3) I. Comparative analysis of selected political systems of Latin America emphasizing political inputs, political organization, and political outputs. special consideration is given to problems of political change. Pr.: POLSC 110 or 344 or junior standing.

POLSC 623. South Asian Politics. (3) I, in odd years. Analysis of selected political systems of South Asia. Pr.: POLSC 344, 505, or junior standing.

POLSC 624. Middle East Politics. (3) II. Comparative analysis of selected political systems in the Middle East including nationalism and the conflict of differing ideologies. Validity and usefulness of various theories of political development are tested. Pr.: POLSC 110, 344, or junior standing.

POLSC 625. East Asian Politics. (3) II. Comparative analysis of selected political systems in East Asia, including consideration of the democratization process in the region. Pr.: POLSC 110, 344, or junior standing.

POLSC 626. African Politics. (3) Comparative analysis of selected political systems of sub-Sahara Africa, including consideration of problems of nationalism and development. Pr.: POLSC 110, 344, or junior standing.

POLSC 627. Eastern and Central European Politics. (3) II. Examination of comparative politics and policy in the countries of Easter and Central Europe. Pr.: POLSC 344.

POLSC 629. Development Policy and Administration. I, in odd years. Comparative examination of development policy, politics, and administration. Pr.: POLSC 110, 344, 377, or POLSC 507.

POLSC 630. Politics of Russia and the Former Soviet Union. An overview of the major factors influenicing the evolution of politics in Russia and the Soviet Union. Special emphasis is placed on the problems associated with the transition from a communist to a non-communist more democratic policy. Pr.: POLSC 344.

POLSC 641. Global Security Threats. (3) I. Analysis of global threats to the security of societies and individuals emphasizing issues outside the traditional scope of international relations theory.

POLSC 707. Comparative Administrative Systems. (3) I. Comparative analysis of public administration concepts and the morphology of administrative systems. Included are U.S., British,and French models and attempts by Third World countries to adapt these to their local cultures. Pr.: POLSC 344 or 507.

POLSC 731. Comparative Civil-Military Relations. (3) I. A look at civil-military relations in the U.S., Russia, Germany, and Spain. Primary focus will be on understanding the political role of the military in totalitarian, authoritarian, and democratic states. Pr.: POLSC 110, 344, or senior standing.

International relations

POLSC 543. American Foreign Policy. (3) II. Examination of American external relations since 1945 and evaluation of processes involved in the formulation and conduct of contemporary foreign policy of the United States. Pr.: POLSC 325 or 333.

POLSC 645. International Politics of Europe. (3) II. Relationships among the countries of Europe since World War II. With emphasis on efforts to create a more unified European Community. Among the organizations that will be studied are the former Warsaw Pact, NATO, the European Parliament, and the European Union. Pr.: POLSC 333.

POLSC 647. International Law. (3) Theories of international law, and general problems, such as: recognition, responsibility, war crimes, sources, evidence, codification, and settlement of disputes. Pr.: POLSC 333, 541, or junior standing.

POLSC 649. International Defense Strategies. (3) I. Contemporary international strategies and defense policies with emphasis on nuclear, conventional, and guerrilla war, arms control and disarmament, diplomatic and political roles of the military. Pr.: POLSC 333, 541, or junior standing.

POLSC 651. International Organization. (3) Structure, functions, values, and effectiveness of international organizations with emphasis on the United Nations, European Union, and other regional arrangements. Pr.: POLSC 333, 541, or junior standing.

POLSC 652. International Politics of South Asia. (3) I. Study of regional problems of South Asia and of international roles and foreign policies of South Asian states. Pr.: POLSC 344 or 623.

POLSC 653. International Politics of the Middle East. (3) I. Consideration of the Arab-Israeli conflict, inter-Arab relations, foreign policies of Middle Eastern states, and the impact of the major foreign powers on the area. Pr.: POLSC 333, 344, or three hours of other social sciences.

POLSC 654. International Politics of Africa. (3) The course analyzes contemporary relations among African countries including economic and political security, border claims, formal and informal economic relations, and regional groupings. The course also examines the relations between African countries, the United States and the former Soviet Union, and between African countries and the former colonial rulers. Pr.: POLSC 334, 344, or junior standing.

POLSC 655. International Politics of Latin America. (3) II. Analysis of international relations of Latin America. Examining theoretical approaches to the study of Latin America's relations, U.S. Latin American relations, and comparative foreign policies of Latin American states. This course also explores special topics such as regional integration and geopolitics. Pr.: POLSC 333 or POLSC 541.

POLSC 742. International Conflict. (3) II. The nature of political conflicts in the world and the "types" of such conflicts. Emphasis is on determining the "causes" of the various conflict types as well as providing the student with a better understanding of the conflict process from political dispute through the escalation stages to war. Pr.: POLSC 333, or instructor permission.

POLSC 754. The Professional Diplomat and Foreign Policy Formulation. (3) I. Present day foreign policy formulation in the United States government, including the role of professional diplomats and foreign affairs specialists in the State Department and embassies abroad, as well as within other U.S. Government agencies. Pr.: POLSC 333.

POLSC 756. International Political Economy. (3) The course introduces students to the political and historical dimensions of the international economy, dimensions that include trade, monetary systems, foreign investment, aid, dependency, and global interdependence. This course also examines various theories and practices of the international system, the state, bureaucracies, interest groups, international organizations, bargaining processes, and distributive norms. Pr.: ECON 110 and 120, POLSC 333, 344, and 541, or junior standing.

Political thought

POLSC 661. Political Thought: Classical to Sixteenth Century. (3) I. Systematic study of ideas about law, politics, and government of great philosophers of Western civilization from Greek antiquity to the sixteenth century. Pr.: POLSC 110, 301, or junior standing.

POLSC 663. Political Thought: Since the Sixteenth Century. (3) I. Study of the development of Western political thought from the sixteenth century to the twentieth century. Pr.: POLSC 110, 301, or 325 or junior standing.

POLSC 667. American Political Thought. (3) I. Political ideas underlying the American union, including the doctrine of rights, the nature of union, liberty, property, and democracy. Pr.: POLSC 110, 301, 325 or three hours in other social sciences.

POLSC 671. Modern Political Thought. (3). Study of contemporary political ideas and social thought. Pr.: POLSC 110, 301, 325, or junior standing.

POLSC 672. Ideologies: Their Origins and Impact. (3) II. Explores ideologies, including liberalism, conservatism, socialism, communism, and fascism. Their philosophical origins, transformation into systems of thought with mass appeal, and practical consequences are discussed. The conflict between ideology and philosophy is examined. Pr.: POLSC 110, 301, 325, or junior standing.

POLSC 675. Religion and Politics. (3) II. Focuses on religious life in America and its changing relationship to politics and government. Examination of the American founding as it relates to church/state issues, the controversy over meaning of the First Amendment's establishment and free exercise clauses, and contemporary political agendas of mainline and evangelical churches. Pr.: POLSC 110, 301, 325, or 3 hours in other social sciences.

POLSC 711. Administrative Ethics. (3) I. Ethical issues, approaches, and strategies in public service. Pr.: POLSC 325 or 507 or graduate standing, or consent of the instructor.

Methods, seminars, readings, and problems

POLSC 555. Senior Honors Seminar. (3) Open to senior majors who have attained a 3.0 grade point average in political science.

POLSC 700. Research Methods in Political Science. (3) I. Principles of research design, of measurement of political phenomena, and of methods for collecting and analyzing political data. Pr.: POLSC 325, 333, or 344.

POLSC 701. Computer and Quantitative Analysis in Political Science. (3) II. Advanced data management, data analysis, and computing skills involved in conducting political science and public policy research. Pr.: POLSC 400 or 700.

POLSC 710. Policy Analysis and Evaluation. (3) II. Methods of policy analysis and evaluation. Includes a discussion of the relationship between public policy and the distribution of values in society. Students analyze policies in an area of their choice; e.g., agriculture, business, health, income, trade. POLSC 325 or 507.

POLSC 784. Internship in Government, Public Administration, and Politics. (1-3, Credit/No Credit only) I, II, S. Supervised field work at the international, national, state, and local levels of government or with political parties or other politically oriented voluntary organizations. Pr.: Consent of instructor and a minimum of two courses in political science, at least one of which must be relevant to the internship area.

POLSC 785. Readings in Political Science. (3) I, II. Directed reading and discussion of a selected topic in political science.

POLSC 790. Problems in Political Science. (3) I, II. Students will complete a research project and prepare an original paper under the supervision of a faculty member.

POLSC 791. Topics in Political Science. (3) I, II. Extensive exploration of a specific problem in political thought. American government, comparative politics, international relations, and public administration. May be repeated for a total of 6 hours in two sub-fields. Since topics will cover different areas in political science, prerequisites will be determined by the department as appropriate when the course is offered.

POLSC 799. Pro-Seminar in Political Science. (3) I, II. Study and analysis in various areas of the discipline with emphasis on critical evaluation of political conflicts and issues.

Graduate credit

POLSC 800. Seminar: Scope and Methodology of Political Science. (3) Exploration of theoretical foundations of political science, and critique of various analytical models in the study of political phenomena; construction and application of research designs and techniques.

POLSC 805. Seminar: American Government Problems. (3) I.

POLSC 811. Seminar: International Politics. (3) I.

POLSC 812. Foundations of Security Studies. (3) I, II, S. An interdisciplinary introduction to the major historical developments and scholarly approaches in the fields of military history, international relations, and security studies. Same as HIST 812.

POLSC 813. International Security. (3) I. Surveys traditional issues in the study of international security such as the causes of war, the utility of deterrence, coercion, and engagement, international intervention, and the proliferation of weapons of mass destruction. Attention will also be placed on security and conflict in important regional settings, such as East Asia and the Middle East.

POLSC 814. Terrorism and Transnational Security Issues. (3) I. Introduction to the general aspects of terrorism and counter-terrorism in order to build transnational security. The course examines these issues in terms of forms, causal factors, goals, and consequences. The main objective is to understand terrorism as part of new international security issues such as failed states, environmental degradation, demographic explosion and poverty, conflict in developing world, post-conflict reconstruction, income distribution, humanitarian emergencies, and globalization.

POLSC 815. Research Design and Methodology in Security Studies. (3) II. An exploration of rigorous interdisciplinary methods in history and political science culminating in a piece of original research in Security Studies. Same as HIST 815. Pr.: POLSC 812/HIST 812

POLSC 821. Seminar: Political Thought. (3) II. A study of the history of political philosophy as well as contemporary scholarship. Political philosophy as a subdiscipline of political science and its relevance for other subdisciplines as well as for leadership and administration. Class discussion and research training will focus on textual analysis, or exegesis. Course requirements include a major research paper.

POLSC 831. Seminar: Public Administration. (3) II. Pr.: POLSC 700, 708, 710 and 735.

POLSC 841. Seminar: Comparative Politics. (3) II.

POLSC 842. Seminar: Comparative Ideologies. (3)

POLSC 897. Internship. (Var., C/NC) I, II, S. Directed off-campus employment experience. Must be taken for a total of 3 hours.

POLSC 898. Master's Report. (2, C/NC) I, II, S.

POLSC 899. Master's Thesis. (6, C/NC) I, II, S.

POLSC 900. Advanced Research Methods I. (3) I. The first of a two course methods sequence in security studies. Surveys the role of theory, hypotheses testing, operationalization and measurement, and research design in social science. Case study and historical methods will be given particular attention. Students will also be provided with a brief introduction to quantitative social science analysis.

POLSC 901. Advanced Research Methods II. (3) II. The course is the second in the sequence of two method courses in security studies. It emphasized quantitative analysis in political science and covers regression analysis, violation of regression assumptions, and logit models. The course also introduces students to time series, decision theory, and game theory. Pr.: POLSC 900.

For more information

For additional information and application materials please contact:
Department of Political Science
Kansas State University
226 Waters Hall
Manhattan, KS 66506-4030
785-532-6842
E-mail: polsci@ksu.edu
Home Page: http://www.ksu.edu/polsci

The Department of Political Science offers work leading to the master of arts and master of public administration degrees.

Psychology

Program | Graduate certificate | Admission | Performance standards | Financial assistance | Psychology courses | More information

Head:
Jerry Frieman

Director of graduate studies:
Clive Fullagar

Graduate faculty:

Mark A. Barnett, Ph.D., Northwestern University.

Richard Best (Adjunct), Ph.D., Kansas State University.

Laura A. Brannon, Ph.D., Ohio State University.

Gary Brase, Ph.D., University of California, Santa Barbara.

Mary E. Cain, Ph.D., University of Vermont.

Amy Conner, (Adjunct) Ph.D., Kansas State University.

Thaddeus M. Cowan, (Emeritus) Ph.D., University of Connecticut.

Ronald G. Downey, Ph.D., Temple University.

Jerome Frieman, Ph.D., Kent State University.

Clive J. A. Fullagar, Ph.D., University of Witwatersrand.

Stanley Halpin, (Adjunct) Ph.D., Purdue University.

Richard J. Harris, Ph.D., University of Illinois.

Scott Hemenover, Ph.D., University of Nebraska-Lincoln.

Stephen W. Kiefer, Ph.D., Arizona State University.

Patrick A. Knight, Ph.D., Purdue University.

Lester Loschky, Ph.D., University of Illinois at Urbana-Champaign.

James C. Mitchell, (Emeritus) Ph.D., Ohio State University.

Christy D. Moran, Ph.D., University of Arizona.

Matthew I. Palmatier, Ph.D., University of Nebraska-Lincoln.

Charles C. Perkins, Jr., (Emeritus) Ph.D., University of Iowa.

E. Jerry Phares, (Emeritus) Ph.D., Ohio State University.

Leon Rappoport, (Emeritus) Ph.D., University of Colorado.

Franz Samelson, (Emeritus) Ph.D., University of Michigan.

Donald Saucier, Ph.D., University of Vermont.

James Shanteau, Ph.D., University of California at San Diego.

Michael Tagler, (Adjunct) Ph.D., Kansas State University.

Charles P. Thompson, (Emeritus) Ph.D., University of Wisconsin.

Satoris Youngcourt, Ph.D., Texas A&M University.

Program

Graduate programs in psychology provide professional training leading to the master of science and doctor of philosophy degrees.

Doctoral programs are offered in four broad areas: (1) animal learning/physiological psychology (with concentrations in animal learning/behavior or physiological psychology/behavioral neuroscience), (2) cognitive and human factors psychology (with concentrations in psycholinguistics, judgment and decision making, human factors/engineering psychology, or sensation and perception), (3) social-personality (with concentrations in social, personality, or developmental psychology), and (4) industrial/organizational (with concentrations in human-resources/personnel issues and procedures, organizational behavior and theory).

At the master's level, students may specialize in any of the traditional areas. Students who complete the doctoral program are eligible for a variety of teaching, research, and professional positions in colleges and universities, governmental agencies, and business and industry.

Bluemont Hall houses all departmental facilities on the top two floors. These include offices, a reading room, conference and seminar rooms, equipment storage facilities, photographic darkroom, numerous individual research rooms, group testing rooms, one-way observation suites, an undergraduate laboratory suite, shop facilities, animal running and recording rooms, colony rooms, surgery, histology and microscopy facilities, and a variety of other specialized laboratories, rooms, and support space. Numerous microcomputers as well as printers and terminals connected with the university mainframe computer are also available in the department. The university is equipped with a mainframe computer system for data processing and modeling or simulation studies; remote facilities are readily accessible within the department and at various points across campus. In addition to its own "in-house" facilities, the department has access to a variety of campus woodworking, electronic, metal, and other specialized shops. The University library contains most of the important monographs in psychology, and subscriptions are maintained to most English-language periodicals and a sample of foreign-language journals. The department subscribes to some of the more widely used psychology journals and makes them available to students and faculty in the department's reading room.

Graduate Certificate - Occupational Health

Kansas State University has fully implemented a graduate certificate in occupational health psychology (OHP). The four three-credit hour courses that are required for the completion of the certificate are offered on-line in a distance format. Students can enroll for each class at their conveniece and will be granted the certificate upon completion of the four-course sequence. This involves a proseminar survey of the field, a seminar on key topics, a review of relevant research methods, and a practicum/internship in OHP. Students with prior course work in social science research methods may be granted credit for that requirement. The program has been designed for individuals from a wide variety of social science, psychology, and health related academic backgrounds. Students must have completed a bachelor degree to enroll in the certificate program. All four courses have been approved by the Ameriacan Psychological Association for continuing education credits (45 credits for each course). Students who meet the requirements can enroll in any OHP course without enrolling in the certificate program.

Further information is available at http://www.ksu.edu/psych/graduate_health.htm

Admission

For most students, the attainment of a master's degree requires a minimum of two years beyond the bachelor's degree, the doctorate typically requires two or three years beyond the master's degree. Prerequisites for admission into the graduate program are a superior academic record and background work essentially equivalent to the undergraduate psychology degree at Kansas State University, especially in courses in experimental psychology and statistics. In some cases deficiencies in preparation can be made up after admission to the program. A detailed description of the graduate programs, as well as additional information about financial support, can be obtained by writing to the department.

For admission to graduate study, the university requires an undergraduate grade point average of B or better during the junior and senior years. As additional evidence of competence, the Department of Psychology requires the applicant to submit scores on the Graduate Record Examination (verbal, analytic and quantitative scores are required; and three letters of recommendation (preferably from faculty members at a previously attended institution). Students for whom English is not a native language will not be considered for admission unless they receive a score of 600 or higher on the Test of English as a Foreign Language. A TOEFL scores of less may require remedial English courses.

The Department of Psychology expects all applicants to have met the minimum standards for the bachelor's degree in psychology as recommended by the American Psychological Association. These include 18 semester hours of psychology, or its equivalent, in such courses as research methods, statistics, cognitive psychobiology, personality, etc. Students who wish to concentrate in behavioral neuroscience must have the necessary background in the physical and biological sciences. In some prearranged cases, deficiencies can be made up after enrollment.

All doctoral candidates, regardless of special areas of interest, are expected to obtain a thorough grounding in general psychology, including theory, content, and methods. Such grounding is accomplished in part by requiring all students to take a series of basic core courses in both quantitative and substantive areas of psychology. The first two years of graduate study are typically devoted to a broad survey of the major areas of psychology and the acquisition of certain basic research techniques. The first year of this period is spent primarily in basic courses. During the second year, students begin to satisfy related requirements, complete work on their master's thesis, and begin to develop a major area of professional interest. The third and fourth years of the doctoral program constitute a period of special training during which students are occupied to an increasing extent with pursuing their special research and professional interests. Most of their time is spent in small seminars and directed study. During this time, students must pass a final written examination that covers their major areas of interest, and complete a doctoral dissertation that constitutes an original contribution to the research literature in those areas.

Our graduate training includes an opportunity to gain supervised experience in teaching at the college level. This program provides both course work on pedagogical methods and supervised experience as an instructor for introductory level psychology courses and, later, one or more of the

department's core or service courses. Close interaction between the graduate student and a skilled faculty member is maintained to provide an optimum learning environment. Because most academic positions taken by our graduates involve teaching to a greater or lesser extent, this type of formal training makes our students highly competitive in the job market.

Performance standards

Graduate students' performance is evaluated twice each year in the domains of classroom work, research, and (when appropriate) teaching or research assistantship activities. Each faculty member who has had significant contact with a graduate student during the preceding semester completes a standard evaluation instrument. These are then made available to the student, who is encouraged to consult with faculty and discuss their evaluations. Finally, faculty meet as a group to formally assess each student's individual performance and progress toward a graduate degree.

Financial assistance

Departmental graduate teaching and/or research assistantships are awarded on a competitive basis. They provide stipends ranging from $9,627 to $10,540 for a nine-month period, and carry tuition reductions. They require a commitment to work a maximum of 20 hours each week, assisting one or more faculty members with their classroom duties. This allows students to carry a normal load of 10-12 hours of course work each semester. Graduate research assistantships are comparable to GTAs, except they are funded by individual faculty members' grant or contract funds. The student is assigned to a particular staff member's research project. Course loads and stipends are similar to those of GTAs. In addition, there are several fellowship programs available to outstanding applicants.

Students not supported by the Department of Psychology are often successful in obtaining assistantships elsewhere on campus. For example, recent graduate students have found employment in the Affirmative Action Office, the Center for Student Development, the Division of Continuing Education, the Office of Admissions, the Department of Management, Career and Employment Services, the Department of Marketing, the College of Business Administration, the Office of Institutional Research and Analysis, and the Graduate School.

Psychology courses

Undergraduate and graduate credit in minor field

Note: 500-level psychology courses cannot be taken for graduate credit by students in psychology graduate programs.

PSYCH 505. Abnormal Psychology. (3) I, II, S. An introductory study of behavior pathologies, with emphasis on their etiology and treatment. Pr.: Junior standing; PSYCH 110.

PSYCH 510. Introduction to Behavior Modification. (3) II. Study of the principles of behavior modification and applications to human behavior. Emphasis on the learning principles and research in behavior modification. Pr.: PSYCH 505.

PSYCH 518. Introduction to Health Psychology. (3) II. Psychosocial factors relevant to general health maintenance, recovery from disease or injury, and the achievement of health. Topics include stress-management techniques, personality characteristics associated with disease, cognitive-emotional effects of diet and exercise, and theories of pain and pain management. Concepts of prevention and behavioral medicine are also included. Pr.: PSYCH 110.

PSYCH 520. Life Span Personality Development. (3) I, II, S. Theories and research in the development of personality from infancy through old age. Origins of personality in heredity and early experience, socialization practices, life crises and choices at various stages throughout life, and problems of aging. Pr.: PSYCH 110; sophomore standing.

PSYCH 530. Psychology of Mass Communications. (3) II. The psychological effects of mass communication on behavior and thought, including advertising, stereotyping of women and minorities, effects on children, violence and sex in the media, effects of news on behavior, and the promotion of prosocial behavior through the media. Pr.: PSYCH 110.

PSYCH 535. Social Psychology. (3) I, II. Psychology of the individual in society. Survey of empirical studies and theoretical models of social perception, attitudes, and social behavior (e.g., attribution, ethnic and gender prejudice, conformity). Relationship of these topics to personal and media influence, social mores, and social systems is also included. Pr.: PSYCH 110.

PSYCH 540. Psychology of Women. (3) II. Investigation of psychological processes of women. A developmental sequence with emphasis on major life events for women. Female physiology, early socialization into sex roles, friendship, achievement motivation, sexuality, marriage, childbearing, work, and mental health. Pr.: PSYCH 110.

PSYCH 543. Women's Mental Health Issues. (3) II. Investigates prevalent women's mental health issues such as incidence of depression/anxiety, eating disorders, sexuality, relationship concerns. Also covers the efficacy of traditional treatment modalities and newer therapies that target women's unique mental health needs such as feminist or nonsexist therapies. Pr.: PSYCH 505.

PSYCH 545. Consumer Psychology. (3) I. Survey of psychological principles and facts in perception, learning, attitude formation, personality, etc., as they apply to behavior of consumers. Pr.: PSYCH 110 and junior standing.

PSYCH 557. The Psychology of Ethnic Humor. (3) S, and on sufficient demand. Reviews the structure, dynamics, and social functions of

ethnic humor. Pr.: PSYCH 110 or SOCIO 211.

PSYCH 558. Varieties of Consciousness. (3) I, S. Traditional and contemporary approaches of both Western science and Eastern metaphysics to study of ordinary mind consciousness, unusual states of awareness, and efforts to expand the powers of mind. Topics include sleep, dreaming, biofeedback, meditation, psychoactive drugs, brain area dominance. Pr.: PSYCH 110.

PSYCH 559. Psychological Testing. (3) II. Principles of psychological testing in industrial, clinical/counseling, and research environments. Topics include technical issues such as reliability, validity, norming, selection, placement, discrimination, etc. Also covers procedures for selecting, administering, and interpreting psychological tests. Pr.: PSYCH 110.

PSYCH 560. Industrial Psychology. (3) I, S. Survey of human behavior and psychological principles in an industrial/personnel context. Topics include: recruiting, selecting, and training personnel; evaluating their job performance; conducting job analyses; and implementing compensation strategies. Pr.: PSYCH 110.

PSYCH 561. Laboratory in Industrial Psychology I. (2) I. Supervised experience in personnel psychology including classifications, analysis, and evaluation of jobs. Pr.: PSYCH 560 or conc. enrollment.

PSYCH 562. Laboratory in Industrial Psychology II. (2) II. Additional supervised experience in personnel psychology including interviewing, EEOC regulations, training, and performance appraisal. Pr.: PSYCH 561.

PSYCH 563. Gender Issues in the Workplace. (3) I. Psychological experiences of women and men in the world of work, with emphasis on traditional and nontraditional sex-role behavior, sexual discrimination and harassment, and relevant socialization experiences. Pr.: PSYCH 110.

PSYCH 564. Psychology of Organizations. (3) II. Relationships between individuals, groups, and organizations. How organizational factors contribute to individual behavior, and how individuals affect groups and organizational functioning. Emphasis is on such traditional topics as work motivation, job satisfaction and other attitudes, leadership, communication, socialization, and organization and job design. Pr.: PSYCH 110.

PSYCH 580. Psychology of Sexual Behavior. (3) I, II. Study of psychological determinants and consequences of human sexual behavior; roles of personality, attitudinal and emotional factors will be emphasized. Pr.: PSYCH 110, sophomore standing.

PSYCH 585. Basic Concepts in Clinical Psychology. (3) I. Critical analysis of the profession. Review of theoretical and empirical bases of such areas as intelligence and its measurement, personality and diagnosis, psychotherapy, and other modes of behavioral change. Pr.: PSYCH 110, 505, and 3 additional hours of psychology.

PSYCH 586. Laboratory in Clinical Concepts. (2) I. May be taken only in conjunction with PSYCH 585. Supervised practice in, demonstration of, and orientation to selected psychological techniques and practices. Pr.: Conc. enrollment in PSYCH 585.

PSYCH 587. Field Placement. (1-6) I, II, S. Supervised field experience in an agency or institutional setting in the application of psychological techniques to individuals, groups, or organizations. Regular supervision emphasizes relationship between theory and application and the evaluation of outcomes. Pr.: PSYCH 585 and 586, or 560, 561, and 562 and consent of psychological technician training committee.

PSYCH 599. Problems in Psychology. (Var.) I, II, S. Investigation of selected problems. Pr.: PSYCH 110 and consent of instructor.

Undergraduate and graduate credit

PSYCH 605. Advanced Social Psychology. (3) II. An advanced look at some of the core topics in social psychology (e.g. the self, social influence, personal relationships, prejudice and discrimination, group processes) with a strong emphasis on applying the theory in these areas to current social problems and students' daily lives. Pr.: PSYCH 350. (Psychology majors only.)

PSYCH 620. Psychology of Personality. (3) I. Discussion of different approaches to the study of personality. Pr.: PSYCH 350.

PSYCH 625. Engineering Psychology. (3) I. The role of behavioral factors in the design and operation of machines and equipment. Pr.: PSYCH 110, STAT 330, or 707.

PSYCH 630. Human Neuropsychology. (3) II. Study of brain-behavior relationships in humans. Brief review of human neuroanatomy followed by a major emphasis on brain function in learning, memory, language, and other cognitive behaviors. Also includes an examination of behavioral alterations following brain damage. Pr.: BIOL 198 and PSYCH 110, or consent of instructor.

PSYCH 650. Psychology of Language. (3) I. Experimental study of language, including sentence comprehension and memory, language acquisition and development, speech perception, and effects of context, perception, reasoning, and linguistic structure on processing of language. Pr.: PSYCH 110 and junior standing.

PSYCH 715. Psychology of Aging. (3) II. The psychological aspects of human aging. An analysis of the contributions of experimental, developmental, and personality-social psychology to the study of aging. The psychopathology of aging and psychological intervention strategies are also covered. Pr.: PSYCH 110 or DAS 315 and junior standing.

PSYCH 775. History of Current Trends. (3) II. A review of the contributions of individuals and intellectual movements to the development of modern psychology. A survey of theoretical systems currently of influence. Pr.:PSYCH 110 and 9 additional hours of psychology; senior standing.

PSYCH 790. Topics in Psychology. (Var.) I, II, S. Pr.: PSYCH 110 and consent of instructor.

PSYCH 799. Problems in Psychology. (Var.) I, II, S. Pr.: PSYCH 110 and consent of instructor.

Graduate credit

PSYCH 802. Quantitative Methods in Psychology. (3) I. Examination of the nature of statistical inference in psychological research: hypothesis testing and statistical estimation, including a survey of nonparametric methods; consideration of correlational techniques useful with different kinds of psychological data. Pr.: STAT 330 or equiv.

PSYCH 803. Physiological Psychology. (3) I. An advanced survey of basic technique, theory, and research in the field of behavioral neuroscience, including memory and learning, sensory and motor processes, motivation, and sexual behavior. Pr.: BIOL 198 and PSYCH 110.

PSYCH 804. Industrial/Organizational Psychology. (3) I. Advanced survey of theory and research pertaining to human behavior in work organizations. Topics include selection, training, and evaluation of employees, job analysis and evaluation, work motivation and satisfaction, organizational structure and development, and working conditions. Pr.: PSYCH 560 or 564.

PSYCH 805. Experimental Design in Psychology. (3) II. Introduction to techniques of research planning and experimental design, including critical evaluation of selected experiments. Pr.: PSYCH 802.

PSYCH 806. Psychological Measurement. (3) I. The logic and methodology underlying the construction of psychological measuring instruments from the psychophysical estimate of threshold to the scaling of complex psychological variables. Pr.: PSYCH 110 and STAT 330.

PSYCH 807. Research Methods in Occupational Health Psychology. (3) I, every year. Reviews research methods used in social science with emphasis on occupational health psychology issues. Pr.: STAT 330.

PSYCH 808. Applied Research Methods. (3) II, in even years. Examines research methods and analyses that are used in the applied psychology literature. Focuses on planning and conducting program evaluation. Pr.: STAT 330.

PSYCH 809. Applied Research Methods II. (3) S. Provides students with a detailed knowledge of human resource management research methods and analyses. Focuses on how to plan and conduct research in industrial/organizational psychology. Preparation for the M.S. practicum. Pr.: PSYCH 808.

PSYCH 810. Learning. (3) II. In-depth study of empirical and theoretical research on basic learning principles and their effects on behavior. Pr.: PSYCH 350 or equiv.

PSYCH 812. Perception. (3) II. Various systematic approaches to perception, with emphasis on experimental and quantitative data. The role of perception in affectivity, motivation, and personality theory is stressed. Pr.: PSYCH 350 or equiv.

PSYCH 814. Advanced Cognitive Psychology. (3) I. Study of contemporary trends and research in cognition, including memory, language, problem solving, decision making, and human learning. Pr.: PSYCH 350 or equiv.

PSYCH 816. Psychology of Health. (3) I. Presents psychological research investigating illness and related dysfunction, as well as the promotion and maintenance of health. Provides students with the theoretical, empirical and clinical aspects of health psychology from a number of perspectives, discusses leading research and explores personal and practical implications of this information.

PSYCH 820. Personality Theory and Research. (3) II. A comparative examination of contemporary theories of personality as well as research findings relevant to such theories. Pr.: PSYCH 620 or equiv.

PSYCH 825. Judgmental Processes. (3) I. Examination of empirical findings and theoretical approaches to decision making and judgment with emphasis on higher cognitive processes. Pr.: PSYCH 350 and 802.

PSYCH 830. Pro-Seminar in Social Psychology. (3) I. Discussion of empirical findings and theoretical approaches to selected problem areas, such as attitude change, personality and social structure, person perception, small group processes. Pr.: PSYCH 535.

PSYCH 840. Proseminar in Occupational Health Psychology. (3) I, in odd years. Survey of occupational health issues for first or second year graduate students in health and related fields. Pr.: STAT 330.

PSYCH 841. Seminar in Occupational Health Behaviors. (3) I, in even years. Focuses on organizational and individual prevention and coping behaviors relevant to work-related health problems. Pr.: PSYCH 840.

PSYCH 842. Practicum in Occupational Health Psychology. (3) II, in odd years. Provides supervised practical experience with occupational health problems in various business, manufacturing and government settings. Students will prepare evaluative analyses of their assigned sites. Pr.: PSYCH 840 and PSYCH 841.

PSYCH 860. Practicum in Psychology. (Var.) I, II, S. Supervised practical experience in applied psychology. Pr.: Consent of instructor.

PSYCH 870. Practicum in Teaching Psychology. (1-4) I, II. Supervised experience regularly teaching a college psychology course. May be repeated with consent of supervisory committee. Pr.: Graduate standing in Department of Psychology.

PSYCH 875. Industrial Psychology: Personnel Training. (3) II. An examination of the training of personnel in an organization. Topics include: determination of an organization's training needs, selection and motivation of trainees, design and evaluation of training programs, and examination of several specific strategies for accomplishing the training function. Pr.: PSYCH 560 or equiv.

PSYCH 876. Industrial Psychology: Work Motivation. (3) I. An examination of empirical findings and theoretical approaches to understanding the relationship between worker motivation and job outcomes. Pr.: PSYCH 564 or GENBA 520.

PSYCH 877. Industrial Psychology: Leadership. (3) I. Examination of current leadership theories, research, and practice in the work setting, focusing on situational approaches to leadership, leadership styles, and interactions between personal characteristics and organizational factors. Pr.: PSYCH 564 or equiv.

PSYCH 878. Industrial Psychology: Personnel Selection. (3) II. Examination of theoretical and practical issues in staffing industrial organizations, including recruitment, test validation, and other equal employment opportunity issues (test fairness, adverse impact, etc.). Pr.: PSYCH 560 or equiv.

PSYCH 879. Organizational Psychology. (3) I. An examination of the individual's role in industrial organizations and the effects of organizational variables on the individual worker. Topics include organizational communication, employee socialization, psychological climates of organizations, psychological stress in organizations, group processes and employee performance, and organizational change. Pr.: PSYCH 564.

PSYCH 880. Industrial Psychology: Performance Appraisal. (3) II. Examination of data sources, rating procedures, psychometric criteria for evaluating performance appraisal systems, and models/theories of the performance evaluation process. Pr.: PSYCH 560 or equiv.

PSYCH 899. Master's Research in Psychology. (Var.) I, II, S. Pr.: Consent of supervisory committee.

PSYCH 951. Seminar in Physiological Psychology. (1-3) Selected topics in physiological psychology. May be repeated with consent of supervisory committee. Pr.: Consent of instructor.

PSYCH 952. Seminar in Sensory Processes. (1-3) Selected topics in sensory psychology. May be repeated with consent of supervisory committee. Pr.: Consent of instructor.

PSYCH 953. Seminar in Personality. (1-3) Intensive discussion of current problems of theoretical and empirical interest in the field of personality. May be repeated with consent of supervisory committee. Pr.: Consent of instructor.

PSYCH 954. Seminar in Experimental Psychology. (Var.) Intensive discussion of a problem of current interest based on the class's study of the pertinent original literature. May be repeated with consent of supervisory committee. Pr.: PSYCH 810 or consent of instructor.

PSYCH 956. Seminar in Psychological Measurement. (Var.) Intensive discussion of a problem of current interest, based on the class's study of the pertinent original literature. May be repeated with consent of supervisory committee. Pr.: Consent of instructor.

PSYCH 957. Seminar in Cognitive Processes. (1-3) Selected topics in the study of human thinking and cognition. May be repeated with consent of supervisory committee. Pr.: Consent of instructor.

PSYCH 958. Seminar in Mathematical Models of Behavior. (1-3) Selected topics in mathematical psychology, and applications of mathematical models to behavior. May be repeated with consent of supervisory committee. Pr.: Consent of instructor.

PSYCH 959. Seminar in Social Psychology. (1-3) Emphasis on discussion of advanced topics of current interest in social psychology. May be repeated with consent of supervisory committee. Pr.: Consent of instructor.

PSYCH 960. Seminar in Industrial Psychology. (3) I. Intensive examination of current empirical and theoretical issues in industrial and organizational psychology. May be repeated with consent of supervisory committee. Pr.: PSYCH 560 or equiv.

PSYCH 968. Seminar in Professional Problems. (1-3) Intensive study and discussion of current professional problems in psychology. May be repeated with consent of supervisory committee. Pr.: Consent of instructor.

PSYCH 990. Internship in Psychology. (Var.) I, II, S. Pr.: Consent of the supervisory committee.

PSYCH 999. Ph.D. Research in Psychology. (Var.) I, II, S. Pr.: Consent of supervisory committee.

For additional information and application materials please contact:

Department of Psychology
Kansas State University
492 Bluemont Hall
1100 Mid-Campus Drive
Manhattan, KS 66506-5302
Phone: 785-532-6850
E-mail: psych@ksu.edu

Home Page: http://www.ksu.edu/psych/

Student Records

University Policy | Directory Information | Confidential Information
Withholding Records | Review and Challenge of Records | Transcripts

University Policy

Kansas State University maintains various student records to document academic progress and to record interactions with University staff and officials. To protect each student's rights to privacy and to conform with federal law, the University has an established policy for handling student records.

Interpretation of this policy is based on experience with educational records, and the policy itself may subsequently be modified in light of this experience. Notice of the policy and of a student's rights under federal law is given annually. Copies of this policy are available at the Registrar's Office, 118 Anderson Hall and stated below.

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Directory Information

Certain information concerning students is considered to be open to the public upon inquiry. This public information is called directory information and includes a student's name, local address and telephone number, permanent mailing address, photograph or likeness, e-mail address, college, enrollment status (full/part-time), curriculum, classification, date and place of birth, dates of attendance at K-State, awards and academic honors, degrees and dates awarded, most recent educational institution attended, participation in officially recognized activities and sports, and height and weight of members of athletic teams.

Directory information as defined above will be released for individual students by the Registrar's Office to anyone upon inquiry, unless the student has requested each semester after enrolling that directory information not be released. The student's request to have directory information withheld from the *Campus Directory* (published fall semester) must be submitted for each semester the student is enrolled and should be made at the Registrar's Office (118 Anderson Hall), which will notify other appropriate University offices.

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Confidential Information

With the exception of the information noted above, student records are generally considered to be confidential. The following policies govern access to confidential student records:

1. Each type of student record is the responsibility of a designated University official, and only that person or the dean, director, or vice president to whom that person reports has authority to release the record. The responsible officials are:
    a. Academic records: For graduate students, the Graduate School, Fairchild Hall and the Registrar's Office, Anderson Hall.
    b. Admissions records: For graduate students, the Graduate School, Fairchild Hall.
    c. Financial aid records: Director of Student Financial Assistance, Fairchild Hall.
    d. Business records: Controller's Office, Anderson Hall.
    e. Traffic and security records: Head of the University Police Department, Edwards Hall.
    f. Medical records: Director of the Student Health Service, Lafene Health Center.
    g. Counseling records: Director of University Counseling Services, Lafene Health Center.
    h. Actions of academic standards committees: College dean.
    i. Academic disciplinary records: the Graduate School, Fairchild Hall.
    j. Nonacademic disciplinary records: Dean of Student Life, Holton Hall.
    k. Housing records: Director of Housing and Dining Services, Pittman Building.
    l. Placement records: Director of Career Planning and Placement Center, Holtz Hall.
    m. Evaluations for admission to graduate or professional programs: Dean (of the Graduate School or the appropriate college) or department head.

n. Special academic programs: Faculty member in charge of the program, and dean of the college.

o. Foreign student records: Foreign student advisor, International Student Center.

p. Test scores for College Level Examination Program (CLEP), American College Testing Program (ACT), Miller Analogies Test (MAT), etc.: Director, Academic Assistance Center, Holton Hall.

2. Confidential educational records and personally identifiable information from those records will not be released without the written consent of the student involved, except to other University personnel, or in connection with the student's application for financial aid; or by submitting proof of dependency; or in response to a judicial order or subpoena; or in a bona fide health or safety emergency; or, upon request, to other schools in which the student seeks or intends to enroll; or to the U.S. Comptroller General, the Secretary of H.E.W., the U.S. Commissioner of Education, the Director of the National Institute of Education, the assistant secretary for education, state educational authorities, or state and local officials where required by state statute adopted before November 19, 1974.

3. The responsible official may release records to University personnel who have a legitimate need for the information in order to carry out their responsibilities.

4. All student records are reviewed periodically. Information concerning the frequency of review and expurgation of specific records is available in the Registrar's Office.

5. With certain exceptions, students may review records that pertain directly to them upon request and may obtain a copy of the record at cost, according to the following schedule:

   a. Transcript of academic record: $8 per copy

   b. Medical records (Lafene Health Center): no charge to patient for medical purposes. A charge of $10 or $25 to outside parties with patient release.

   c. Other records: at cost.

   The major exceptions to student review are medical and counseling records. These may be released, however, to other medical or psychological professionals at the written request of the student; and may be inspected by the patient at the discretion of the professional staff. Other exceptions are law enforcement records, private notes of staff members, and financial records of parents.

6. A student may waive the right to review a specific record by submitting in writing a statement to this effect to the official responsible for that record. Examples are recommendations for career placement or admission to graduate study.

7. University personnel who have access to student educational records in the course of carrying out their University responsibilities shall not be permitted to release the record to persons outside the University, unless authorized in writing by the student or as required by a court order. Only the official responsible for the records has the authority to release them.

8. All personal educational information about a student released to a third party will be transferred on condition that no one else shall have access to it except with the student's consent. A record is maintained showing who has had access to student records, and this record is open to inspection by the student.

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Withholding records

In the case of a student who is delinquent in an account to the University or about whom official academic and/or disciplinary action has been taken, the appropriate University official may request that the student's record not be released. The effect of this action is that transcripts, registration forms and diplomas are withheld as well as the process of dropping or adding a course. In order for the action to be rescinded, the Registrar's Office must receive authorization from the official who originally requested the action, indicating that the student has met the obligation.

To contest the withholding of a record, a student must attempt to settle the dispute with the official who requested that the record be withheld. If this attempt to resolve the dispute is unsuccessful, the matter may be resolved in accordance with the process described in the following section. Further information concerning this policy can be obtained from the Registrar's Office, 118 Anderson Hall, 532-6254.

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Review and Challenge of Records

Upon request to the official listed above, a record covered by the act will be made available to the student within a reasonable time and no later than 45 days after the request. Copies are available at the student's expense and explanations and interpretations of the records may be requested from the official in charge. If the official believes that a particular record or file contains inaccurate or misleading information or is otherwise inappropriate, the University will afford an opportunity for a hearing to challenge the record's content. Prior to any formal hearing, the official in charge of the record is authorized to attempt, through informal meetings and discussions with the student, to settle the dispute. If this is unsuccessful, the matter will be referred to the appropriate vice president.

If the student is still dissatisfied, a hearing may be requested. The hearing, conducted by a hearing officer appointed by the president, will be held within two weeks. The student will have the opportunity at the hearing to present any relevant evidence, and a decision will be rendered within two weeks after the hearing. If the result does not satisfy the student, he or she may place a statement in the file.

Complaints

A student who believes the University has not complied with federal law or regulations may send a written complaint to The Family Educational Rights and Privacy Act Office, Department of Education, 400 Maryland Avenue, S.W., Washington, D.C. 20202.

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Transcripts

A transcript is a certified, official copy of a student's permanent academic record. Since the transcript contains confidential information, it cannot be released to anyone other than the student except as follows: If a specific signed request by the student for release to another party or a release in compliance of federal regulations is submitted.

The prepaid fee for a transcript is $8. Payment, in advance, can be made by cash, check, money order (make checks and money orders payable to Kansas State University), VISA, American Express, Discover, or MasterCard. A request for a transcript must be made through the Registrar's Office, 118 Anderson Hall, Manhattan, KS 66506-0114. The telephone number is 785-532-6254; Fax: 785-532-5599. Transcript service will not be provided for a student who has outstanding financial obligations.

There is no additional mailing charge if the transcript is sent by regular mail. Priority mailing charge (continental USA only) is an additional $5 per envelope. Overnight charge (continental USA only) is an additional $15 per envelope. Fax charge is an additional $5 per fax.

The transcript request must include the following:

1. Student's current name, plus any other name or names used while attending K-State.
2. Student's I.D. number (social security number).
3. Student's date of birth.
4. Student's beginning and ending dates of attendance at K-State.
5. The number of transcripts requested.
6. Where the transcript is to be sent (please provide an accurate and complete address). If separate sealed envelop is required for transcript, indicate in request.
7. Transcript fee: $8 per copy, plus additional mail/FAX service if requested.
8. Student's original signature.
9. Student's current home address and daytime telephone number.
10. If transcript is to be held for current semester grade/degree, indicate on request.
11. FAX requests require MasterCard, American Express, Discover, or VISA card number and expiration date.
12. If requesting in person at the Registrar's Office (118 Anderson Hall), you must have your K-State student ID or driver's license for identification purposes.

Transcripts picked up by or sent to the student are stamped "issued to student" and are not accepted as official by some institutions.

All-University Regulations

Students, faculty, and administrators are members of a community dedicated to the growth and development of individuals.

Enrollment at K-State entails responsibilities as well as privileges. Acceptance of and adherence to the following policies is necessary for the protection of the rights of others and the protection and health of the community. Copies of the following policies are available in the Student Handbook, Office of Student Activities and Services in the K-State Student Union and the Office of Student Life in Holton Hall, unless otherwise indicated.

Graduate Student Rights and Responsibilities | Student Conduct | Academic Honesty | University Policies

Graduate Student Rights and Responsibilities

1. Every graduate student has:
    a. Freedom of inquiry, conscience, expression, and association and the right to petition for the redress of grievances.
    b. The right to have any information about his or her opinions and associations unrelated to academic performance or assigned responsibilities that has been acquired by professors or administrators in the course of their work as instructors, advisors, or counselors held confidential at his or her request and not disclosed to others without his or her consent.
    c. Freedom from unfair treatment by faculty or administration in the assignment and evaluation of academic work toward the completion of requirements for a particular course.
    d. The right to due process in the conduct of proceedings pursuant to the provisions of this document or of any proceedings conducted under any other provisions of any other rule or regulation governing Kansas State University.
    e. The right to immunity from reprisal in the form of university disciplinary action or proceedings for seeking redress pursuant to the provisions of this document.
2. Every graduate student is responsible for:
    a. The exercise of applicable rights and freedoms, as enumerated above, in a manner that does not materially and substantially interfere with the requirements of appropriate discipline in the operation of the institution or infringe upon the rights of other students.
    b. Completing the requirements and meeting the standards of any course in which he or she is enrolled.

Graduate student grievance procedures

If a graduate student feels he or she has been unjustly treated in some aspect of academic work and has been unable to secure a remedy through consultation with the professor(s) involved, with the supervisory committee, and thereafter with the head of the department or chair of the program, it is the student's prerogative to take the matter to the dean of the Graduate School. If the dean is unable to arrive at a mutually acceptable solution with the persons concerned, at the student's request the dean will initiate the grievance procedures adopted by the Graduate Council and described in the Graduate Handbook.

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Student Conduct

Philosophy of student conduct

The purpose of discipline in the university setting is to educate students about the consequences of their behaviors and to protect the rights and interests of the campus community and its members. Students at K-State are expected to abide by university rules and policies pertaining to non-academic conduct. Persons who violate these rules, disrupt the educational process, or violate laws will be held accountable for their actions in part by the K-State judicial program.

The following principles govern the judicial program: due process will be exercised in all formal hearing procedures to protect the rights of all parties involved; student judicial boards will hear most cases; privacy and confidentiality will be maintained whenever possible; sanctions will be educational in nature; positive outcomes will be sought for all parties. The procedures and regulations for the K-State judicial program are detailed in the Kansas State University Student Governing Association constitution and by-laws and are available free of charge in the Office of Student Activities and Services (OSAS) located on the first floor of the K-State Student Union. They are available online at : http://www.k-state.edu/osas/.

Prohibited conduct

Important definitions of terms describing prohibited conduct are stated in the K-State SGA constitution and by-laws. These documents should be referenced for additional details on prohibited conduct and student rights. The following described behaviors constitute misconduct for which

disciplinary procedures will be implemented and sanctions will be imposed.

1. Acts of dishonesty, including but not limited to the following:
    a. Furnishing false information to any university official, faculty/staff member, or office.
    b. Forgery, alteration, or misuse of any university document, record or instrument of identification.
    c. Tampering with the election of any organization or student governing body.

2. Disruption or obstruction of teaching, research, administration, disciplinary proceedings, other university activities, including its public-service functions on or off campus, or other authorized non-university activities.

3. Conduct that threatens or endangers the mental or physical health or safety of any person, including, but not limited to, physical abuse, verbal abuse, threats, intimidation, harassment, and coercion.

4. Attempted or actual theft of, or damage to property.

5. Hazing, which is defined as an act which endangers the mental or physical health or safety of a student, or which destroys or removes public or private property, for the purpose of initiation, admission into, affiliation with, or as a condition for continued membership in, a group or organization. Consent by the person hazed shall be no defense to the hazing.

6. Telephone harassment, which shall include:
    a. Making calls containing lewd or obscene remarks.
    b. Making calls intended to harass whether or not conversation ensues.
    c. Making the telephone ring repeatedly with intent to harass.
    d. Making repeated calls in which conversation ensues solely to harass.

7. Failure to comply with directions of university officials or law enforcement officers acting in performance of their duties or failure to identify oneself to these persons when requested to do so.

8. Unauthorized possession, duplication or use of keys, or other devices that provide access to any university premises.

9. Unauthorized presence in or use of university premises, facilities, or property.

10. Violation of university policies, rules or regulations

11. Violation of federal, state, or local law.

12. Unauthorized distribution, use or possession of a controlled substance (as described in Chapter 65, Article 41 of Kansas Statutes Annotated) on University premises or at university sponsored activities.

13. Unlawful use, possession or distribution of alcoholic beverages or violation of the university's Alcoholic Beverage Policy.

14. Illegal or unauthorized possession or use of firearms, explosives, weapons, or dangerous chemicals on university premises or at a university sponsored activity.

15. Intentionally initiating or causing to be initiated, any false report, warning or threat of fire, explosion or other emergency on university premises or at a university sponsored activity.

16. Participation in a campus demonstration which unreasonably disrupts the normal operations of the university and infringes on the rights of other members of the university community; inciting others to disrupt scheduled and/or normal activities within any campus building or area; intentional obstruction which unreasonably interferes with freedom of movement, either pedestrian or vehicular, on campus.

17. Intentionally interfering with the freedom of expression of others on university premises or at a university sponsored activity.

18. Conduct that is disorderly, lewd, or indecent; breach of peace; or aiding, abetting or procuring another person to breach the peace on university premises or at university sponsored activities.

19. Any violation of the stated "K-State Information Technology Usage Policies."

20. Abuse of the SGA Judicial Program, including but not limited to:
    a. Falsification, distortion, or misrepresentation of information.
    b. Disruption or interference with the orderly conduct of a judicial proceeding.
    c. Knowingly initiating a complaint without cause.
    d. Attempting to discourage an individual's proper participation in, or use of, the judicial system.
    e. Attempting to influence the impartiality of a member of a judicial board prior to, or during the course of, the judicial proceeding.
    f. Verbal, written, phone, or physical harassment, and/or intimidation of a member of a judicial board.
    g. Failure to comply with the sanction(s) imposed under this Code.
    h. Influencing or attempting to influence another person to commit an abuse of the judicial system.

21. Misconduct may also include any violation of any rules appearing in the leases and contracts entered into by a student to obtain

accommodations with the Department of Housing and Dining Services.

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Academic Honesty

All academic relationships ought to be governed by a sense of honor, fair play, trust, and a readiness to give appropriate credit for the intellectual endeavors of others when credit is due. K-State's policy on academic dishonesty assures due process and provides guidelines for action in instances where the proper academic relationships and attitudes have broken down.

Any student enrolling at K-State implicitly accepts the university's stipulations concerning academic honesty and the procedures they entail.

Complete copies of the academic dishonesty policy are available from the Office of Student Activities and Servies in the K-State Student Union or can be viewed online at http://www.k-state.edu/academicservices/fhbook/fhxf.html. The policy outlines grievance procedures for all matters of academic dishonesty, grade appeals, or other academic grievances brought by students against faculty members or faculty members against students.

Plagiarism

Plagiarism, taking someone else's intellectual work and presenting it as your own, covers unpublished and published sources. Borrowing another's term paper, handing in a paper purchased from an individual or agency, or submitting papers from a living group, club, or organization files are all punishable as plagiarism.

The standard for attribution and acknowledgement of literary indebtedness is set by each discipline. Students should consult with their department or with recognized handbooks in their field if in doubt.

The guidelines apply to faculty and research assistants in their possible use of students' and colleagues' research and ideas, as well as to students' use of source materials and authorities, and student use of other students' ideas and work.

Other forms of academic cheating

Other forms of academic dishonesty subject to penalties include, but are not limited to, consultation of books, library materials, or notes during a test; use of crib sheets or hidden notes during an examination or looking at another student's test; having a confederate supply of questions or answers from an examination to be given or in progress; having another person stand in on an exam or other graded activity; deliberate falsification of lab results; submission of falsified data; procurement or alteration, without permission, of examinations or other academic exercises; collaborating on projects where collaboration is forbidden; and other forms of academic dishonesty and fraud.

Adjudication and penalties

Guidelines for adjudicating charges of dishonesty are described in the policy.

The minimum penalty for cheating on an examination or paper, if proved, is an F for the assignment; maximum penalty is dismissal from the university. Minimum penalty for cheating on a comprehensive final, if proved, is an F for the course; maximum penalty is dismissal from the university.

In a second proved instance of academic dishonesty, suspension from the university is automatic. Dismissal from the university is the maximum penalty.

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University Policies

Students, faculty, and administrators are members of a community dedicated to the growth and development of individuals.

Enrollment at K-State entails responsibilities as well as privileges. Acceptance of and adherence to the following policies is necessary for the protection of the rights of others and the protection and health of the community. Copies of the following policies are available in the Student Activities and Services Office in the K-State Student Union, the Dean of Student Life Office in Holton Hall, and online at http://courses.ksu.edu/catalog/undergraduate/regulations/policies.html.

Advertising, sales, and solicitation

Facilities of Kansas State University are not available for unrestricted use by non-university groups. University property may not be used for commercial purposes except when sponsored by a university-affiliated organization or department. The regulations governing fund-raising and the posting and distribution of literature are available in the Office of Student Activities and Services.

AIDS, ARC, and HIV virus guidelines

Under the direction of the Kansas Board of Regents, the university has developed guidelines to assist students, staff, and faculty members in the event that they have to deal with situations involving acquired immune deficiency syndrome (AIDS), HIV, or AIDS-related complex (ARC). Complete copies of the guidelines are available in the Lafene Health Center.

Alcohol and cereal malt beverage policy

The legal drinking age in Kansas for alcoholic beverages is 21. The Kansas Board of Regents policy permits the use and sale of cereal malt beverages (3.2 beer) under authorized and appropriately controlled conditions and regulations. By state law, the sale of alcoholic liquor is not permitted on state property. Included in the K-State policy (which can be viewed online at http://www.k-state.edu/osas/Documents/2005/2005-06%20handbook.pdf) is information on alcohol and cereal malt beverage consumption in residence halls, at athletic events, and for student organizations.

Drug-free workplace policy

In 1988, Congress passed the Drug-Free Workplace Act. This act applies to all institutions holding and applying for federal grants and contracts. K-State adopted the policy that the unlawful manufacture, distribution, dispensing, possession, or use of controlled substances is prohibited in its workplace.

Facilities usage

K-State facilities are available for use by authorized groups for activities that complement the teaching, research, and service programs of the university. Policies and procedures for use of K-State facilities (other than the K-State Union) are available in the Division of Facilities Management in Dykstra Hall.

Policies and procedures for use of the K-State Student Union are available in the Union Reservations Office on the second floor or in the Handbook for Registered Student Organizations.

Gender

The goal of this policy is to create an environment in which all students, faculty, and staff interact solely on the basis of individual strengths and characteristics without having those interactions shaped by generalizations, stereotypes, or valuations based on gender. Copies are available in the Women's Center in Holton Hall and Affirmative Action Office in Anderson Hall.

Political activity guidelines

All members of the university community are encouraged to take advantage of opportunities to educate themselves regarding the candidates and issues relating to national, state, and local elections. Copies of the university guidelines related to political activities on campus are available in the Office of Student Activities and Services.

Prayer at university functions

Nonsectarian prayers, invocations, benedictions, or silent meditations are permitted at university functions to enhance mutual respect and awareness.

Racial and/or ethnic harassment

Racial and/or ethnic harassment is prohibited by K-State and includes, but is not limited to, verbal, physical, or written behavior directed toward or relating to an individual or group on the basis of race, ethnicity, or racial affiliation. It has the purpose or effect of creating an intimidating, hostile, or offensive work or educational environment; interfering with an individual's work, academic performance, living environment, personal security, or participation in any university-sponsored activities; and threatening an individual's employment or academic opportunities.

Racial and/or ethnic harassment should be reported to the university administrator responsible for the department or unit or to the Affirmative Action Office. For students with complaints of harassment by other students, the dean or associate dean of student life may be regarded as the appropriate administrator. Copies of the policy are available from the Affirmative Action Office in Anderson Hall or online at http://www.k-state.edu/affact/Plan/DiscHarass.htm.

Religious activities

In a pluralistic, multicultural, and interdenominational university environment, freedom of worship is supported. Religious programs and activities must comply with university policies as well as federal, state, and local laws. In keeping with its education mission, the university may specify the time, place, and manner of religious events, but may not regulate their content.

Sexual harassment policy

K-State prohibits sexual harassment and has defined sexual harassment as any behavior that, through inappropriate sexual content or disparagement of members of one sex, interferes with an individual's work or learning environment. This policy applies to the working and learning relationships of all individuals within the university community, including faculty, staff, and students.

Sexual harassment should be reported to the university administrator responsible for the department or unit or to the Affirmative Action Office. For students with complaints of harassment by other students, the Dean of Student Life may be regarded as the responsible administrator. Copies of the Policy Prohibiting Sexual Harassment are available from the Office of Student Activities and Services, departmental offices, or the Affirmative Action Office in Anderson Hall or online at http://www.k-state.edu/academicservices/fhbook/fhxj.html.

Sexual violence

No form of sexual violence will be tolerated or condoned at Kansas State University. This policy prohibits not only those acts commonly understood to constitute "sexual assault," but all attempts to coerce sexual activity as well. The university will investigate acts of sexual violence perpetrated by and/or against students and will respond with appropriate action, which may include suspension or dismissal. Copies of the policy are available in the Women's Center in Holton Hall or the Office of Student Life.

Research Facilities and Centers

Advanced Manfacturing Institute
Beach Museum of Art
Biology Miscroscopy and Image Processing Facility
BioServe Space Technologies
Biotechnology Core Facility
Center for Basic Cancer Research
Center for Gravitational Studies in Cellular and Developmental Biology
COBRE in Epithelial Function in Health and Disease
Dow Chemical Multicultural Resource Center
Electronics Design Laboratory
Food Animal Health and Management Center
Food Science Institute
Geographic Information Systems Spatial Analysis Laboratory (GISSAL)
Hazardous Substance Research Center
Huck Boyd National Center for Community Media
Kansas Center for Agricultural Resources and the Environment (KCARE)
Kansas Center for Rural Initiatives (KCRI)
Kansas Center for Sustainable Agriculture and Alternative Crops (KCSAAC)
Kansas Regents Educational Communication Center
Kansas Water Resources Research Institute (KWRRI)
Konza Prairie Biological Station (KPBS)
Libraries
Nuclear Reactor
Particle Accelerators: J. R. Macdonald Laboratory
Pollution Prevention Institute
Sensory Analysis Center
Small Business Development Center
Small Business Institute
Technology and Aviation
Transportation Research Center

Special Research Guidelines

Special research guidelines are in place for scholarly activities that fall into a variety of categories. These include work involving human subjects, which must be reviewed by a human safety oversight committee, and research involving animals, which must be reviewed by the Institutional Animal Care and Use Committee. Research that is focused on infectious diseases and hazardous chemicals, or which uses recombinant DNA technology, must be reviewed by a biosafety oversight committee. Research involving artifacts that may be of Native American origin are subject to special federal guidelines. Guidelines for all of these activities, and suggestions regarding the appropriate oversight committees, are found in the Office of Research Compliance.

The purpose of a university is to develop and transmit knowledge. Consistent with this purpose, Kansas State University is committed to making ideas and research results available to all who might wish to use them. Therefore, by University policy, classified research may not be carried out under University auspices by any faculty member, staff, or student. Classified research is broadly defined as research in which the purpose, the investigators, the research procedures, or the results are kept secret for an indefinite period of time, and with the control of their release or publication resting in an agency other than the University.

Below is a partial list of research facilities and centers at Kansas State University. For a more complete listing contact Research and Sponsored Programs at 785-532-6195 or website www.ksu.edu/research.

Advanced Manufacturing Institute

Home Page: www.amiksu.org
E-mail: ami@ksu.edu

The Advanced Manufacturing Institute contributes to the economic development in Kansas by helping manufacturers become familiar with and adopt advanced technologies. Through research, technology transfer, and technical assistance AMI helps small and medium-sized manufacturing companies become more competitive nationally and internationally. AMI's interdisciplinary research teams consisting of faculty from various university departments develop technologies vital to manufacturing enterprises.

Clients working with AMI benefit by taking advantage of AMI's professional staff and facilities as well as Kansas State University's faculty expertise and resources to assist them in their manufacturing research and development activities. AMI is a KTEC-funded Center of Excellence. AMI also presents seminars and workshops focusing on advanced technology.

AMI is now a Certified Education Center for the Fabricators & Manufacturers Association, International (FMA). This alliance provides work force training to the metal forming and fabricating industry.

As a Certified Education Center, AMI and FMA can offer industry partners: Customized training programs, training and technical conferences, greater access to advanced technology, programs with equipment demonstrations and hands-on activities, an organized network of renowned experts, expanded offering of FMA benefits and services.

Beach Museum of Art

701 Beach Lane, Manhattan, KS
Home Page: http://www.k-state.edu/bma/
E-mail: beachart@ksu.edu

The Marianna Kistler Beach Museum of Art opened in October 1996. The 26,000 square-foot, award-winning building was designed by Moore/Andersson Architects of Austin, Texas. It was built with private funds, led by the gift of Ross and Marianna Beach of Hays, Kansas. It houses K-State's art collection, which was established in 1928 by Professor John Helm with the purchase of two large oil paintings by the Kansas artist Birger Sandzen. Since that time, the collection has grown to include approximately 4,300 works of art. From the collection's inception, the focus has been on 20th century American art, with a special emphasis on the works of Kansas and regional artists and the works of American printmakers. These features of the collection promise to make the Museum the premier center for the study and appreciation of regional painting and printmaking. Special collections includes works by John Steuart Curry, the photographs of Gordon Parks, the Konza Prairie works of Patricia DuBose Duncan, and prints issued by the Associated American Artists print club.

The 9,000 square-foot gallery area of the Museum features five exhibition spaces for displaying the permanent collection and traveling exhibitions. The Crosby Kemper Educational center houses the 120-seat UMB Theatre and the LouAnn McKinnon Dunn Activity Center. A variety of educational programming is available to the University, public schools, and Manhattan community. The Theatre may be used for lectures, films, seminars and receptions. The Activity Room has been designed for art workshops, family activities, artist demonstrations and small group meetings. A Works Examination Studio allows scholars and visitors to view works of art not on exhibition. Additional resources include artists files, catalogue files, photographic files of the collection, and a lending resource library for teachers. Visit the Museum's web page at www.ksu.edu/bma for more information and to view archived exhibitions.

Museum Hours Tuesday - Friday, 10 a.m.-5:00 p.m.
Saturday - Sunday, 1 p.m.-5:00 p.m.
Closed on Mondays and Holidays
Open on selected Thursdays for public programs
Phone: (785) 532-7718
Admission is free.
Complimentary parking adjacent to the Museum.

Biology Microscopy and Image Processing Facility

Ackert Hall
Home Page: http://www.k-state.edu/biology/bio/microscope/
E-mail: dboyle@ksu.edu

The Biology Microscopy and Image Processing Facility, located in the basement of Ackert Hall, is a fee-for-service facility available to Kansas State University faculty, staff and students, and individuals from state and outside institutions. This modern facility is fully equipped to meet your research microscopy and imaging needs. Individual or small group training and familiarization with equipment and techniques used by electron and confocal microscopist are provided by this facility. Clients can be trained to use equipment at this facility by themselves or request assistance from facility staff members.

BioServe Space Technologies

Home Page: http://www.colorado.edu/engineering/BioServe/
E-mail: terryj@ksu.edu

The Division of Biology, in cooperation with Aerospace Engineering Sciences at the University of Colorado, has been selected by the National Aeronautics and Space Administration to lead BioServe Space Technologies, a NASA Center for the Commercial Development of Space. The division activities are focused on the life science application of the center, which adds a vast new dimension to the scientific education of future generations of students. This space training and research program gives biologists, students training in the animal and plant sciences, engineers and others an awareness of opportunities in space sciences that will intellectually involve them in space missions of the future. Initial research projects are directed towards an understanding of many biological processes in microgravity. Projects also are focused on the application of the space environment in areas of significant market value, such as biotechnology and bioengineered pharmaceuticals, synthetic organ products and high efficiency agriproducts and agrigenetic materials. Faculty scientists and students participating in BioServe Space Technologies have an opportunity to conduct important research by NASA's reduced gravity program on the KC-135 aircraft, as well as on sounding rockets and space shuttles.

Biotechnology Core Facility

Home Page: http://www.k-state.edu/bchem/biotech/

The Biotechnology Core Laboratory was established to provide a number of centralized services to researchers at KSU and elsewhere. Significant university support from the deans of the College of Agriculture and the Graduate School has enabled us to offer a number of services at very competitive rates. Our services include: DNA/RNA oligonucleotide synthesis, peptide/protein synthesis, amino acid analysis, peptide/protein sequencing, peptide mapping, and MALDI-TOF mass spectrometry.

Center for Basic Cancer Research

Home Page: www.ksu.edu/cancer.center
E-mail: rdenell@ksu.edu

The Center for Basic Cancer Research sponsors numerous educational and research programs related to cancer studies at KSU. The center developed a cancer research award program designed specifically for undergraduate students. Funded entirely by private and corporate gifts, these research awards are given to deserving undergraduate students on a competitive basis. An integral part of the cancer center is the Anti-Cancer Drug Laboratory where studies are conducted on the cellular and molecular events associated with tumor promoters which, unfortunately, enhance cancer growth. Support is provided for graduate student and faculty travel, summer stipends, laboratory equipment and supplies. These programs are interdisciplinary in nature and include faculty scientists in biology, biochemistry, chemistry, psychology, laboratory medicine, pathobiology, family services, foods and nutrition, and plant pathology. The unique administrative structure and the quality of the faculty scientists have made this multidisciplinary program both powerful and successful.

Center for Gravitational Studies in Cellular and Developmental Biology

Home Page: http://www.k-state.edu/biology/bio/major/nscort.html

The Division of Biology is the home of the Center for Gravitational Studies in Cellular and Developmental Biology. This center has been funded as a NASA Specialized Center for Research and Training in Gravitational Biology, as the Gravity as a Determinant in Cellular and Developmental Biology NASA-EPSCoR Program, and by individual NASA grants to Center investigators. Research in this center is focused on the potential role of gravity on cell and developmental biology of both plant and animal systems. Investigations are based both on basic sciences and applications for long-term space travel. This center has a major emphasis on graduate and post-graduate training, offering a unique opportunity for student preparation in space life sciences.

COBRE in Epithelial Function in Health and Disease

Homepage: www.vet.ksu.edu/depts/ap/COBRE/
E-mail: marcus@ksu.edu

The College of Veterinary Medicine (CVM) at Kansas State University hosts the COBRE for epithelial function. This multiyear National Institute of Health (NIH) award provides the resources needed to enhance the epithelial research programs of junior basic scientists and clinician scientists at Kansas institutions. The ultimate goal of the COBRE is to assist the junior investigators in their development, and to help them become NIH-funded investigators as rapidly as possible. The COBRE includes seven teams of junior investigators and mentors in the KSU CVM, along with collaborating departments at KSU and the University of Kansas Medical Center. As junior investigators graduate from the program and are successful at obtaining NIH funding, other junior investigator/mentor teams will be actively sought and brought into the COBRE. COBRE programs center on epithelial cell physiology or pathophysiology and provide a strong foundation for translational research. To ensure programmatic success, three core facilities are being established for the center: 1) a state-of-the-art confocal microscope facility; 2) a gene array analysis station; and 3) an epithelial electrophysiology facility.

Dow Multicultural Resource Center

Home Page: http://www.lib.ksu.edu/depts/dowmrc/index.html

The Dow Chemical Multicultural Resource Center (DOWMRC) provides research and instructional services in support of K-State's American ethnic studies program. Research emphasis is placed on the following ethnic groups: African Americans, Hispanic Americans, Native Americans, and Asian Americans.

DOWMRC features a reference collection of encyclopedias, dictionaries, and indexes related to various American ethnic groups; magazines and periodicals; and multicultural and international newspapers. Visitors can view displays showcasing the University's unique multicultural activities and programs.

Nuclear Reactor

Electronics Design Laboratory

Home Page: www.ksu.edu/ksuedl

The Electronics Design Laboratory (EDL) provides full-time engineering support, electronics design and software development for research and teaching at Kansas State University through the design and manufacturer of advanced instrumentation, data acquisition systems, sensors, and other high-end electronics. Established in 1996, EDL eases researchers' access to advanced electronics, assists with integrating electronics technology into research and teaching programs, and aids in electronics technology transfer to users by providing ongoing technical support. EDL works in cooperation with many diverse academic departments, allowing a symbiotic approach to problem solving.

By delegating technical electronics issues to EDL, investigators free themselves to focus more fully on core research objectives.

EDL is headed by an experienced electrical engineer, who supervises a full-time technical staff and a number of graduate and undergraduate interns. More information on EDL capabilities and services can be obtained at our web site.

Food Animal Health and Management Center

Home Page: http://www.vet.ksu.edu/depts/fahm/

The mission of the Center has three principle sectors: (1) to accomplish high quality and timely research directed to the needs of veterinary medicine's constituents in animal agriculture, allied health industries, governmental agencies, and the general public; (2) to build research teams within and outside the Center to efficiently and definitely address research questions; and (3) to educate and train veterinary agricultural scientists. The primary focus of the Center's research is applied on-farm research. However, the Center seeks to build teams with those disciplines, basic and applied, that will assure that its research is both thorough and of high quality. Graduate education is focused on multidisciplinary health and management issues in animal agriculture, e.g., advanced diagnostics, food safety and security, quality assurance and epidemiology.

Food Science Institute

Home Page: www.foodsci.k-state.edu
Email: foodsci@ksu.edu

The Food Science Institute (FSI) was established in 2001 to integrate the wide range of expertise in Food Science at K-State. Approximately 40 faculty in more than a dozen disciples are collectively involved in facilitating undergraduate and graduate academic programs and providing research and technical assistance for the food industries.

State-of-the-art laboratories and pilot plants are available to fulfill research, teaching, and extension missions that address food-related issues. Facilities include bakery, milling, dairy, meat, poultry, egg, thermal, extrusion, fermentation, sensory analysis, and value-added processing/evaluation capabilities. Interaction with other existing institutes, centers, and programs expands the base of expertise needed to address food-related issues.

Geographic Information Systems Spatial Analysis Laboratory (GISSAL)

Home Page: http://www.k-state.edu/geography/research/gissal.htm
Email: gissal@ksu.edu

The Geographic Information System Spatial Analysis Laboratory (GISSAL) at Kansas State University is a multidisciplinary center supporting spatial research, education, and outreach activities at Kansas State University. Established in August 1990 and recognized as a National Center of Digitizing Excellence by the USDA Natural Resource Conservation Service, GISSAL combines faculty expertise and trained graduate and undergraduate student technicians with advanced geospatial technology and sophisticated spatial analysis capabilities.

GISSAL offers a modern computing infrastructure, access to state-of-the-art data visualization tools, and the most powerful GIS, satellite remote sensing, CAD, digital mapping, database, and statistical analysis software packages. Contract services include GIS database design and construction, digital cartographic support and production (including web-servable interactive maps), and customized GIS workshops and software training.

Hazardous Substance Research Center

Home Page: www.engg.ksu.edu/HSRC

Kansas State University leads the consortium comprising the Great Plains/Rocky Mountain Hazardous Substance Research Center which serves Environmental Protection Agency (EPA) Regions 7 and 8. Other member universities are Colorado State, Haskell Indian Nations, Lincoln, Montana State, South Dakota State, and Utah State Universities, along with the Universities of Iowa, Missouri, Montana, Nebraska, Northern Iowa, Utah, and Wyoming. The center was established in 1989 to conduct research pertaining to identification, treatment, and reduction of hazardous substances resulting from agriculture, forestry, mining, mineral processing, and other activities of local interest. In 1994, efforts of principal investigators were broadened to include programs for minority academic institutions, technical outreach services for communities, and research and re-education for displaced military and Department of Defense personnel.

The center has undertaken research in the following areas: studies of soil and water contamination by heavy metals and mining wastes; research on

soil and groundwater contamination from a variety of sources; development of biodegradation and immobilization technology; development of simplified and inexpensive methods for analyzing contaminated soil; hazardous waste minimization; and determination of safe concentration levels of hazardous substances in soil and water.

Diversity of interests in EPA Regions 7 and 8 and the large geographic area represented are further reflected in the training and technology transfer program the center currently supports. Issues of the center newsletter HazTech Transfer have been widely disseminated across the nation; an information clearinghouse at Kansas State University Hale Library has been established and contains over 1,000 publications, including center-funded theses, dissertations, reports, and videos; the center has held annual conferences on hazardous waste research since 1986 with more than 70 papers presented at each conference; and general public environmental information activities are ongoing. Many center publications, including proceedings of the 1995-1999 conferences, are now available on our web site at http://www.engg.ksu.edu/HSRC.

Huck Boyd National Center for Community Media

Home Page: huckboyd.jmc.ksu.edu
Email: huckboyd@ksu.edu

The Huck Boyd National Center for Community Media was founded in 1990 to serve and strengthen the local newspapers, radio stations, cable systems, and other media that play a key role in the survival and revitalization of America's small towns. The center's mission is to assist in sustaining and enhancing the positive qualities of life characteristic of small communities in America through strengthening community media.

Kansas Center for Agricultural Resources and the Environment (KCARE)

Home Page: www.oznet.ksu.edu/kcare
E-mail: kcare@ksu.edu

KCARE provides research and educational programs that help Kansans balance "utilization" and "protection" of natural resources today and into the future. The health and prosperity of future generations depends on a mutually beneficial relationship between agriculture, natural resources, the environment and consumers. The Kansas Center for Agricultural Resources and the Environment was established to coordinate and enhance research, extension, and teaching activities pertaining to environmental issues related to agriculture.

KCARE's roles are to foster interdisciplinary team approaches to solve environmental problems related to agriculture; serve as a liaison for state and federal agencies, non-government organizations and private groups outside K-State; communicate the relationship of agriculture and the environment to producers and the public; and develop financial resources for interdisciplinary research, extension and communications activities at the Center.

Kansas Center for Rural Initiatives

Home Page: www.ksu.edu/kcri
E-mail: kcri@ksu.edu

The purpose of the Kansas Center for Rural Initiatives (KCRI) is to link the resources of the University with rural Kansans. Through KCRI, K-State faculty have worked as technical consultants, evaluators, presenters, researchers, mentors, and facilitators in a broad participatory effort that has assisted in expanding the concept of the "land grant" across the University. To date, more than 300 faculty have worked in various roles with KCRI. KCRI has developed partnerships with Kansas communities in leadership development and community action programs. K-State students work with KCRI to apply their academic knowledge to projects designed by Kansas communities. KCRI has been instrumental in the development of the Kansas Microenterprise Initiative which is a collaborative project between several state agencies, regional planning and development organizations, local communities and counties, and individuals. KCRI is also a jointly funded university center by the Economic Development Administration with the University of Kansas' Policy Research Institute. Support from this project has allowed the two universities to work collaboratively on providing technical assistance to communities through consultations, workshops, conferences and information dissemination and to conduct applied research related to economic and community development in Kansas.

Kansas Center for Sustainable Agriculture and Alternative Crops (KCSAAC)

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KCSAAC was created in 2000 by the Kansas Legislature to facilitate research, education, and outreach related to sustainable agriculture. The future of agriculture must balance agricultural production, use of natural resources, profitability, the environment and the needs of consumers.

KCSAAC's role is to work with university faculty, government agencies and other agricultural groups to educate family farmers on environmental stewardship, boosting family farm profitability, building community support for agriculture, and enhancing rural communities.

Kansas Regents Educational Communication Center

Home Page: www.ksu.edu/ecc

Housed in Bob Dole Hall, the Kansas Regents Educational Communications Center is a state-of-the-art multimedia, video and Internet-based production and distribution facility. Made possible in the late 1980s by a grant from the U.S. Department of Education, its goal is to extend the educational resources of the State of Kansas to its residents and beyond. Center resources and services are designed to support the higher education needs of Kansas State University and the other regents system institutions, as well as interactions with professional associations and business & industry, to nurture economic growth and development in Kansas. These objectives are pursued through a development of multimedia courseware for on-campus and distant learners, live educational programming to public schools nationwide, electronic classroom development for live and asynchronous presentation of courses and review sessions, and both desktop and full-motion video conferencing. Competencies range from CD-ROM, DVD and web-based experience creation to full studio or remote-location analog and digital production, editing and distribution. Campus-based and mobile production and satellite uplink facilities enable multiple production and distribution options and combinations.

Other occupants of Dole Hall include: faculty members from A.Q. Miller School of Journalism and Mass Communications, who teach studio-based and electronic journalism production courses through the use of Center facilities; the television unit of K-State Research and Extension Department of Communications, producing and distributing video information to county agents and their constituents throughout the State; the Kansas Regents Network, operators of an audio conferencing system, as well as Telenet2, the desktop video conferencing network for Kansas.

Kansas Water Resources Research Institute (KWRRI)

The Kansas Water Resources Research Institute is part of a national network of research institutes in every state and trust territory of the U.S. established by law in the Water Resources Research Act of 1964. The network is funded by a combination of federal funds through the U.S. Geological Survey and non-federal funds from state and other sources. The mission of KWRRI is to develop and support research on the high priority water resources problems of the state, to foster the dissemination and application of research results, and to facilitate effective communication amongst water resources professions in Kansas. The mission is accomplished through: 1) Supporting research through a competitive grants program that encourages interdisciplinary approaches, interagency collaboration, scientific innovation, cost-effectiveness, relevance to present and future water resource issues/problems as identified in the State Water Plan, and dissemination and interpretation of results to appropriate audiences; 2) Fostering dissemination and application of results through conferences, briefings, white papers, and/or newsletters; and 3) Facilitating communication through an electronic network. KWRRI currently is administratively under the Kansas Center for Agricultural Resources and the Environment (KCARE) at Kansas State University.

Konza Prairie Biological Station (KPBS)

Home Page: www.ksu.edu/konza
E-mail: konza@ksu.edu

Konza Prairie Biological Station (KPBS) is a 8,600 acre tallgrass prairie preserve owned by The Nature Conservancy and Kansas State University and operated as a field research station by the K-State Division of Biology. The station is dedicated to a three-fold mission of long-term ecological research, education, and conservation. It is a unique outdoor laboratory that provides opportunities for the study of tallgrass prairie ecosystems and for basic biological research on a wide range of organisms and processes. The station is open to scientists and students from throughout the world. It also serves as a "benchmark" for comparisons with areas that have been affected by human activities, and as an environmental education facility for students and the public. KPBS is a member of the Organization of Biological Field Stations and the Association of Ecosystem Research Centers, and is a National Science Foundation Long-Term Ecological Research (LTER) site.

Libraries

Home Page: www.lib.ksu.edu

Kansas State University Libraries provides support for the educational, research, extension and public service objectives of K-State. Staff acquires and maintains the libraries' electronic and print collection needed for the University to achieve its objectives.

K-State Libraries consists of four libraries: Hale Library, known historically as Farrell Library, Weigel Library of Architecture, Planning and Design (Seaton Hall), Fiedler Engineering Library (Fiedler Hall), Math/Physics Library (Cardwell Hall), and Veterinary Medicine Library (Trotter Hall). K-State Salina Library is a cooperating library that shares integrated electronic access systems and databases.

Reference staff provides assistance in helping patrons access materials or information needed. Staff help initiate literature searches and assist with electronic resources. Librarians, in addition to their reference staff duties, serve as subject specialists. Subject librarians, who are knowledgeable of the resources in a specific subject matter, assist patrons with their particular information needs. Subject librarians are available for one-on-one consultations or for groups and classes.

K-State Libraries offers state-of-the-art electronic data information retrieval systems for the catalog and databases unique for K-State's diverse

academic areas. The libraries' web site provides information about its collections and services. An extensive section is devoted to electronic information available to K-State and around the world. Remote access to the libraries' electronic resources are available to K-State students.

The Information Commons is located in Hale Library, the main library. InfoCommons consists of more than 200 computers located on all four floors. The most attractive feature of InfoCommons is that it brings together electronic, print and microform resources. Also, InfoCommons is consistent among all student computing facilities supported by CNS. In addition, InfoCommons has technical assistance on hand to answer questions regarding the computers and application software. Another exciting feature of InfoCommons is the laptop computers available for check out.

Other areas in Hale Library providing information or access services include circulation, interlibrary services, government documents, microforms, science library, and reserves. The Anita C. Lehner 24-hour study area is available on the first floor. Most services available at Hale Library are also available at the branch libraries.

Award-winning Hale Library is impressive with its seven-arch loggia entrance, six and seven-story towers topped with decorative finials. Oak hardwood floors and brass handrails adorn the interior finishes. The carved and etched limestone facings, sculpted metal banisters and door ornamentations depict native Kansas plants, trees, shrubs and wildlife. The largest academic building on campus with nearly 400,000 square feet, centrally located on K-State's Manhattan campus, Hale Library is the academic heart of Kansas State University.

Home Page: www.mne.ksu.edu/reactor.html

The University operates a TRIGA Mark II nuclear reactor and related laboratories. Inherently safe by design, the reactor normally operates at 250 kW, but can be pulsed to peak power levels of 250 MW. Researchers throughout the world use the reactor for neutron activation analysis, neutron radiography, fission track studies, neutron spectroscopy, and isotope geochronology. The reactor is also used for student education and public demonstrations.

Particle Accelerators: J. R. Macdonald Laboratory

Pat Richard, Director
E-mail: richard@phys.ksu.edu
Home Page: www.phys.ksy.edu/area/jrm

Kansas State University operates a national user facility, the James R. Macdonald Laboratory, which is supported by the U. S. Department of Energy. The laboratory has ion sources and particle accelerators that provide highly stripped heavy ions over an energy range of a few eV to the order of 100 MeV. This facility is dedicated to the investigation of the interactions of highly charged heavy ions with atoms, ions, molecules, and surfaces. The equipment available to researchers includes a 7MV tandem Van de Graaff accelerator, a superconducting LINAC (booster/decelerator), an ion source for the production of highly charged low velocity heavy ions (CRYEBIS), a crossed beam ion-ion collisions facility, and five independent multiparameter data acquisition/analysis systems. The laboratory provides high-level technical support to aid users in the design, construction, and implementation of experimental projects. The laboratory is unique in its ability to provide long term access to state-of-the-art complex experimental apparatus related to ion collision studies.

Pollution Prevention Institute

Home Page: www.engg.ksu.edu/enggext/ppi

This institute provices free, confidential technical assistance and training in source reduction and other environmentally sound practices to businesses, regulatory agencies, technical assistance groups, and private citizens throughout the Midwest. The institute also serves as a meeting ground for faculty involved in pollution and other related activities.

Sensory Analysis Center

Home Page: www.sensoryanalysis.com

The Sensory Analysis Center, a part of the College of Human Ecology, is one of the outstanding providers of sensory services in the nation. The Center assists in teaching sensory analysis by providing students with opportunities to gain practical experiences and it provides outstanding research capabilities for university researchers and consumer products industries. Clients of the Center have included researchers on campus from numerous departments, Kansas businesses, and national and international corporations. The Center provides two major types of analyses: 1) descriptive analysis that defines the characteristics of a product or service and the amount or intensity of that characteristics, and 2) consumer evaluation that provides information on benefits, liking, or acceptance or helps to determine what consumers understand about the product, service, or information.

Small Business Development Center

Home Page: http://courses.ksu.edu/catalog/undergraduate/bs/sbdc.html

The Small Business Development Center, one of 10 regional centers in Kansas, offers free one-on-one confidential business counseling for people who wish to start or purchase a small businesses, and existing businesses that wish to develop and market new and existing products.

Small Business Institute

The Small Business Institute links teams of senior business students working under the supervision of a faculty member with local small business owners seeking research and analysis of business problems. The teams then work closely with the business owner and a faculty member to provide assistance in solving those problems.

Technology and Aviation

E-mail: admiss@sal.ksu.edu
Home Page: www.sal.ksu.edu/index.html

The College of Technology and Aviation, located at the Salina campus, provides a comprehensive array of associate and baccalaureate degree programs in engineering technology, aviation, and technology management. Many of the engineering technology programs are TAC/ABET accredited, while the aviation programs maintain FAA certification. The college also engages in cooperative scholarship and creative endeavors with regional and national industry partners.

Transportation Research Center

Home Page: http://www.ksu.edu/roundabouts/home.htm

Faculty members with the Center for Transportation Research & Training perform interdisciplinary mission-oriented research and training concerning national, regional, state and local transportation problems. A major activity is the K-TRAN program which is an ongoing, cooperative and comprehensive research program funded by the Kansas Department of Transportation addressing transportation needs of the state. It utilizes academic and research resources from the Kansas Department of Transportation, Kansas State University, and the University of Kansas. The Center is also a member of the Council of University Transportation Center, a national organization of transportation centers.

Division of Cooperative Extension

Marc A. Johnson, Director
113 Waters Hall
785-532-6147

Agricultural Experiment Station
Associate Director
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Cooperative Extension Service
Richard D. Wootton, Associate Director
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Extension Family and Consumer Sciences

Services and Facilities

K-State Research and Extension is dedicated to a safe, sustainable, competitive food and fiber system and to strong, healthy communities, families, and youth through integrated research, analysis, and education.

K-State Research and Extension provides practical, research-based information and educational programs to address critical issues facing individuals, families, agricultural producers, business operators, and communities.

K-State Research and Extension is organized into the following core mission themes: agricultural industry competitiveness; food, nutrition, health, and safety; natural resources and environmental management; youth, family and community development.

One K-State Research and Extension partner, the Kansas Agricultural Experiment Station (KAES), conducts original research both on and off campus. Twenty-four departments in five colleges are involved. K-State Research and Extension is also strongly allied with the Graduate School in training graduate students; interested graduate students are encouraged to seek research assistantships. Many undergraduate students work for K-State Research and Extension, which greatly adds to the classroom experience. Off-campus research is centered at two research-extension centers, two research centers, and 11 experiment fields in various parts of the state.

The other K-State Research and Extension partner, the Cooperative Extension Service, provides an important learning bridge between the university and the people of the state. It applies scientific knowledge, principles, and practices to the grassroots problems of Kansans. At the same time, this unique information delivery system brings back requests for new knowledge to the research staff at the university.

The Cooperative Extension Service staffs five area offices (two operate as part of a Research/Extension Center) and maintains county extension offices, staffed by off-campus K-State faculty members, in all 105 Kansas counties.

County extension agents, as official representatives of both the United States Department of Agriculture and K-State, are responsible for conducting educational programs in agriculture, family living, youth, community development, and related areas. The agents serve as a local source of information regarding programs of many states and federal agencies, and then help people apply this information to their specific situation.

Information is published in scientific journals; K-State bulletins and national and international conferences; and in popular journals and news releases to the press and radio and television stations. Requests for publications should be sent to the Distribution Center, Umberger Hall.

Agricultural Experiment Station

Western Kansas Agricultural Research Centers: Colby--Garden City--Hays--Tribune
Patrick I. Coyne, Head and Professor

Agricultural Research Center--Hays
Professors Brethour, Harvey, and Martin; Associate Professors Kofoid, Seifers and Stahlman; Assistant Professors Aiken, Thompson and Vanzant.

Investigations are primarily related to plant and animal systems specific to western Kansas, where rainfall is limited. They include beef grazing, feeding, and breeding studies; crop improvement, with special emphasis on wheat, sorghum, pearl millet, and specialty crop improvement; soil management; weed control; plant disease; and insect management.

Northwest Research-Extension Center--Colby
Professor Lamm.

Major areas of research are crop improvement; soil management; irrigation; sheep production; and horticulture.

Southwest Research-Extension Center--Garden City and Tribune
Professor Schlegel; Associate Professors Curry, Norwood and Witt.

Current investigations involve irrigation research; dryland soil and crop management; crop improvement; weed control; insect and other pest control in crops and livestock; soil management; and beef cattle nutrition and management studies.

KSU Southeast Agricultural Research Center
Lyle W. Lomas, Head and Professor

Professors Moyer and Sweeney; Associate Professor Kelley; Assistant Professor Long.

Research focuses on soil and water conservation; crop improvement; weed control; beef cattle grazing investigations; and forages.

Experiment fields and irrigation development farms
The Kansas Agricultural Experiment Station includes 11 experiment fields: Cornbelt (Powhattan), North Central Kansas (Belleville), Irrigation (Scandia), Sandyland Irrigation and Dryland (St. John), South Central Kansas (Hutchinson), Harvey County (Hesston), East Central (Ottawa), and Kansas River Valley Irrigation (Rossville and Silver Lake).

Affiliated agencies

Kansas Water Resources Research Institute
Cooperating with the Water Resources Institute, University of Kansas
William L. Hargrove, Director

The Kansas Water Resources Research Institute conducts basic and applied research on water use and to train scientists in water resources. Representatives of K-State and the University of Kansas participate in institute policy making and research. Research is focused on finding the most effective ways of conserving, using, and distributing available water.

Food and Feed Grain Institute
Roe Borsdorf, Director

The Food and Feed Grain Institute has these goals: to develop effective methods of milling and processing grains; to evaluate and improve the quality and nutritional properties of food grains; to find new uses for grains; and to improve the handling, transporting, storing, and domestic and international use of grains and grain food products. Institute scientists are faculty members of the Departments of Grain Science and Industry, Agricultural Economics, Agricultural Engineering, and personnel of agencies such as the U.S. Grain Marketing Research Center.

Center for Applied Statistics
George A. Milliken, Director

Center for Applied Statistics provides consulting services for scientists associated with the Agricultural Experiment Station.

Kansas Center for Agricultural Resources and the Environment
William L. Hargrove, Director

The Kansas Center for Agricultural Resources and the Environment (KCARE) is an interdisciplinary research and education unit of K-State Research and Extension whose purpose is to provide focus on environmental issues related to agriculture. The center works with faculty from academic departments to provide coordination and support for research and educational activities in natural resources and environmental management. The center also works to garner financial support for programs and serves as a single point of contact for agencies and organizations outside K-State that have interest in natural resource and environmental issues.

Wheat Research Center
Ronald L. Madl, Director

The center supports multi-discipline wheat research programs at K-State. The purpose of the center is to facilitate development of interdepartmental teams to resolve issues facing the wheat industry. The center seeks to expand funding options for wheat programs and serves as a source of information on wheat related topics at K-State.

Plant Biotechnology Center
Robert Zeigler, Director

The Plant Biotechnology Center links scientists in several colleges and departments who use molecular biology and cell and tissue culture to modify the plant genome. The center's mission is to use biotechnology to add quality and value to Kansas products.

The major emphasis is to develop systems, approaches, linkages, and a knowledge base to apply biotechnology to plant improvement. The goals are to enhance yield and product quality for traditional uses and to explore value-added uses for novel markets.

Projects include activities that are immediately important to Kansas agriculture and that have a high probability of success in a relatively short period of time. They also include a component of basic research that will reach application at a later time. An important consideration is work on Kansas plants and plant products that could be designed to better meet the demands of national and international markets.

Cooperative Extension Service

Extension Agriculture, Natural Resources, and Community Development

Daryl D. Buchholz, Assistant Director, Professor

Specialists in several departments of the Colleges of Agriculture and Engineering offer direct educational and technical assistance to citizens throughout the state.

In addition, interdisciplinary programs in water quality; resource use and conservation; community and economic development; value-added processing and production; food, feed, and forage production; animal production and utilization; and farm business and financial management are offered.

Agricultural economics

Daniel J. Bernardo, Head

Farm management
Professors Barnaby and Darling; Associate Professors Jones, Kastens, McEowen, and O'Brien; Assistant Professor Garrett; Administrator Albright; Farm Management Extension Agricultural Economists Allen, Althauser, J. Dawson, R. Dawson, Everson, Freeze, Herbel, Huschka, Manny, Miller, Rowell, Schwarzentraub, Smith, Snyder, D. Stucky, T. Stucky, Thompson, Wahl, Wilken, Witt and Wood. Emeriti: Professors Schlender and Thomas; Associate Professors McReynolds and Parker; Assistant Professor Overley; Administrator DeLano; Farm Management Extension Agricultural Economists Collins, Dickson, Faidley, Germann, Greene, Hackler, Hageman and Mullen.

The extension educational program in farm management is divided into two areas: Kansas Farm Management Association programs and area and state farm management programs.

In the Kansas Farm Management Association program, 24 farm management agricultural economists conduct an intensive educational program with approximately 2,700 Kansas farm families in the six farm management associations.

The extension farm management program is conducted by state specialists and area economists. It is done with in-depth educational programs in cooperation with the county extension agents. The area specialists conduct in-depth workshops in farm business management with farm families, provide a nearby reference resource for agents, and develop educational materials for agent use.

Agricultural policy
Professor Flinchbaugh

The public affairs extension educational program provides educational information on policy issues of current interest. Problems are analyzed, alternatives and consequences examined, and the people are challenged to reach decisions.

The economic information program provides current data on factors affecting farming, business and industrial operations, labor supply and demand, and family living costs.

Extension marketing
Professors Barton, Mintert, and Tierney; Emerita: Professor Walker.

The main projects of marketing include marketing information, agribusiness, and commodity marketing activities. News releases, monthly teleconferences, publications directed to the general public, and special information directed toward specific agricultural audiences are used to disseminate information.

Extension economic development
Professor Darling.

Extension economic development assists communities in development efforts. News releases, publications, and seminars are offered through county extension agents and area community development specialists.

Extension local government and rural health systems
Associate Professor Leatherman.

The extension local government programs provide direct educational assistance in the areas of structure, management, finance, and policy.

Extension agronomy

David B. Mengel, Head
Paul D. Ohlenbusch, State Leader

Professors Devlin, Fjell, Kilgore, Lamond, Mengel, Ohlenbusch, Peterson, Regehr, and Shroyer; Associate Professors Duncan, Eberle, and Staggenborg; and Assistant Professor McVay. Emeriti: Professors Bieberly, Bohannon, and Edelblute.

Extension agronomy conducts a statewide educational program in agricultural crop production and natural resource conservation and protection of natural resources through education and technology transfer that results in improved, stable crop production efficiency. The breadth of the program is in understanding the dynamics of crops, weeds, soils, and water on crop production.

Extension animal sciences and industry

Jack G. Riley, Head
Gerry L. Kuhl, State Leader

Professors Brazle, Kuhl, Penner, Riley, Schafer, Spaeth, and Tokach; Associate Professors Aramouni, Blasi, Boyle, Marston, Nelssen, and Smith; Assistant Professors Beyer and Stokka; Instructor Lee, Emeriti: Professors Adams, Call, Corah, Dunham, Francis, Good, Henderson, Westmeyer, and Zoellner; Extension Assistant Olson.

Extension specialists in animal sciences and industry provide leadership for state programs in beef cattle, dairy cattle, horses, poultry, sheep, swine, meats, dairy products, and wildlife damage control.

Extension biological and agricultural engineering

James K. Koelliker, Head
James P. Murphy, State Leader

Professors Harner, Koelliker, Murphy, Powell, and Rogers; Associate Professor Taylor; Assistant Professor Wolf; Emeriti: Professors Clark, Jepsen, and Wendling.

Extension agricultural engineering conducts an educational program that relates to engineering principles to agricultural concerns including water management, water quality, waste management, food processing, ag safety, pesticide application equipment, and livestock production facilities.

Extension community development programs

Emeriti: Professors Frazier and Norby; Associate Professors Halazon and Sisk.

Extension community development programs help Kansans arrive at group decisions and take actions to enhance their communities as economic, social, service, and living centers. Faculty and major programs in economic development, local government, and land resources are identified in agricultural economics and agronomy programs.

Kansas PRIDE program
Associate Specialist Kahl; Emeritus: Associate Specialist McAdoo.

The Kansas PRIDE Community Improvement Program is a cooperative effort between government, education, and private industry to develop an organizational and leadership structure for community-wide volunteer action. The Kansas PRIDE program is jointly administered by the Kansas State University Cooperative Extension Service and the Kansas Department of Commerce and Housing.

Extension entomology

Sonny Ramaswamy, Head
Randall A. Higgins, State Leader

Professors Bauernfeind, Brooks, Higgins, Lippert, Ramaswamy, and Sloderbeck; Emeritus: Professors Cress, Gates, and Mock.

Extension entomology is concerned with integrated insect and mite management or control for Kansas citizens. Pilot pest management projects are used to introduce and validate integrated approaches to managing pest populations.

Extension grain science and industry

Brendan J. Donnelly, Head
Timothy J. Herrman, State Leader

Associate Professor Herrman; Emeriti: Balding, Schoeff, and Wilcox.

Educational efforts target all sectors of the grain industry and include poeple involved with wheat breeding, production, grain handling, merchandising, processing, baking, feed manufacturing, and regulatory compliance. Two thrusts of this program include grain utilization and processing quality; and flour mill, feed mill, and grain elevator management. Subjects include wheat quality as it relates to milling and baking properties, commercial and on-farm grain storage and quality maintenance techniques, on-farm feed manufacturing, commercial feed processing, grain industry safety and regulatory compliance, plant sanitation, food safety, and grain grading.

Extension horticulture, forestry, and recreation resources

Thomas D. Warner, Head
Charles W. Marr, State Leader

Professor Marr; Associate Professors Barden, Carey, Gast, Janke, and Stevens; Assistant Professor Fagerness; Emeriti: Leuthold, Morrison, and vander Hoeven.

Programs in extension horticulture and landscaping serve persons interested in fruits, nuts, vegetables, flowers, turf, shrubs, ornamental and shade trees, and forest and riparian management.

Extension plant pathology

Robert Zeigler, Head
Douglas J. Jardine, State Leader

Professors Jardine, Tisserat, and Zeigler; Associate Professor Bowden; Instructor O'Mara; Emeriti: Professors King and Willis.

Plant pathology extension specialists provides information about the occurrence and nature of plant diseases and the economic means for their control.

Extension Family and Consumer Sciences

Extension Family and Consumer Sciences

Paula K. Peters, Assistant Director, Associate Professor

Professor Price; Associate Professors Mark, Young and Phillips; Instructor Curry

Educational programs designed to link education with life experience to improve the lives of individuals, families and communities are conducted through family and consumer sciences extension. All programs utilize available research bases and local community wisdom in order to focus work on the most crucial issues affecting Kansas families.

Faculty in several departments within the College of Human Ecology offer educational programs and technical assistance and support to the citizens of Kansas. In addition, they team with faculty from all over campus to provide in-depth programming in areas such as indoor air quality, food safety, health promotion, and nutrition and physical activity.

Extension Apparel, Textiles, and Interior Design

Gwendolyn O'Neal, Head

Associate Professors Munson and Bode

Extension programs in Apparel, Textiles and Interior Design provide support in the areas of indoor air quality, accessible housing, textiles for apparel, and skin cancer prevention.

Extension Human Nutrition

Denis M. Medeiros, Head

Associate Professor Knous; Assistant Professor Higgins

Human nutrition provides support to extension programs including material and child nutrition, nutrition for aging, nutrition for chronic disease prevention, and sport nutrition. Two specially funded programs provide education for those with limited resources.

The Expanded Food and Nutrition Education Program, EFNEP, is a nutrition education program for young limited-resource families. Paraprofessionals under the supervision of extension family and consumer sciences agents conduct individual and small group lessons to help families improve dietary quality. The program is available in designated counties and its special curriculum is available for any county extension agent in the state.

The Family Nutrition Program (FNP) provides nutrition education for those who qualify to receive food stamps. FNP is funded through the USDA food stamp program in collaboration with state and county extension offices. FNP is available in most Kansas counties where the agents and program assistants provide programs on infant feeding, food safety, healthy eating for life, nutrition and physical activity and more.

Extension Family Studies and Human Services

William H. Meredith, Director

Professors Olsen, Smith, and Walker; Associate Professors Bradshaw and Jones

The School of Family Studies and Human Services is committed to improving the lives of children, families and citizens in Kansas through the creation and implementation of quality educational programs, including parenting, family financial management, health, leadership, time management, child care and family relationships.

Extension 4-H Youth Development

Gary W. Gerhard, Assistant Director, Professor

Professors Fisher, Fultz, Gerhard, and McFarland; Associate Professor Adams; Associate Specialist Lindquist. Emeriti: Professors Apel, Bates, Busset, Eyestone, and Redman; Associate Professors Borst, Salmon, and Whipps; Assistant Professor Weaver.

Kansas 4-H, Kansas' largest youth education network apart from the public schools, is the pre-college level education program of the university, conducted in cooperation with local extension councils and the United States Department of Agriculture.

4-H youth development faculty, specialists, staff, and extension agents interpret, extend, and encourage the application of relevant and current information to concerned adults, parents, and community leaders on techniques of working with children and youth so that the children and youth will become self-directing, contributing members of society. Programs help children and youth build self-confidence, develop inquiring minds, learn to make decisions, relate to others, and develop a concern for the community and those in it.

Services and Facilities

Communications

R. R. Furbee, Head

Professors Atkinson, Frank, and Terry; Associate Professors Baker, Boone, Furbee and Ward; Assistant Professor Rutherford; Coordinators Jackson, Melgares, Peavler; Project Manager Morgan; Specialists Anderson, Baldwin, Bale, Ballou, Burton, Camoriano, Hackenberg, Hartman, Havenstein, Holcombe, Kepka, Knapp, Kowalik, Miller, Peter, Peterson, Pryor, Sheffield, Sleichter, Snyder, Soukup, Spencer, Springer, Stadtlander, Staggenborg, Wear, and Wright; Emeriti: Professors Brandsberg, Burke, Graham, Medlin, Thomas, Titus, and Unruh; Associate Professors Buchanan, Jorgensen, McGlashon, and Peck; Assistant Professor Kuehn.

The Department of Communications supports K-State Research and Extension and the College of Agriculture with emphasis on the media and computer-based information technology.

Information is channeled through newspapers, magazines, publications, circulars and posters, printed annual reports, exhibits, slides, computers, radio, and television. Editing, printing, graphics, slides, distribution, and multimedia services are available.

Included in the Department of Communications is the Weather Data Library and KKSU, an institution-owned public radio station on the air at 580Hz. The K-State Radio network is both a live and audiotape service to Kansas commercial radio stations. Television programs are presented on cooperating television stations, provided for extension agents and specialists, and delivered via satellite videoconferences. Support is provided for the College of Agriculture and K-State Research and Extension personnel for their use of computer-based information technology to deliver educational programs and communicate with each other electronically.

Extension field operations

Southwest Area Office
Paul Hartman, Area Extension Director

Professor Sloderbeck; Associate Professors Thompson and Young; Assistant Professors Alam and Huck; Instructors Addison, Dumler, and Frisbie; Director Hartman. Emeriti: Professor Mann; Assistant Professor Blankenhagen.

Northwest Area Office
Reba White, Area Extension Director

Associate Professors Barker and O'Brien; Assistant Professors Johnson and Stockton; Instructor Curry; Director White. Emeriti: Assistant Professors Mikesell and Overley.

South Central Area Office
J.D. McNutt, Area Extension Director

Associate Professors Duncan and Phillips; Assistant Professor Paisley; Instructors Graber and Hinshaw; Director McNutt. Emeriti: Professors Cox and Van Meter; Associate Professors Albright and McReynolds.

Northeast Area Office
James L. Lindquist, Area Extension Director

Associate Professors Mark and Staggenborg; Instructors Christian, Krainbill, Lubben, Mack, Musick, Nolting, and White-Huling; Director Lindquist. Emeriti: Professors Figurski, Francis, and Newsome; Associate Professor Utermoehlen.

Southeast Area Office
Benny s. Robbins, Area Extension Director

Professors Brazle, Kilgore, Price, and Robbins; Instructor Fogleman. Emeriti: Professors Fausett and Lippert; Associate Professor Appleby and Instructor Domsch.

County extension offices

There are extension offices in each of the 105 counties.

Services for Students

Adult Student Services
Alcohol and Other Drug Education Service
Career and Employment Services
Counseling Services
Disability Support Services
Division of Continuing Education
Graduate Student Council
Housing and Dining Services
International Student Center
K-State Student Union
Lafene Health Center
Multicultural Student Organizations
Office of Student Life
Recreational Services
Religious Affairs
Student Activities and Services
Student Government
Women's Center

Adult Student Services

Nancy Bolsen, Director
101 Holton Hall
785-532-6434
E-Mail: old@ksu.edu
Home Page: www.ksu.edu/adult

Adult Student Services assists undergraduate and graduate students who are married, or have children, or are re-entering the educational system after several years, or are 25 years of age or older. Staff members assist students with admission, enrollment and provide information or referrals for housing, child care, refresher and study skills courses, tutoring, financial aid, health insurance, public school enrollment, community family programs, and emergency locator. Staff members work with university and student groups to make their experiences as adult learners at K-State successful ones. Staff also help students with their everyday challenges and special concerns before, during, and after their admission to K-State.

Alcohol and Other Drug Education Service

Bill Arck, Director
214 Lafene Health Center
785-532-6927
Home Page: http://www.k-state.edu/counseling/student/alcohol.htm

The Alcohol and Other Drug Education Service offers information about physical effects and social issues related to alcohol and other drug use or abuse. Campus services provided include media activities such as newspaper ads, posters, brochures, and radio public service announcements; coordination of and participation in awareness events, such as National Collegiate Alcohol Awareness Week; and presentations providing information on alcohol and drug-related topics.

This office can also make referrals to various resources for those with concerns about their own or another's possible alcohol and/or drug use or abuse.

Career and Employment Services

Tracey L. Fraser, Director
Holtz Hall
785-532-6506
Home Page: www.ksu.edu/ces

Career and Employment Services (CES) assists Kansas State University students and alumni with activities related to finding employment. Whether seeking *part-time employment* while attending classes, a *summer* job, a curriculum-related *internship/co-op experience*, or a *full-time career position*, CES can provide assistance. Strong academic programs, capable students, and a campus work ethic combine to give K-State students a distinct advantage over those from many institutions in planning and achieving vocational/professional and graduate study goals.

Career and Employment Services is a centralized service and resource center, containing an extensive, up-to-date job search library, a staff dedicated to assisting you in your job search, and contacts with thousands of employers throughout the country. The office brings together

students, faculty members, and employer representatives seeking college educated personnel. We sincerely believe students utilizing our office will develop a thorough understanding of themselves and the opportunities available upon graduation from Kansas State University. Resources and services available include: Job Vacancy Announcements; Job Search Training Materials covering topics such as: resume preparation, interviewing techniques, and job market trends; Employer Directories; Company Profiles; Salary Information; Prospective Employer Lists; Individual Advising; SEARCH (a candidate referral service); On-Campus Interviews; and Career Fairs.

Counseling Services

Fred Newton,Ph.D., Director
232 Lafene Health Center
785-532-6927
E-mail: ucs@ksu.edu
Home Page: www.ksu.edu/ucs

The Counseling Service is open 8 a.m. to 5 p.m. Monday through Friday. Professional counselors and psychologists assist K-State students with academic, career, and personal concerns. Psychiatric consultation is available through referral from UCS counselors.

The mission of Counseling Services is to provide short-term assistance in areas of decision-making, crisis intervention, problem solution, adjustment, or matters of personal concern that could interfere with academic success. Treatment options include individual, couple, and/or group counseling. Psychological testing may be used as an adjunct to career or personal counseling. In addition, programs using a workshop or seminar format are offered to enhance personal growth and skill development; these may include stress management, biofeedback, or relationship enhancement, among others. When such time-limited service is not sufficient to meet your needs, the staff will help identify referral alternatives within the community.

Consultation by center staff members is offered to individual students, staff, or faculty members concerning their work and living environments. Additionally, the staff is available for class or group presentations and workshops upon request.

Disability Support Services

Gretchen Holden, Director
202 Holton Hall
785-532-6441
E-mail: dss@ksu.edu
Home Page: www.ksu.edu/dss

Disability Support Services (DSS) works to meet the needs of students with physical disabilities, documented learning disabilities and Attention Deficit Disorder by providing supportive services and academic accommodations. Academic accommodations include readers, note takers, and assistance obtaining taped texts. Test taking accommodations, including tests administered with extended time, scribes, orally and in quiet environments, can be arranged through the DSS office. Sign language interpreters are available with sufficient notice. Classes scheduled in inaccessible locations will be relocated for students with mobility impairments upon request. Individualized help with enrollment is available. Staff will work as a liaison with students' instructors.

Special equipment for use by students is located in Hale Library (microforms and periodicals) and includes a Closed Caption or CCTV, Arkenstone Reading Machine, talking calculator, variable-speed tape recorders, and voice recognition software. FM listening systems are available for use during public events at McCain Auditorium, the K-State Union, and Bramlage Coliseum. FM listening systems may be borrowed from DSS for use in classes. Text Telephones (TTY) are available in the Office of Admissions, University Police and the DSS office. A shuttle van, equipped with hydraulic lift, operates on campus between all buildings and is available to students with temporary or permanent physical limitations. Accessible housing is available.

Division of Continuing Education

Elizabeth A. Unger, Vice Provost and Dean of Continuing Education
College Court Building
(785) 532-5566
Home Page: www.dce.ksu.edu

The Division of Continuing Education brings together K-State's intellectual resources with learners throughout Kansas and beyond. Classes and programs are provided in many communities by face-to-face instruction or through the use of technology. The university makes use of the Regents Network (TELENET 2), a video-conferencing system, the Regents Educational Communications Center, a video production facility, and multi-media instruction using computer networks. Credit and non-credit programs are offered for those seeking degrees, professional updates, or personal enrichment. For detailed information on offerings call 785/532-5566 or 1-800-432-8222, e-mail info@dce.ksu.edu, or visit www.dce.ksu.edu.

Distance Learning

The Division of Continuing Education offers many courses and degree programs through distance education, using a variety of delivery methods including the World Wide Web, videotapes, audiotapes, TELENET 2, and other technologies. A current listing of distance learning courses can be found on the web at www.dce.ksu.edu/dce/distance/

K-State offers the following graduate degree programs through the Division of Continuing Education:

Distance Learning Master's Degree Programs
Master's in Agribusiness

http://www.mab.ksu.edu/

Engineering Degree Programs (electrical engineering, civil engineering, software engineering, chemical engineering and engineering management)

www.dce.ksu.edu/dce/engg/

Master's in Industrial/Organizational Psychology

www.dce.ksu.edu/dce/as/industrialpsych/

Master's in Family Financial Planning

www.dce.ksu.edu/dce/cl/financialplanning/

Master's Degree Programs in Salina
Educational Administration & Leadership

www.dce.ksu.edu/dce/as/edadminleader/

Master's Degree Programs in the Kansas City area, Wichita and Salina
Adult and Continuing Education

www.dce.ksu.edu/dce/as/adulteduc/index.html

Graduate Level Coursework Leading to a Specialty in Elementary/Secondary Education
English as a Second Language Speciality

http://www.dce.ksu.edu/coe/esl.html

Graduate Level Coursework Leading to a Specialty in Elementary/Secondary Education
Classroom Technology Specialty

www.dce.ksu.edu/dce/as/shrtech/

K-State Online

K-State Online is a system K-State faculty and students may utilize for courses on the World Wide Web. K-State Online offers class presentation, messaging and real-time discussion components. Many K-State Online courses use slide shows and audio clips to enhance the online learning experience. In addition, many courses feature interactive discussion sessions that allow students to listen to lectures and respond to professors with questions and comments in real-time.

Any student may create an account on K-State Online by going to the following URL and clicking the "Create An Account" button: http://online.ksu.edu.

K-State Online is a technology tool that has been created as a support tool for mediated instruction at K-State. Other support services for teaching, learning and the use of technology are available for K-State faculty and students through the Information Technology Assistance Center (iTAC), www.ksu.edu/itac/

High School Programs

Each summer K-State offers a number of special programs and courses for high school students on the Manhattan campus. Some of the subject areas offered include architecture, debate, music, band, sports, cheerleading, journalism and others. For a complete listing of these programs contact the Division of Continuing Education, 131 College Court Building, Manhattan, KS 66506, (785) 532-5566, 1-800-432-8222, e-mail info@dce.ksu.edu, or visit www.dce.ksu.edu/dce/summer/.

Summer Courses for K-12 Teachers and Administrators

A special Summer Teacher Brochure provides a comprehensive listing of all on-campus and Division of Continuing Education courses for teachers that are offered June through August. Courses are held on the Manhattan campus, at various locations throughout the state, through distance

learning, and through travel-study trips.

Teachers who wish to take course work at a distance have many choices. Courses are offered via: desktop video network, TELENET 2; videotape; audiotape; World Wide Web; guided study; and on-site throughout the state, including Kansas City, Salina, Topeka, and Wichita.

For a Summer Teacher Brochure contact the Division of Continuing Education, 131 College Court Building, Manhattan, KS 66506, (785) 532-5566, 1-800-432-8222, e-mail info@dce.ksu.edu, or visit www.dce.ksu.edu/dce/as/summerteacher/.

Intersession

K-State conducts its Intersession program during major breaks in the standard academic calendar. There are three Intersessions each year: one in January; one in late May; early June; and one in August. During Intersession, over 50 courses are offered, including both regular and new or experimental courses.

Intersession courses are considered part of the regular K-State course offerings and can fulfill degree requirements. Students are encouraged to consult with their advisors to determine if a particular Intersession course will meet requirements.

Conferences and Non-Credit Programs

Conferences and Non-Credit Programs makes university facilities and resources available to individuals and organizations through the design and management of conferences, short courses, workshops, and special interest programs. Non-credit or professional education is provided to the legal, accounting, veterinary medical, and educational communities on a regular basis. Professional education is an expanding science. For further information, contact Conferences and Non-Credit Programs at 785/532-5575. Look for a current conference and non-credit program listing on the web at http://www.dce.ksu.edu/dce/non-credit2.shtml.

Regents Network (TELENET 2)

Many courses and educational programs offered on the K-State campus are available to the people of Kansas by means of the Regents Network (TELENET 2), a desktop video-conferencing network of educational centers located throughout Kansas linked together via ISDN telephone lines. There are TELENET 2 classrooms in Arkansas City, Belleville, Chanute, Colby, Concordia, Dodge City, El Dorado, Emporia, Garden City, Great Bend, Hays, Hutchinson, Independence, Lawrence, Leavenworth, Liberal, Manhattan, Marysville, Norton, Overland Park, Pittsburg, Pratt, Sabetha, Salina, Stockton, Sublette, Topeka, and Wichita.

Fort Riley Courses

K-State works in cooperation with the Army Education Center to provide the Fort Riley community the opportunity to take university courses. Courses are scheduled at convenient times to assist military personnel and their dependents.

The courses are taught by regular K-State faculty members and allow the pursuit of associate, bachelor's and master's degrees in several academic disciplines. K-State courses offered at Fort Riley are open to all area residents, although military personnel have priority.

K-State maintains an office at Fort Riley staffed by K-State personnel familiar with degree requirements and procedures on acceptance of transfer work. Students are encouraged to meet with these advisors to pursue their academic goals. For additional information contact the K-State coordinator at Fort Riley, 785/784-5930.

IDEA Center

The mission of the IDEA (Individual Development and Educational Assessment) Center is to provide products and services to assist in assessing and improving teaching and learning at the post-secondary level. The Center serves any post-secondary organization or constituency engaged in the teaching-learning enterprise. In its service to external constituencies, the Center's central focus is on providing high-quality services and products that support the evaluation and development of programs and professional personnel. Its purpose is to contribute to the improvement of teaching-learning processes and their outcomes.

The Center was created at Kansas State University and, therefore, has a special relationship with that institution. It is responsible for coordinating the periodic assessment of major on- and off-campus educational programs of K-State, including programs focused on basic skills, the major field, general education, and distance learning.

Graduate Student Council

Home Page: www.ksu.edu/grad/gsc

This body of elected representatives is composed of graduate students from each of the academic departments. Under the leadership of its elected president, the council works with the graduate dean in advancing matters that have campus wide impact on graduate students.

Housing and Dining Services

Charles Werring, Director
Housing and Dining Services
104 Pittman Building
785-532-6453
888-568-5027 (toll free)
Fax: 785-532-6855
E-mail: housing@ksu.edu
Home Page: www.ksu.edu/housing

K-State's Housing and Dining Services provides residence hall living for approximately 3,800 students, a leadership/scholarship house for women and 526 apartments for families, single upperclass undergraduate, graduate and nontraditional students.

Residence Halls

The residence halls are smoke-free environments which provide many lifestyle options for students. Both single gender and coeducational halls are available. In addition to the two academic resource centers, specialty options such as the RESPECT program, intensive study/quiet floors and academic cluster floors provide living styles most often requested by students today. A 9- or 12-month continuous housing option is available in Moore Hall for students who need to stay on campus during scheduled university breaks. Each hall has a different character and varies in size and structure. Most rooms are double occupancy, although some large triples and suites are available. Most halls are accessible for students with disabilities. Requests for reasonable accommodations will be handled on a case-by-case basis.

To begin the process, return the application for a residence hall contract with a nonrefundable $25 application fee ($12.50 for those entering in the spring). Upon receipt, Housing and Dining Services will send a residence hall contract, which when returned with the appropriate payment, will reserve a space in the residence halls. Students pay for their room and board by semester, either by full payment or an installment plan. Assignment is made on a first come, first serve basis, so early application and submission of contract is encouraged. The cost of room and board is set on an annual basis, and is one of the lowest rates in the Big 12.

Jardine Apartment Complex

Student families, single upperclass undergraduate, graduate and nontraditional students may apply for one- and two-bedroom apartments, furnished and unfurnished, at the Jardine Apartment Complex. Early application is recommended since assignments are made on a first come, first serve basis.

These affordable apartments are located on campus. Rent includes gas, water, and trash. A deposit is required. On-site affordable laundry facilities are available. The community center is available to residents and may be rented for private functions. Those residing in the Jardine Apartment Complex use the residents' council to govern community life.

Apartments are partially accessible for people with physical limitations. The department is pleased to work with students and family members on requests for reasonable accommodations.

International Student Center

Donna Davis, Director
785-532-6448
E-mail: intlstucenter@ksu.edu
Home Page: www.ksu.edu/intlstucenter

The International Student Center provides a comfortable, relaxed atmosphere where people wanting to increase their international perspective can always find new friends. The three-building complex has been completely funded by private gifts to the university. The main building opened in 1978 and includes a multipurpose meeting room, dining room, kitchen, and reading lounge. In November 1998 construction was completed on a new Taiwan Wing for international student services. The Taiwan Wing provides space for the Foreign Student Office staff, who have the primary responsibility of assisting all KSU nonimmigrants with their immigration paperwork and related matters. They also provide leadership and support for a variety of programs that promote global awareness and understanding.

In addition to the Taiwan Wing, also completed in November 1998 was renovation of previous office space into what is now called the Korean Room. The Korean Room is a small media center that has computers, a television viewing area, general meeting space, and a small office for the students' International Coordinating Council.

Kansas State University is proud of the very unique International Student Center complex we have on our Manhattan campus. It is one of few such facilities in the U.S. People interested in getting involved with the programs of the International Student Center are invited to call the Foreign Student Office at 785-532-6448 for more information.

K-State Student Union

Bernard Pitts, Executive Director
785-532-6591
Home Page: www.union.ksu.edu/

The K-State Student Union is the campus center for social, recreational, educational, and cultural activities. This 260,000 square foot multipurpose facility opened in March 1956 and is supported only by generated revenue and student fees. The Student Union completed on a $11.5 million renovation in July 2000.

The K-State Student Union was built entirely by student fees. It features a full-service Bookstore; a food service operation that includes Bluemont Buffet, Manchu Wok, Campbell's Soup, Chick-Fil-A, Burger King, Taco Bell, bakery, salad bar, ice cream counter and deli area; catering; and satellite food carts that include the Bookplate Cafe and the Arch Cafe.

The Student Union also has a recreation area complete with bowling, billiards, video games, pro shop, and engraving and metal photo services; a Subway Sandwich Shop; an art gallery; Cat's Den; Computer Store; Hair Salon; full-service campus Commerce Bank; Copy Center; Campus ID Card Center; Postal Center; ATM machines; two auditoriums; and reservation and conference services.

Union Program Council (UPC) is the student volunteer arm of the K-State Student Union. UPC provides more than 350 programs each year for the social, cultural, educational and personal growth of students. The Office of Student Activities and Services is located on the ground floor.

The Union Governing Board is the body that establishes policy under which the K-State Student Union director and staff operate.

Lafene Health Center

Lannie W. Zweimiller, Director
785-532-6544
Home Page: www.ksu.edu/lafene/

The Lafene Health Center is a modern ambulatory healthcare facility designed to provide for most student outpatient health needs. The health center is fully accredited by the Joint Commission on Accreditation of Healthcare Organizations. Students who have paid the health fee as a part of their tuition are eligible for care. Non-student spouses, university conference participants, and other campus visitors may receive care upon payment of a special fee.

Lafene Health Center provides, through a full complement of medical and other professional personnel, a range of services that include special clinics for sports-related injuries, women, and allergies and immunizations, as well as a clinic for general care. Also included are services in health education, nutrition, and physical therapy. The services of a pharmacy, laboratory, and x-ray are available at reduced rates.

The center is staffed by full-time physicians with medical support personnel. When necessary, the student is referred to specialists for treatment at the student's expense.

After regular clinic hours, a student who is ill or injured may receive medical care at a local hospital, at the student's expense. Home visits are not made. The local ambulance service is available, when needed, to transport patients to the appropriate health care facility.

Insurance

It is strongly recommended that all students at K-State carry medical insurance. A State of Kansas Board of Regents-sponsored student health insurance plan is available at special rates. This plan covers most services provided at Lafene Health Center and allows claims for medical expenses if the student requires care away from the campus.

Medical history

K-State requires a complete medical history, including a current immunization record, on all new students or transfer students. This history must be completed on the Kansas State University medical history form and is required prior to provision of non-emergency treatment at the health center. A physical examination is not required, but encouraged, and a copy of this examination assists the staff in evaluating illnesses. If a student has a continuing medical problem, a summary from the attending physician is helpful should treatment at the center be needed. Students receiving allergy injections must furnish instructions from their allergist before injections can be administered at the health center.

Mandatory tuberculosis testing

K-State policy requires tuberculosis testing of students who have visited or reside in countries at risk of the disease. This testing must be completed before those students are allowed to enroll. Further information regarding this policy may be obtained from Lafene Health Center or the Office of Admissions.

Multicultural Student Organizations

Dina Bennett, Coordinator
224 Anderson Hall
785-532-6436

Emphasis is placed on building strong cultural groups that help foster the development of leadership skills and roles for multicultural students on campus; supporting multicultural student organizations, including Asian-American Students for Intercultural Awareness (ASIA), Black Student

Union (BSU), the Hispanic American Leadership Organization (HALO), Native American Student Body (NASB), and other special interest organizations; assisting student organizations in sponsoring programs and activities that bring multicultural leaders and role models to K-State; and heightening multicultural awareness within the community.

Office of Student Life

Pat J. Bosco, Associate Vice President for Institutional Advancement
and Dean of Student Life
122 Anderson Hall
785-532-6237

Carla Jones, Associate Dean
102 Holton Hall
785-532-6432

Scott Jones, Assistant Dean
102 Holton Hall
785-532-6432

Home Page: www.ksu.edu/studentlife/

Student life services, including Admissions, Financial Assistance, Greek Affairs, Housing, K-State Union, New Student Services, Recreational Services, Registrar, and the Associate and Assistant Deans of the Office of Student Life, are coordinated and directed by the associate vice president and dean. These units meet the needs of prospective and enrolled students.

The Office of Student Life is responsible for the Student Governing Association, student activities, the administration of the judicial program for nonacademic misconduct, and student crises. Student activities, Adult Student Services, Religious Affairs, and the International Student Center are supervised and supported by this office. Staff members coordinate assistance to students and families in times of personal crisis and are available to students for general advice, counsel, and assistance with personal problems.

Recreational Services

Raydon H. Robel, Director
101 Chester E. Peters Recreation Complex
Phone: 785-532-6980
E-mail: recservices@ksu.edu
Home Page: www.recservices.ksu.edu/

Recreational Services provides intramural activities, recreational sports, and fitness programs for the campus.

Recognized as one of the best collegiate fitness and recreation facilities in the nation, the Chester E. Peters Recreation Complex houses 14 handball/racquetball courts, two squash courts, three gyms containing 10 basketball courts (convertible to volleyball, badminton, and tennis), a large weight and fitness room equipped with a variety of cardiovascular fitness machines and free weight equipment, aerobic/multipurpose room, two walking/running tracks, combative room, table tennis room, locker rooms, saunas, lounges, and administrative offices.

Outdoor facilities include lighted tennis and handball/racquetball courts, lighted multipurpose playfields, lighted sand volleyball courts, horseshoe pits and a fitness cluster with running trail. Outdoor recreational equipment and camping equipment is available on a rental basis at the Outdoor Rental Center.

The natatorium at the Ahearn Sports Complex has two 25-yard swimming pools, one diving pool with two 1-meter and two 3-meter boards, and a sun deck.

Intramural sports are the scheduled competitive activities of the recreation program. Teams are organized by fraternities, sororities, residence hall floors, and off-campus, co-rec, and faculty/staff groups. More than 40 different intramural activities are offered for competition.

Recreational Services provides student employment for lifeguards, building supervisors, exercise leaders, sports officials, office assistants, and rental/grounds managers.

Religious Affairs

Don Fallon, Coordinator
102 Holton Hall
785-532-6432, 532-7779

The coordinator of religious activities provides information regarding religious activities and organizations on campus and in the community. Pastoral care and counseling are available through this office and by referral. Students may seek counseling regarding relationships, sexuality, death and loss, or other personal and spiritual concerns. Two memorial chapels on campus, Danforth and All Faiths, are available for student worship,

weddings, and private meditation.

Student Activities and Services

Gayle Spencer, Coordinator
K-State Student Union
785-532-6541

The coordinator of Student Activities is housed in the Office of Student Activities and Services (OAS). The OSAS staff assists students in identifying co-curricular activities and avenues of campus involvement designed to complement their formal education.

The coordinator also advises the Student Governing Association, administers the student activity fee, and assists individuals and groups who wish to organize and register their activities on the K-State campus. Leadership workshops are organized annually, and consultation is available for leadership development to interested campus leaders and organizations.

The OSAS oversees the more than 350 organizations that are available to students, faculty, staff, and community members. OSAS provides services for organizations such as workshops, informational materials, assistance with fund raising, and a student organization handbook.

Student Government

Gayle Spencer, Coordinator
K-State Student Union
785-532-6541

The purpose of the Student Governing Association is to help students voice any concerns, suggestions, or grievances they may have. Every student is automatically a member of the Student Governing Association and is represented by a college council (elected by the students in each respective college), by one student senator for each 300 students enrolled in the college, and by the student body president. The student senators and the student body president are elected by the K-State student body each March.

SGA is divided into three branches: legislative, judicial, and executive. The legislative branch consists of student senate and is composed of seven standing committees: academic affairs and university relations, communications, privilege fee, allocations, senate operations, student affairs and social services, and governmental relations. A major function of student senate is the allocation of the student activity fee and the Educational Opportunity Fund, which are collected as part of the tuition payment. These funds are used to assist student and university organizations in providing programming and services for the K-State community.

The judicial branch is overseen by the attorney general and is composed of judicial council, student review board, tribunal, parking citation appeals board, and living group judicial boards.

The student body president, vice president and cabinet make up the executive branch. The president has the responsibility to promote the general welfare of the students and acts as the official voice of the student body to the faculty, administration, and public.

Any organization desiring to become a registered organization must adhere to OSAS and University guidelines. Registered groups may schedule rooms and tables on campus, and post notices on campus bulletin boards.

Graduate Student Council

This body of elected representatives is composed of graduate students from each of the academic colleges. Under the leadership of its elected president, the council works with the graduate dean in advancing matters of campuswide impact on graduate students.

Women's Center

Susan L. Allen, Ph.D., Director
Elizabeth Crain, Victim Advocate
206 Holton Hall
785-532-6444
E-mail: womenscenter@ksu.edu
Home Page: www.ksu.edu/womenscenter/

The Women's Center works with individuals and the KSU community to promote the well-being of K-State students through advocacy, programming, training, information and referral services. The Center works closely with offices and agencies to help women who are in crisis for reasons of violence and abuse. We work closely with the K-State Campaign for Nonviolence and we also provide free self-defense classes for women students. Our staff facilitates presentations on topics relevant to women and we are building a video library that we share with groups. We support students who are undertaking justice- and gender-related research projects and programs. We provide a safe environment for students who want to discuss issues related to sexuality. Our goals are to raise the level of awareness and understanding of issues relevant to women; to motivate both women and men toward improvement of circumstances that adversely affect women; and to help women find and explore options in their lives.

Sociology

Overview | Facilities | Degree programs | Admissions | Assistantships | Proseminar | Graduate handbook | Sociology courses | Anthropology courses | Social work courses | More information

Head:
Betsy Cauble

Director of graduate studies:
W. Richard Goe

Graduate faculty:

Patrick Akard, Ph.D., Kansas.

Michelle Bemiller, Ph.D., University of Akron.

Dana L. Britton, Ph.D., Texas.

W. Richard Goe, Ph.D., Ohio State.

Laszlo Kulcsar, Ph.D., Cornell University.

Brad Logan, Ph.D., University of Kansas.

Gerad D. Middendorf, Ph.D., Michigan State.

M. Antonio Riquelme, Ph.D., California-Santa Barbara.

Robert K. Schaeffer, Ph.D., SUNY-Binghamton.

Theresa L. Selfa, Ph.D., Cornell University.

Ryan E. Spohn, Ph.D., Iowa

Michael Wesch, Ph.D., University of Virginia.

L. Frank Weyher, Ph.D., University of California, Los Angeles.

L. Susan Williams, Ph.D., Connecticut.

Spencer D. Wood, Ph.D., University of Wisconsin-Madison.

Anthropology graduate faculty members:

Janet Benson, Ph.D., Brandeis.

Michael Finnegan, Ph.D., Colorado

Harriet J. Ottenheimer, Emeritus, Ph.D., Tulane.

Harald Prins, Ph.D., New School; Doctoral 1976, Nijmegen, Netherlands.

Lauren W. Ritterbush, Ph.D., Kansas.

Social Work graduate faculty members:

A. Elizabeth Cauble, Ph.D., Minnesota

Janice Dinkel, MSW, University of Kansas.

Jacque E. Gibbons, Ph.D., Washington.

Overview

The primary objective of the graduate program in sociology at Kansas State University is to provide the highest quality graduate training possible for students seeking to become teachers and scholars in the field of sociology or those seeking to enter careers in applied research in government or private industry. The program offers a small student/faculty ratio. Graduate students have a high level of contact with faculty and are provided

with the opportunity to participate in supervised research.

The master's program provides in-depth exposure to sociological theory and methods of research, while providing flexibility in allowing students to design a program to meet their specific needs. It is intended for both students who are seeking to continue on for the Ph.D., and those seeking careers in government, business, or non-profit organizations.

The Ph.D. program offers specialized training in six areas: International and Regional Development, Rural Development, The Sociology of Work and Labor Markets, The Sociology of Gender, Criminology, and Politics, States and Social Movements. All students take core courses in sociological theory and research methods. Graduates will be prepared for academic careers in teaching and research and careers in applied social research.

Facilities

In addition to the university's computing center, the department has its own computer lab with direct access to the university mainframe. There are also microcomputer facilities with word processing, spreadsheet, and data base management systems.

The Population Research Laboratory is a research resource within the department. The department is active in interdisciplinary programs such as Women's Studies, Gerontology, American Ethnic Studies, International Studies, and Latin American Studies.

Degree programs

The master of arts degree requires a minimum of 30 graduate credit hours and normally takes two years to complete. It is offered under three degree options. The thesis option is designed primarily for students continuing on for a Ph.D. in sociology, or seeking a career in sociology. The non-thesis option is designed to provide general sociological knowledge for students seeking careers in government, business, or non-profit organizations. The Master's in Social Analysis option is designed to provide advanced research and analytical skills for students already employed, or those seeking careers in government, business, or non-profit organizations.

The Ph.D. degree requires a minimum of 60 credit hours beyond the master's: 30 hours of course work and 30 dissertation hours. It normally takes three years of full-time work to complete. The course work includes 15 hours of core requirements and 18 hours in two major areas of concentration. Some core requirements can be met at the master's level. All students take preliminary examinations in their two areas of concentration. Preliminary examinations in their theory and methods core are waived if performance in the required courses is sufficient.

Admissions

Transcripts from each college or university attended are required, as are a statement of purpose, three letters of reference, a sample of previous written work, and scores on the general test of the Graduate Record Examination (GRE). Admission decisions will be based on a careful evaluation of the information provided by all of these requirements. International Students must also provide a TOEFL score of at least 550 on the old test or 213 on the new computerized test, plus evidence of financial support as required by the Graduate School. International students must also submit a cashier's check or money order for $55.00 (U.S.) drawn from a bank as an application fee. Domestic students must submit an application fee of $30.00.

The application deadline for financial support is February 1. Announcements of awards of financial support are made in early April. Applications for fall admission without financial support will be considered until August 1 for domestic students and February 1 for international students. The corresponding deadline for the Spring term for both domestic and international students is August 1.

Assistantships

Teaching and research assistantships are available each year. They require approximately 16 hours of work per week. All assistants must be enrolled in 6-12 hours of course work per semester, which can include hours for thesis or dissertation research.

Students awarded assistantships who make normal degree progress can expect to receive support for two years at the M.A. level and three years at the Ph.D. level.

Proseminar

All entering graduate students are required to enroll in the departmental proseminar during their first fall semester on campus. The proseminar is conducted by the graduate coordinator and consists of discussions designed to orient the graduate student to the discipline of sociology as a profession and to the department.

Graduate handbook

Details of the procedures, deadlines, and policies of the department and the graduate school on all matters pertaining to graduate study in Sociology are available in the graduate handbook, Sociology Graduate Study. This is mailed to prospective applicants and is available from the graduate coordinator, or on the department's web site.

Sociology courses

Undergraduate and graduate credit in minor field

SOCIO 500. Sociological Perspectives on Contemporary Issues. (Var.) I, II, S. Analysis of a selected topic of contemporary interest. Topics vary from semester to semester and might include: impact of public policy on rural life; white collar crime; student-athlete education; social change in the Third World. Pr.: SOCIO 211.

SOCIO 504. Political Sociology. (3) II, in even years. An introduction to the principles of political sociology. Processes of political socialization, participation within and outside established organizational channels, recruitment of elites, communication and influence, power, decision making, and policy outputs. Data are presented from a cross-national perspective. Same as POLSC 504. Pr.: SOCIO 211, POLSC 110.

SOCIO 505. South Asian Civilizations. (3) I, in even years. Interdisciplinary survey of the development of civilizations in India, Pakistan, Sri Lanka, Bangladesh, Nepal, Bhutan, and Afghanistan, including geography, philosphy, social, economic, political institutions, and historical movements. Pr.: 3 hours of Social Science or junior standing. Same as GEOG 505, HIST 505, POLSC 505, ECON 505, ANTH 505.

SOCIO 507. Comparative Political Sociology. (3) A survey of the socioeconomic and political dimensions of development in regions such as Latin America, Asia, and Africa. Given the diversity of these regions, the course takes a comparative perspective. Special attention is given to authoritarianism and democratization, U.S. foreign policy, globalization and privatization, free trade, debt crisis, inequality, and social movements. Pr.: SOCIO 211.

SOCIO 510. Social Welfare as a Social Institution. (3) I, II. The development and present status of social welfare in meeting changing human needs and the requirements in other parts of our social system; the analysis of present-day philosophy and functions of social welfare. Same as SOCWK 510. Pr.: SOCIO 211.

SOCIO 511. Comparative Social Theories. (3) I, II. A systematic survey of major theoretical approaches in sociology. The works of Marx, Weber, Durkheim, and other classical theorists are examined, along with selections from major contemporary perspectives such as functionalism, symbolic interactionism, structuralism, critical theory, and feminist theory. Current debates over structure versus agency, postmodernism, and other controversies are considered Pr.: SOCIO 211.

SOCIO 520. Methods of Social Research I. (4) I, II. Treatment of the logic and procedures involved in the formulation of a research problem and the difficulties encountered in conducting research. Examines problems of explanation and prediction, the process of inquiry, elements of the scientific method, the design of research, and analysis in the social sciences.Pr.: SOCIO 211, STAT 330 or equiv. To include 1 credit hour of lab and field research experience.

SOCIO 522. Sociological Field Methods. (3) I, II. Introduction to field/qualitative methods. Includes collection and analysis of data using techniques such as interviewing, observation, and unobtrusive measures. Taking field notes, report writing, and ethical issues are also stressed. Pr.: SOCIO 520.

SOCIO 531. Urban Sociology. (3) II. Growth, development, and structure of the city as determined by geographical, ecological, and social factors; relation of rural and urban communities; problems of the city and various approaches to their solution. Pr.: SOCIO 211.

SOCIO 533. Rural Society. (3) I. A survey of U.S. rural society, including change in agricultural structure, rural demographic shifts, growth of the rural service sector, rural class structure, decline and transformation of rural communities, and linkages to urban society. Examination of selected rural institutions such as education and religion. Pr.: SOCIO 211 or consent of instructor.

SOCIO 535. Population Dynamics. (3) II, in odd years. World population trends and their implications for economic development, public policy, and social and cultural change. The interaction of fertility, mortality, and migration with the size, distribution, and structure of populations in nations and world regions. Pr.: SOCIO 211.

SOCIO 536. Environmental Sociology. (3) II, in even years. The interrelations among human societies, social institutions, and the biophysical environment. Emphasis on the reciprocal links among technological change, economic structure, and the ecological basis of human societies. Pr.: SOCIO 211.

SOCIO 541. Wealth, Power, and Privilege. (3) II. Analysis of social inequality, particularly within the contemporary U.S. Competing explanations for unequal wealth, status, power, etc. Emphasis on explanations related to class, occupational structure, gender, and ethnicity. Pr.: SOCIO 211.

SOCIO 545. The Sociology of Women. (3) Examines patterns of gender in contemporary society and corresponding experiences of women. The course emphasizes both interactional and structural approaches and provides an overview of theoretical work in the field. Paricular attention is paid to how gender interacts with ethnicity, class, and sexuality. Pr.: SOCIO 211.

SOCIO 546. Bureaucracy in Modern Societies. (3) I. The nature and types of bureaucratic organizations in modern societies. Selected aspects of their internal structure, such as peer group and hierarchical relations in organizations, processes of communication, management, and impersonal mechanisms of control. Pr.: SOCIO 211.

SOCIO 561. Criminology. (3) I, II. Addresses basic concepts, theories, and research methods used in the study of crime, with an emphasis on critical perspectives on crime as a social phenomenon. The course provides an overview of the nature and extent of major categories of crime as

well as the integration of current issues dealing with crime. Pr.: SOCIO 361 or 511.

SOCIO 565. Program and Policy Formulation and Analysis. (3) I, II. Examination of policies and programs developed to cope with various social problems. Emphasis will be on analysis of existing programs and policies and the formulation of alternative policies. Attention will be given to policy change through legislative action. Same as SOCWK 565. Pr.: SOCIO 260, 510.

SOCIO 567. Pre-Internship Orientation. (1) I, II. This course prepares students for internship placements. Resumes are written, interview procedures discussed, agency interviews conducted, internships selected, and agency orientation completed. Pr.: SOCIO 520.

SOCIO 568. Criminology and Sociology Internship. (6-9) I, II, S. Supervised field experience in various agencies within the criminal justice systems or other public or private organizations in areas involving applied sociological analysis or practice. Criminology majors wishing to pursue careers in the field of criminal justice are strongly encouraged to complete an internship. General sociology students may take this course under the direction of a faculty member who agrees to serve as their internship advisor. Does not fulfill sociology or criminology elective requirements. Must be taken concurrently with SOCIO 569. Pr.: SOCIO 567.

SOCIO 569. Criminology and Sociology Professional Seminar. (3) I, II, S. Integrates field experience and everyday practices with relevant bodies of sociological and criminological theory and research. Must be taken concurrently with SOCIO 568. Pr.: SOCIO 567.

SOCIO 570. Race and Ethnic Relations in the U.S.A. (3) I, II. This survey of racial and ethnic relations focuses on discrimination and conflict now as well as on background factors of the past to enlarge understanding of dominant and minority groups. Pr.: SOCIO 211.

SOCIO 580. Corrections. (3) I, II. The historical development and current status of the correctional system. Major institutional components include jails, prisons, probation, parolee, and other forms of community corrections. Modern issues such as offender and victim rights and electronic monitoring are also covered. Pr.: SOCIO 561.

Undergraduate and graduate credit

SOCIO 618. Religion in Culture. (3) II, in odd years. The nature of religion and its manifestations in different cultural systems. Same as ANTH 618. Pr.: ANTH 200 or SOCIO 211.

SOCIO 633. Gender, Power, and Development. (3) On sufficient demand. Examination of various models of development and their impact on roles of women and men in various cultures. Emphasis upon Africa, Asia, and Latin America. Comparisons of public, service, and economic sectors, including agriculture, marketing, and industry. Examination of policy issues. Pr.: SOCIO 211 or ANTH 200 and 3 additional hours in sociology or cultural anthropology. Same as ANTH 633.

SOCIO 640. Sociology of the Family. (3) I. Origin and development of marriage customs and systems of family organization; the preparation for family life under present conditions. Pr.: SOCIO 211.

SOCIO 643. Sociology of Religion. (3) I. On sufficient demand. The role of religion as an institution in American society. An assessment of the functions of religion and an exploration of contemporary trends and movements, including information on traditional denominations and emerging sects and cults. Pr.: SOCIO 211.

SOCIO 647. Sociology of Work. (3). Analysis of the world of work, both paid and unpaid. Examines changes that affect the organization of work and the distribution of income, and examines how change alters class, gender, and ethnic relations. Pr.: SOCIO 211 and junior standing.

SOCIO 665. Women and Crime. (3). Nature and extent of criminal offending among women and women offenders' interactions with legal and criminal justice systems; women's victimization, including rape and intimate violence; women workers in the criminal justice system, specifically in law, policing, and prison work, Pr.: SOCIO 561 or SOCIO 545 or other Women's Studies course at the 500-level or above.

SOCIO 670. Diversity and Social Interaction in the Workplace. (3) Intersession. Examines changes in the world of work; examines various contexts of work, such as business, the professions, education, and home; analyzes the social organization of work, both in terms of formal arrangements, such as authority and hierarchy, and in terms of informal structure, such as gender, race, class, and other categories of social difference; provides hands-on experience in dealing with interpersonal relations, management styles, communication, diversity issues, and conflict and stress management. Pr.: 6 hours of social science.

SOCIO 701. Problems in Sociology. (Var.) I, II, S. Pr.: SOCIO 211 and junior standing.

SOCIO 738. Inter-American Migration (3) I, in odd years. Analyzes the migratory experiences of Latin American and Caribbean peoples to the United States within their socioeconomic, cultural, political and historical contexts. Introduces students to the current theoretical debate on migration and the construction of U.S. immigration policies. Examines the ways in which these policies shape migrant flows to the U.S., the incorporation and community formation of immigrants, and the impacts of such communities on the development of U.S. society. Pr.: SOCIO 535 or consent of instructor.

SOCIO 742. Society and Change in South Asia. (3) II, in even years. Examines recent studies of family and community, population, mobility, urbanization, and modernization in the India-Pakistan region, with focus on social change. Pr.: SOCIO 211 or ANTH 200 and either a 500-level course in South Asian studies or one in social change and development.

SOCIO 744. Social Gerontology. An Introduction to the Sociology of Aging. (3) II. Analysis of the phenomenon of human aging in its individual,

social, and cultural aspects with special attention to the problems of aging populations in Western societies. Pr.: SOCIO 211.

Graduate credit

SOCIO 801. Introductory Proseminar. (1) I. Discussions designed to introduce entering graduate students to the discipline of sociology as a profession and to the members of the sociology graduate faculty. Required during the first fall semester on campus. Pr.: Admission to the graduate program in sociology.

SOCIO 802. Teaching Proseminar. (1) I. Designed to aid new graduate teaching assistants. Includes such topics as planning a sociology course, handling sensitive issues, leading discussions in large and small classes, use of audiovisuals, special projects, classroom deportment, designing and grading examinations. Required of first-semester GTAs. Pr.: Interest in teaching sociology and enrollment in the sociology graduate program.

SOCIO 809. Classical Social Theory. (3) I. Intensive seminar in classical sociological theory. Examines the theoretical frameworks and methodologies of Karl Marx, Max Weber, and Emile Durkheim, along with selections from the works of other major classical theorists. Analysis of primary texts will be emphasized. Pr.: SOCIO 511 or equivalent.

SOCIO 810. Contemporary Sociological Theory. (3) II. Comparative analysis of contemporary schools of sociological thought showing their development, current status, and possible future trends. Emphasis on structural functionalism, Marxism and neo-Marxism, symbolic interactionism, phenomenology and ethnomethodology, and exchange theory. A working knowledge of classical sociological theory is assumed. Pr.: SOCIO 710 or equiv.

SOCIO 822. Introduction to Methods of Social Analysis. (3) I. Provides an introduction to the methods and techniques utilized in sociological research. Includes such topics as basic collecting and analyzing sociological data. Pr.: STAT 702 or equiv.

SOCIO 823. Intermediate Methods of Social Research. (3) II. Current sociological research techniques, strategies of research design, construction of research instruments, logic of sociological inquiry, conceptualization, problem formation, and preparation of research proposals. Pr.: Graduate standing.

SOCIO 824. Qualitative Methodology. (3) On sufficient demand. Collection, analysis, and presentation of sociological data using such methods as participant observation, ethnomethodology, community analysis, documentary research and historiography, case study, and life history. Emphasis upon formulation of problems and the execution of research. Pr.: Graduate standing.

SOCIO 825. Quantitative Methods. (3) I. Provides instruction for advanced techniques in the quantitative analysis of sociological data. Includes regression analysis and estimation of models with categorical data. A working knowledge of basic statistical concepts is assumed. Pr.: STAT 702 or equiv.

SOCIO 830. Social Demography. (3) I. The study of human population, including the social, economic, political, ecological, and cultural determinants and consequences of changes in fertility, mortality, and migration. Pr.: Graduate standing.

SOCIO 831. Sociology of Agriculture. (3) II, in odd years. Provides a survey of the subfield of sociology of agriculture, including an examination of its roots, growth and current theoretical and substantive directions. Explores the linkages between agriculture, commodity systems, food and the environment. Pr.: Graduate standing.

SOCIO 832. Sociology of Community. (3) II, in odd years. A survey of theoretical perspectives and current research on the sociology of community in the U.S. and other countries. Examples of issues covered include community growth and decline, social inequality, community power and politics, social implications of community economic change, urbanization, and the global context of local change. Pr.: Graduate standing.

SOCIO 833. Gender Differentiation and Inequality. (3) II, in even years. Offers an analysis of the social construction and reproduction of gender identities. Focuses on current feminist theory and research on the links between gender identities and gender inequality.

SOCIO 835. Environment and Society. (3) II, in even years. The interrelationships among population, technology, environment, and social organization. An examination of the origins and development of human ecology in sociology, and recent attempts to redefine the area. Special emphasis on current theoretical and research efforts focusing on the history and uses of ecological ideas. Pr.: Graduate standing.

SOCIO 840. Comparative Social Systems. (3) I, in even years. Compares social systems in different regions of the world. Examines models of comparative and historical sociology. Provides students with a background for conducting and evaluating comparative research. Treats such issues as socioeconomic development, group relations, and age and sex roles from a cross-cultural perspective. Pr.: Graduate standing.

SOCIO 841. Social Stratification. (3) I. Survey of major sociological theories and research on inequality in modern societies. Examines the distribution of wealth, status, political power, and other valued resources; the effects of class, race, gender, and other modes of social differentiation; social mobility and the reproduction of inequality. Pr.: Graduate standing.

SOCIO 842. Technology and Social Development. (3) II, in even years. Provides a survey of theoretical perspectives and current research on the role of technology in social development. Pr.: Graduate standing.

SOCIO 850. Social Control. (3) Analysis of social and institution processes and mechanisms of social control: socialization, role allocation, systems of social sanctioning, growth and dynamics of institutional systems of social control emphasizing its character at the institutional and societal

level of analysis. Pr.: Graduate standing.

SOCIO 851. Social Change. (3) II, in odd years. Examination of the processes and mechanisms of societal change. Attention centers on current theoretical, methodological, and research issues. Pr.: Graduate standing.

SOCIO 853. Political Sociology of Developing Societies. (3) I. A comparative introduction to the state, power and political processes in developing nations. Topics include theories of the state and state reformation, the relationship between the state and civil society, state violence, authoritarian regimes, processes of formal democratization, effects of globalization, impact of socio-economic inequality on governance. Pr.: SOCIO 809.

SOCIO 861. Sociology of Deviance. (1) I, in odd years. A critical examination of the nature, types, and societal reactions to deviant behavior. Special emphasis will be given to the process of stigmatization, the social construction of deviance as a social problem, and the effect of inequalities such as race, gender, class, and sexuality on the process of creating and applying deviant labels to individuals and groups. Pr.: 9 hours social science credit.

SOCIO 862. Criminological Theory. (3) II, in odd years. Focuses on traditional and contemporary criminological theories with secondary emphasis on presentation of empirical studies employing the theories under study. Theoretical integration will be stressed. Pr.: Twelve hours of social science.

SOCIO 880. Social Movements. (3) I, in odd years. Examines sociological theories about social movements and their organizational structures and strategies, with an analysis of historical and contemporary nationalist, socialist, labor, women's, civil rights, and environmental movements in the United States and around the world.

SOCIO 897. Practicum in Social Analysis. (3-6) II. Provides professional field experience for students enrolled in the Master's in Social Analysis program in an approved public agency, organization, or private firm, under direction of a faculty member. Requires participation in a quarterly seminar. Pr.: One semester in the MSA program and SOCIO 822.

SOCIO 898. Master's Report Research. (Var.) I, II, S.

SOCIO 899. Master's Thesis Research. (Var.) I, II, S.

SOCIO 901. Research Problems in Sociology. (Var.) I, II, S. Individual study and research for students admitted to doctoral standing in the Graduate School. Pr.: M.A., consent of instructor.

SOCIO 911. Seminar in Sociological Theory. (3) II. Selected topics in sociological theory. May be repeated with consent of supervisory committee. Pr.: SOCIO 710 and 810.

SOCIO 923. Methods of Social Policy Research. (3) I, in even years. Examination of principles, techniques, and design of retrospective and prospective social policy research. Pr.: SOCIO 823 or equiv.

SOCIO 925. Specialized Approaches to Sociological Research. (3) II, in odd years, on sufficient demand. Intensive examination of methodological approaches developed for analysis of sociological problems. The approaches to be examined will depend on faculty and student interests. Likely foci include estimation procedures for structural equation models, advanced techniques for quantitative analysis of categorical data, techniques for social network analysis and methods for comparative and historical analysis. Pr.: SOCIO 823 and instructor's permission.

SOCIO 931. Seminar in Demographic Methods. (3) II, in even years. Demographic processes such as fertility, mortality, and migration, with emphasis on measurements, methods, and analytical techniques. Includes the construction of life tables and population estimates and projections. Pr.: SOCIO 823 and 830.

SOCIO 932. Seminar in Comparative Community Organization. (3) I, in odd years. Recent developments in theory and research on processes affecting community organization. Topics will vary. Possible emphases include world urbanization, community linkages to regional and global systems, technology and local economic development, rural community development, and community-based collective action. Pr.: SOCIO 832 or 834 or equiv.

SOCIO 933. Gender & Society. (3) II, in odd years. Exploration of feminist theorizing of gender relations in constructing and maintaining social institutions. Objective is to acquaint students with the strengths and weaknesses of current theories of gender, and to analyze social structures as both constituting and constitutive of gender relations at the macro/meso level of society. Pr.: SOCIO 841.

SOCIO 934. Sociology of Rural Development. (3), I, in odd years. Consideration of selected topics and issues in the social organization of rural areas, both international and in the U.S. Pr.: SOCIO 851 or consent of instructor.

SOCIO 935. Seminar in Demography. (3) on demand. Consideration of selected topical areas in demography such as fertility and family planning, migration, population and development, and regional demography. May be repeated with different topic. Pr.: SOCIO 830 or equivalent.

SOCIO 940. Seminar in Work and Organizations. (3) I, in odd years. Topics and issues in the social structure of industries, firms, and labor processes. Pr.: SOCIO 841.

SOCIO 944. Seminar in the Sociology of Aging. (3) Consideration of selected topics and issues in the sociology of aging such as retirement and institutional change, societal reactions to aging, population structure and socioeconomic consequences of aging populations, the social

organization of leisure, the impact on social organization of services for older people, the structural and organizational consequences of widowhood, age-grading and stratification in aging populations, analysis of the impact on community structure, and organization of special institutions for older people. Pr.: SOCIO 744.

SOCIO 950. Seminar in Social Interaction. (3) II, in even years. Examination of current theoretical, methodological, and research issues and topics. Pr.: SOCIO 852, or equiv.

SOCIO 951. Sociology of Global Social Change. (3) II, in even years. Examination of contemporary global social change around the world. Uses historical and comparative sociological methods to study social causes and consequences of global processes, structures, and movements. Pr.: SOCIO 851, or consent of instructor.

SOCIO 953. Political Sociology of Advanced Societies. (3) II, in even years. Survey of major theories and research in the political sociology of industrial societies. Examines prominent theories of power and the state; inequality of political representation; social movements and political change; ideology and legitimation; and policy formation under pressures of globalization. Pr.: SOCIO 850, or consent of instructor.

SOCIO 961. Methods Seminar in Criminology/Deviance. (3) I, in even years. Examination of principles, techniques, and design of research in criminology, deviance, and corrections. Pr.: SOCIO 824 or SOCIO 825.

SOCIO 962. Topics Seminar in Criminology/Deviance. (3) II, in odd years. Selected topical areas in criminology/deviance such as gender, race and/or class and crime; social control; domestic violence; lethal violence; victimology; issues in corrections; and issues in law. May repeat as topic varies. Pr.: SOCIO 850 or consent of instructor.

SOCIO 999. Ph.D. Dissertation Research. (Var.)

Anthropology courses

Undergraduate and graduate credit in minor field

ANTH 503. Archaeological Fact or Fiction. (3) I, in even years. Evaluation of popular beliefs about the human past through the application of critical thinking skills. Topics include ancient North American inscriptions, Vikings in the Americas, the moundbuilder myth, lost civilizations, and advanced prehistoric technology. Pr.: ANTH 260 or equiv.

ANTH 505. South Asian Civilizations. (3) I, in even years. Interdisciplinary survey of the development of civilizations in India, Pakistan, Sri Lanka, Bangladesh, Nepal, Bhutan, and Afghanistan, including geography, philosophy, social, economic, political institution, and historical movements. Pr.: 3 hours of Social Science or junior standing. Same as GEOG 505, HIST 505, POLSC 505, SOCIO 505, ECON 505.

ANTH 507. Folk Cultures. (3) I or II. A comparative approach to agrarian societies; the investigation of economic, political, social, and ideological aspects of peasantry. Pr.: Sophomore standing.

ANTH 508. Male and Female: Cross-Cultural Perspectives. (3) I or II. Sex roles and male-female relationships in the world's cultures. Stresses sex-role complementarity within the anthropological framework of cultural relativism. Pr.: Sophomore standing.

ANTH 510. Kinship and Marriage in Cross-Cultural Perspective. (3) II, in even years. Systems of family, marriage, descent, and sex tabus in cross-cultural perspective. Pr.: ANTH 200 or SOCIO 211.

ANTH 511. Cultural Ecology and Economy. (3) I or II. Cultural ecology and organization in the world's cultures. Discussion of environment and culture, exchange and display, money, trade and markets, and economic development and social change in selected societies. Pr.: Sophomore standing.

ANTH 512. Political Anthropology. (3) I or II. Ethnological approaches to politics in societies around the world. Structural-functional, evolutionary, and conflict theories. A comparison of the political systems of small-scale and complex societies: political modernization. Pr.: Sophomore standing.

ANTH 514. Language and Culture. (3) I, II. Study of language and dialect as aspects of social and ethnic group identities. Emphasis on analysis of conversational style in diverse cultural settings. Research project to be determined according to student interests. Pr.: ANTH 220 or consent of instructor.

ANTH 515. Creativity and Culture. (3) I, in even years. How ethnologists view the expressive and creative aspects of culture. A cross-cultural survey of the verbal, visual, and performing arts. Pr.: Sophomore standing.

ANTH 516. Ethnomusicology. (3) I, in even years. Ethnic, popular, and traditional musics from around the world. The course samples a wide range of stylistic traditions from Africa, Asia, Oceania, Europe, and the Americas. Emphasis is on understanding musical style in cultural context.

ANTH 517. African American Music and Culture. (3) I, in odd years. Continuity and tradition in the musical styles and cultural patterns of African Americans in the United States, the Caribbean, and South America. Music, art, religion, social organization, from African roots to modern forms.

ANTH 519. Practical Anthropology. (3) I or II. Application of anthropological principles and insights to programs of planned change, cultural

innovation, and contemporary problems. Pr.: Sophomore standing.

ANTH 520. Research Seminar. (Var.) On sufficient demand. Intensive exploration of anthropological problems for both majors and nonmajors of sufficient background. High levels of individual participation. Pr.: 9 hours of anthropology.

ANTH 521. Topics in Archaeology. (1-4) On sufficient demand. Intensive exploration of archaeological problems for both major and non-majors with adequate background. Pr.: ANTH 260.

ANTH 522. Special Topics in Anthropology/World Systems and Globalization. (3) May Intersession. This course begins with a brief overview of the interconnections between different cultures throughout all of human history, ending with a detailed exploration of our present-day world system and ways anthropological theories can help us to understand and act responsibly in our world today. Students will develop their own "World Simulation" to apply their knowledge.

ANTH 523. Topics in Linguistic Anthropology. (1-4) On sufficient demand. Intensive exploration of problems in linguistic anthropology for both major and non-majors with adequate background. Pr.: ANTH 220.

ANTH 526. Law and Culture. (3) II. Law in cross-cultural perspective, including analysis of important law and culture issues in U.S. society. Pr.: ANTH 200, 204, or 210 or SOCIO 211 or consent of instructor.

ANTH 530. Topics in Physical Anthropology. (1-4) On sufficient demand. Intensive exploration of problems in physical anthropology for both major and non-majors with adequate background. Pr.: ANTH 280 and 281.

ANTH 532. Central America: Its Peoples and Problems. (3) I. An anthropological perspective of the interactions of indigenous and foreign populations with an examination of the geographic, social, economic, political, and ideological bases of the problems facing Central America today. A look at the seven countries composing Central America in terms of their particular problems and unique solutions. Pr.: ANTH 200.

ANTH 533. Kansas Archaeology. (3) I. Study of the native cultures of Kansas and the Central Plains region based on archaeological and ethnohistoric research. Pr.: ANTH 260.

ANTH 536. African American Cultures. (3) I or II. Description and comparison of African-derived cultural patterns in the Americas, stressing culture contact and acculturation, retention and syncretism, social and economic organization, religion, language, the arts. Pr.: Sophomore standing.

ANTH 545. Cultures of India and Pakistan. (3) I or II. Cultural survey of the contemporary tribes and Hindu caste communities in their historical and geographical context, followed by a more intense analysis of selected Indian and Pakistani village case studies stressing indigenous economic, social, political, and religious structures. Pr.: Sophomore standing.

ANTH 550. Cultures of Africa. (3) I or II. Family life, subsistence patterns, exchange systems, languages, religions, and development of the peoples of Africa.

ANTH 570. North American Indian Archaeology. (3) II, in odd years. The prehistoric of native cultures of North America explored through the archaeological record from the peopling of the continent, to the spread of agriculture and village life, up to contact period. Pr.: ANTH 260.

Undergraduate and graduate credit

ANTH 600. Cultural Dynamics. (3) I or II. Cultural processes and their conditions and consequences, mechanisms by which customs originate and become culturally significant; development, modification, and decline of customs and cultures; processes and consequences of intercultural contacts; applied anthropology. Pr.: ANTH 200 or consent of instructor.

ANTH 602. Anthropological Theory. (3) I or II. Review and integration of the major theoretical approaches in the principal branches of anthropology. Pr.: ANTH 200 or 210.

ANTH 604. Culture and Personality. (3) I or II. Anthropological contributions to personality study; cross-cultural comparisons of personality types, means of personality formation in different cultures; cultural change and personality. Pr.: Three hours of anthropology.

ANTH 618. Religion in Culture. (3) I. The nature of religion in different cultural systems. Pr.: ANTH 200 or ANTH 210 or SOCIO 211. Same as SOCIO 618.

ANTH 625. Independent Reading and Research in Anthropology. (1-3) I, II. Guided reading and research on a specific anthropological topic of student interest, leading to preparation of a research paper. Topic and credit to be arranged. Pr.: Three hours of anthropology and consent of instructor.

ANTH 626. Internship in Museology. (3) I, II, S. Practical professional museum experience of at least three weeks full time or 150 hours part time in the processing of collections, conservation, cataloging, archive and library maintenance, and/or planning and preparation of exhibits. Open to anthropology majors only. May be repeated once for credit if at a different museum. Pr.: ANTH 200 or 210 or 260.

ANTH 630. Indigenous Peoples and Cultures of North America. (3) II. Description and comparison of native cultures of Canada and the United States; culture contact and change among surviving groups. Pr.: ANTH 200 or 210 or 260.

ANTH 633. Gender, Power, and International Development. (3) on sufficient demand. Examination of various models of development and

their impact on various roles of woman and men in various cultures. Emphasis upon Africa, Asia, and Latin America. Comparisons of public, service, and economics sectors, including agriculture, marketing, and industry. Examination of policy issues. Pr.: SOCIO 211 or ANTH 200 or ANTH 210 and 3 additional hours in sociology or cultural anthropology. Same as SOCIO 633.

ANTH 634. Indigenous Peoples and Cultures of Latin America. (3) on sufficient demand. A survey of the nature and variability of the original cultures of Latin America. Analysis of sample cultures, stressing economic, social, political, and religious structures. Pr.: ANTH 200 or 210 or 260.

ANTH 641. Internship in Applied Anthropology. (3) I, II. S. Supervised field experience of at least three weeks full time or 150 hours part time with an organization or institution in the application of anthropological approaches to problem solving and working in a professional setting. Emphasis is on anthropological skills in relation to the objectives and operations of an institution. Open to anthropology major only. May be repeated once for credit. Pr.: ANTH 519 and junior and consent of Program Coordinator.

ANTH 673. Mesoamerican Archaeology. (3) II, in odd years. Early foraging societies, the beginnings of agriculture; the rise of civilization; the classic empires of the Maya, Aztec, Tarascans, and their neighbors; relationships with the United States. Pr.: ANTH 260.

ANTH 676. Old World Archeology. (3) On sufficient demand. Study of the evolution of human culture in Africa, Europe, and Asia from its Paleolithic origins and Neolithic developments to the earliest civilizations. Artifacts, art, architecture, and archaeological sites are investigated to interpret changes in technology, economy, and culture. Pr.: ANTH 260.

ANTH 679. Archaeological Field Methods. (3) I. Archaeological site survey, site excavation, and laboratory analysis of sites and artifacts from the Manhattan, Kansas region. Field work on Saturday, 8 a.m.-5 p.m., while weather permits, laboratory work thereafter. Pr.: Consent of instructor.

ANTH 680. Survey of Forensic Sciences. (3) I. Anthropological survey of the predominantly biological areas of forensic science, their methods and techniques, as they pertain to the application of that science to the purpose of the law. Particular emphasis will be given to perspectives about the science itself, its application to anthropology, and the unique ways in which that science may be used by law. Pr.: A life science with laboratory requirement in the College of Arts and Sciences or the consent of the instructor.

ANTH 684. Forensic Medicine and the Investigation of Death. (2-3) Intersession only. Survey of the medical, biological, cultural and support areas of the investigation of death in various cultural settings. Emphasis on the interaction of culture and biology in the investigative process. Pr.: Life or physical science with laboratory, or consent of instructor.

ANTH 685. Race and Culture. (3), on demand. The biological meaning of race; the interrelationships of biological and cultural traits in human evolution; processes of racial formation of man; methods of classifying human races; cultural inheritance; the distinction of race, culture, personality, and intelligence; a review of modern racism; race as an evolutionary episode. Pr.: ANTH 200, 210 or 280.

ANTH 688. Paleoanthropology. (3) II, in odd years. Human origins and evolution as indicated by fossil evidence; interpretation of man-apes, Pithecanthropus, Neanderthal, Cro-Magnon, and other major fossil groups within the context of evolutionary theory, primate comparisons, and cultural evolution. Pr.: ANTH 200 or 280 or consent of instructor.

ANTH 691. Primatology. (3) On sufficient demand. Survey of the primate order including considerations of evolution, morphology, and behavior. Particular emphasis will be given to developing perspectives about the origin and evolution of hominids in the context of the primate order. Pr.: ANTH 280 or consent of instructor.

ANTH 694. Osteology. (3) II, in even years. Detailed study of human skeleton, with special attention to health and demographic conditions in prehistoric cultures and the evaluation of physical characteristics and genetic relationships of prehistoric populations. Pr.: ANTH 280 or consent of instructor.

ANTH 695. Laboratory in Osteology. (1), in even years. laboratory demonstration and exercise in working with skeletal material for analysis of sex, age, stature, and race. Complete metric and nonmetric analysis with consideration given to paleodemography, paleopathology in situ analysis and excavation, and preservation. Written reports on bone material remains will be necessary. Pr.: ANTH 694 or conc. enrollment.

ANTH 697. Seminar in Osteology. (2) II, in odd years and on demand. Analysis of human and nonhuman skeletal remains including age, sex, stature, race, anomalities, pathologies, trauma, metric and nonmetric traits, cause of death, and time since death. This course allows greater breadth and depth of osteological analysis than either ANTH 694 or 695, and allows for more concentration on individual methods and techniques and case studies. Pr.: ANTH 694 and 695.

ANTH 730. Field and Laboratory Techniques in Archaeology. (1-9) S. Participation in archaeological excavations; techniques, methods, and procedures in a field research situation. The laboratory work of cleaning, cataloging, analyzing, and preliminary report preparation of materials recovered. May be repeated once if the areas or problems involved are different. Pr.: ANTH 200 or 260 or consent of instructor.

ANTH 792. Field Methods in Linguistics. (3) On sufficient demand. Techniques of collecting and analyzing linguistic data in the field. Work with language consultants in class, on languages such as Swahili. Pr.: ANTH 220 or LING 280 or 600. Same as LING 792 and LG 792.

Social work courses

Undergraduate and graduate credits in minor field

SOCWK 501. Proficiency Development. (1-3) Integrative review of social work concepts and skills under faculty supervision. For single students or groups of students. Not applicable to major field requirements. Not repeatable. Pre.: Consent of instructor and superior performance in relevant course.

SOCWK 510. Social Welfare as a Social Institution. (3) I, II. The development and present status of social welfare in meeting changing human needs and the requirements in other parts of our social system; the analysis of present-day philosophy and the functions of social welfare. Same as SOCIO 510. Pr.: One course in each of the following areas: sociology, economics, and political science.

SOCWK 515. Human Behavior in the Social Environment. (3) I, II. An introduction to the relationship among biological, social, psychological, and cultural systems as they affect or are affected by human behavior as it relates to social world models of practice. Emphasis on social systems understanding of human development. Pr.: FSHS 110, SOCWK 260, BIOL 198, PSYCH 110, SOCIO 211, and ANTH 200.

SOCWL 525. Human Behavior and the Social Environment II. (3) I, II. Continuation of SOCWK 515, with a focus on large systems (organizations and communities). Social systems and ecological perspectives as a framework for understanding macrosystems. Structure and function of large systems and their impact on people. Institutional racism and other forms of institutional discrimination, and the importance of recognizing the functions and the effects of racial, ethnic, and other forms of community diversity. Pr.: SOCWK 515. Must be taken conc. with SOCWK 560.

SOCWK 530. Seminar in Applied Social Work Research. (3) I. Second of two research methods courses. Emphasis on designing and conducting social work research projects appropriate for baccalaureate social work practice. Attention given to research strategies for the evaluation of social work practice. Social work majors only. Pr.: SOCWK 330 and STAT 330.

SOCWK 543. Women's Mental Health Issues. (3) II. Investigates prevelant women's mental health issues such as the incidence of depression/anxiety, eating disorders, sexuality, relationship concerns. Also covers the efficacy of traditional treatment modalities and newer therapies that target women's unique mental healthneeds, such as feminist or nonsexist therapies. Pr.: One course in women's studies, social work, psychology, or family thereapy.

SOCWK 550. Field Practicum Research Preparation. (2) I, II. Social work majors take this course in the semester before enrollment in SOCWK 562 Field Experience. Students use this course to further explore specific content areas related to social servcies and, with the faculty, to plan for their practicum placements. Pr.: Senior standing. Social work majors only. Instructor permission.

SOCWK 560. Social Work Practice I. (3) I, II. Introduction to the basic helping skills and techniques common to social work practice. The social systems perspective is used to guide the development of a problem-solving methodology with attention to information gathering, assessment, and problem identification. Values clarification and self-awareness are emphasized and the skills needed for intervention, termination, and evaluation are introduced. Pr.: SOCWK 260, 510, 515; junior standing and permission of the instructor. Must be taken conc. Social work majors only.

SOCWK 561. Social Work Practice II. (3) I, II. Continuation of SOCWK 560 with emphasis on skill development in interventinon techniques, and practice evaluatiuon from a social systems perspective. A variety of intervention strategies and techniques is presented with emphasis on the development of a social work frame of reference. Must be taken concurrently with SOCWK 571. Pr.: SOCWK 560 and senior standing and permission of the instructor.

SOCWK 562. Field Experience. (10) II, S. Supervised field experience in community agencies and programs as a practical application of social work knowledge and skills gained from major course work. Emphasis on direct work with clients, whether individuals, groups, or communities. Seminars make use of student's experiences to analyze social work theory and practice. Pr.: SOCWK 515, 550, 561; senior standing; social work majors only; permission of the instructor.

SOCWK 563. The Practice of Social Work in Rural Areas. (3) On sufficient demand. A review of characteristics and social problems of rural areas. The development of practice competency in social work roles and skills necessary for rural practice. Pr.: SOCWK 560.

SOCWK 564. Social Work Professional Seminar. (2) II, S. A review of various theories in the behavioral sciences which influence the practice of social work. Primary focus of the course is on the use of these theories in implementing change in various client systems. Pr.: To be taken conc. with SOCWK 562. Social work majors only.

SOCWK 565. Program and Policy Formulation and Analysis. (3) I, II. Examination of policies and programs developed to cope with various social problems. Emphasis will be placed on analysis of existing programs and policies and the formulation of alternative policies. Attention will be given to policy change through organizational and legislative actions. Same as SOCIO 565. Pr.: SOCWK 510; one course in each of the following areas: sociology, economics, and political science; and one course in social science research methods.

SOCWK 566. Social Work in Aging Services. (3). Social work practice course focusing attention on working with institutionalized and noninstitutionalized elderly. Role of the social workers is explored in the context of physical, psychological, social, and economic aspects of aging. Skills in working with elderly are emphasized through classroom and direct practice in social work or in gerontology. Pr.: Three course hours in social work or gerontology.

SOCWK 568. Social Work Practice III. (2) I, II. Continuation of social work practice sequence with focus on skills development for macro-level social work practice. Community and organization intervention strategies are presented with emphasis on the development of a social work frame of reference. Taken conc. with SOCWK 561. Pr.: SOCWK 560; senior standing; open to social work majors only.

SOCWK 570. Social Work with Groups I. (3) I, II. Taken concurrently with SOCWK 561. Students work in small groups to learn how to develop and facilitate task and treatment groups using social work methods. Instructor permission required.

SOCWK 580. Women's Perspectives on Peace and War. (2-3) Intercession only. This course will consider the issue of the participation of women in opposition to ware and weapons of war and advocacy for peaceful resolution of conflict. Readings and discussions will focus on four areas: (1) historical and contemporary women's peace movements; (2) the influence of a male-dominated societal structure on the use of violence and militarism as a means of resolving conlict; (3) the question of whether or not women are naturally more included to be peaceful; and (4) the activities, thoughts, and works of individual women in their quest for peace, within themselves, and in the world.

Undergraduate and graduate credit

SOCWK 610. Topics in Social Work. (1-3) Supervised independent study projects. Pr.: SOCWK 260 plus 6 hours of behavioral science foundation courses and consent of instructor.

For more information

For additional information and application materials please contact:
Director of Graduate Studies
Kansas State University
Department of Sociology, Anthropology, and Social Work
204 Waters Hall
Manhattan, KS 66506-4003
785-532-6865
Fax: 785-532-6978
Home Page: http://www.ksu.edu/sasw/

Speech Communication, Theatre, and Dance

Rhetoric/communication | Theatre | Rhetoric/communication courses | Theatre courses | More information

Head:
Charles Griffin

Directors of graduate studies:
Bill Schenck-Hamlin (speech), Sally Bailey (theatre)

Graduate faculty:

Cathy L. Anderson, M.F.A., University of Connecticut.

Sally D. Bailey, M.F.A., Trinity University, San Antonio, M.S.W. University of Maryland at Baltimore

LeAnn M. Brazeal, Ph.D., University of Missouri-Columbia.

Daniel L. Davy, Ph.D., University of California-Santa Barbara.

Charles J. G. Griffin, Ph.D, University of Missouri-Columbia.

R. Michael Gros, M.F.A, University of California.

Scott Hansen, M.F.A Yale University.

Charlotte A. MacFarland, M.A., University of Wisconsin.

Dan Matthews, M.F.A., Ohio State University.

Marci E. Maullar, M.F.A., Pennsylvania State University.

Dana Pinkston, M.F.A., Penn State University.

David E. Procter, Ph.D., University of Nebraska-Lincoln.

William J. Schenck-Hamlin, Ph.D., University of Oregon.

Timothy R. Steffensmeier, Ph.D., University of Texas, Austin.

John S. Uthoff, M.F.A., University of Iowa.

Kathleen Voecks, M.F.A., University of Missouri.

Young-Ok Yum, Ph.D., Pennsylvania State University.

The Department of Speech Communication, Theatre and Dance offers the master of arts degree with emphases in rhetoric/communication and theatre. The requirements for each emphasis are described below. The Department offers a number of Graduate Teaching Assistantships. Graduate assistants receive a waiver of tuition and a stipend. Most Graduate assistants teach the basic speech course, but there are also assistantships available which include coaching duties in debate and forensics and teaching/construction duties in scenery and costumes. Students interested in an assistantship should submit their application by April 1 for the coming academic year.

Rhetoric/Communication

The graduate program in rhetoric/communication within the Speech Communication, Theatre and Dance Department offers students a broad-based education in the theory and criticism of human communication. The objective of the program is to provide students with a program of instruction that exposes them to diverse perspectives within the field of speech communication in preparation for careers in higher education, business, law, ministry, government, and community service.

The rhetoric/communication program is housed in Nichols Hall, one of the architectural showpieces of the K-State campus. Facilities include semi-private office accommodations for graduate teaching assistants, a departmental library, seminar room, and practice facilities for debate and forensics activities. The K-State campus is ideally situated for students interested in the study of political communication because of the proximity of the Eisenhower and Truman presidential libraries.

The graduate program in rhetoric/communication has been recognized as one of the top graduate programs in speech communication in the midwest region. The graduate faculty is committed to providing every student with individual attention in the planning and conduct of his or her program of study. Classes are small, allowing faculty and students to work closely together on projects of mutual interest. Graduate students may

also work with K-State's nationally recognized debate and forensics programs.

Master's degree requirements

Students become eligible for the master of arts in speech upon recommendation of the graduate faculty and completion of the following requirements:

1. SPCH 710, 720, 730, and one of the following: SPCH 733, 821, or 822. (12 credit hours total)

2. An additional 18 credit hours in rhetoric/communication courses numbered at the 600 level or above, including six credit hours of SPCH 899 (for students electing the thesis option); or an additional 18 credit hours, including 2 credit hours of SPCH 899 (for students electing the nonthesis (report) option).

3. Submission of an acceptable thesis or report.

Or

4. Successful completion of a comprehensive (written and oral) examination over coursework for those electing the coursework only degree option.

In consultation with his or her advisor, a student may develop a minor emphasis of up to 6 credit hours at the 500 level or above in academic areas outside the rhetoric/communication program.

Students may elect either a thesis or nonthesis (report) program of study. A master's thesis identifies an original research problem, implements an appropriate methodology and reports and interprets its findings. Completion of a thesis project demonstrates the student's ability to carry out sustained, independent research that makes an original contribution to the discipline. A master's report is an academic essay that reviews and analyzes research literature within the discipline. Completion of a report project demonstrates the student's ability to interpret and synthesize scholarly literature in a given subject area.

Completion of the *coursework only* option provides students with additional classroom exposure to the discipline and may be appropriate for students who do not intend to pursure doctoral study in the discipline.

Both the master's thesis and research report options require prospectus approval by the graduate faculty and adherence to Graduate School and departmental guidelines.

Admission

Students enter the graduate program in rhetoric/communication from a variety of undergraduate majors. However, applicants should possess a strong academic record and appropriate background work in the field of speech communication. Students whose undergraduate record reflects deficiencies in either of these areas may be granted admission on a provisional basis.

Admission is based upon review of the applicant's undergraduate transcript, three letters of recommendation, statement of objectives, and writing sample (such as an undergraduate term paper). Applicants are encouraged to take the Graduate Record Examination.

Progress through the program

Continuation in the program is contingent upon the student making satisfactory progress towards the degree. Satisfactory progress is defined as follows: (1) The student must maintain an overall grade point average of 3.0 (on a 4.0 scale). (2) The student must earn a grade of B or better in all required courses. A student who receives a grade below B in a required course must retake the course as a condition for continuation in the program. A student whose overall grade point average falls below 3.0 will be placed on probationary status. Continuation in the program will be contingent upon the student raising his or her grade point average to the minimum (3.0) within one semester.

Theatre

The department offers a master's degree with an emphasis in theatre, providing general education on an advanced level with the opportunity to specialize in a particular area--such as acting, costuming, directing, drama therapy, dramatic literature, stage lighting, playwriting, stage design, technical theatre, theatre history, or theatre management. The program prepares students for MFA or PhD study, professional training in drama therapy, teaching on the secondary or junior college level, or employment in the community or professional theatre. The theatre program is an accredited institutional member of the National Association of Schools of Theatre.

Requirements

Students are admitted on the basis of their undergraduate transcripts and three letters of recommendation. A major in theatre is expected, but students with degrees in other areas may take undergraduate courses to make up deficiencies. A 3.0 overall undergraduate average is required, but students who do not meet this requirement may be admitted on probation.

There are three categories to the degree requirements:

1. Course work (30 credits): theatre history/dramatic literature (9 credits); acting, directing, or playwriting (3 credits); technical theatre (3 credits); electives (15 credits). At least 15 credits must be in 800-level courses and 3 credits in a 700-level course.

2. Project, report, or thesis

a. Project: Demonstration of competence in a specific area of theatre. (No credit)

b. Report: Writing of a research paper for the purpose of gathering and assimilating information on a particular theatre topic. (2 credits)

c. Thesis: Writing of a lengthy research paper making an original contribution to the field of theatre study. (6 credits)

3. Oral examination on project, report, or thesis.

Facilities

The theatre program boasts three outstanding production facilities -- a 250-seat thrust/arena stage, an 1,800 seat proscenium theatre, and a 100-seat student production space. This enables us to produce an extensive and varied season of plays, musicals, and operas -- classic, modern, and original.

Rhetoric/Communication courses

Undergraduate and graduate credit

SPCH 525. Argumentation Theory. (3) II. An advanced study of prominent argumentation theorists, with an in-depth examination of special topics concerning the philosophy, theory, and practice of argumentation. Pr.: SPCH 105 or 106.

SPCH 526. Persuasion. (3) II. The study of communication as persuasion; examination of contemporary approaches to persuasion.

SPCH 535. Communication and Leadership. (3) In alternate years. A study of the ways leadership in differing contexts is designed and exercised through communication. Constructs examined may include credibility, charisma, vision, power, myth, and public memory. Pr.: SPCH 105 or 106.

SPCH 542. Relational Communication. (3) I. A survey of theories and research on the role of communication in social and personal relationships. Emphasis is on observing and evaluating communication behaviors using real-life media examples. Pr.: SPCH 311, 320, 322, 323, 326, 328, or 480.

SPCH 545. Communication & Democracy. (3) I, in odd years. A study of the ways in which democratic citizenship and participation in the public sphere are defined and enacted through communication. Pr.: SPCH 105 or 106.

SPCH 550. Senior Colloquium. (1) I, II. A demonstration of the mastery of vocabulary, theory, and the ability to make practical applications of the study of rhetoric and communication will be required of all senior rhetoric communication majors. Mastery will be demonstrated by writing a senior thesis and presenting the results of that thesis to the assembled rhetoric communication faculty and majors in a required colloquium.

SPCH 630. Special Topics in Rhetoric and Communication. (3) II. Intensive study of selected topics in communication and rhetoric. Repeatable with change in topic. Pr.: Junior standing and consent of instructor.

SPCH 710. Introduction to Communication Research Methods. (3) I. Introduction to descriptive and experimental methodologies in communication, including conceptualization and operationalization of communication concepts, strategies of research design, and logic of inquiry. Pr.: SPCH 320.

SPCH 716. Small Group Communication. (3) I, in alternate years. Review literature and develop research projects pertaining to the communication processes in small task groups. Topics include group communication processes, barriers to group communication, and style-specific theories of effective group communication. Pr.: SPCH 326 or senior standing.

SPCH 720. Perspectives on Communication. (3) Analysis of current perspectives on the communication process. Materials cover assumptions, principles, implications and selected research within each perspective. Pr.: SPCH 320.

SPCH 721. Language and Social Interaction. (3) II. Study of the epistemological, social, and behavioral functions of language in communication. Examination of the processes by which language functions to construct one's worldview and guide individual action. Pr.: SPCH 320 or LING 280 or ANTH 220; junior standing.

SPCH 722. Instructional Communication. (3) II. Study of theory and practice of communication in the classroom including both teacher and student communication. Topics include: integration of modes of communication, language choices, power, humor, communication strategies for instruction, and impact of communication on learning. Same as EDCIP 722.

SPCH 725. History of American Public Address. (3) Study of American speakers, from the time of Jonathan Edwards to the present, including their education, major speeches, and contributions to the rhetorical history of the United States. Pr.: Junior standing and consent of the instructor.

SPCH 726. Seminar in Persuasion. (3) II, in odd years. Survey and analysis of advanced theory and experimental studies in persuasion. Pr.: Junior standing.

SPCH 730. Classical Rhetorical Theory. (3) Study of rhetorical theory and criticism from early Greek to Roman times. Pr.: SPCH 330 or graduate standing.

SPCH 731. Nineteenth Century Rhetorical Theory. (3) Study of the influences on and developments of rhetorical theory in nineteenth century America as manifested in eduational and public settings. Pr.: SPCH 730.

SPCH 732. Contemporary Rhetorical Theory. (3) II. Study of major European and American contributors to rhetorical theory in the twentieth century. Pr.: SPCH 730.

SPCH 733. Rhetorical Criticism. (3) II. Study of traditional and contemporary approaches to the analysis of public discourse. Pr.: SPCH 330.

SPCH 734. The Rhetoric of Social Movements. (3). Study of the theory and criticism of social movement rhetoric. Topics may include the development of movement studies as a distinct genre of scholarship within the field of speech communication, questions and controversies in the rhetorical study of movements, and the rationale for protest tactics, from nonviolence to terrorism. Pr.: SPCH 330, 331, or graduate standing.

SPCH 735. Leadership Communication. (3) A study of the role that public discourse plays in attaining, enacting, and constraining leadership in a democratic society. Pr.: SPCH 535.

SPCH 742. Relational Communication. (3) I. A survey of theories and research on the role of communication in social and personal relationships. Emphasis is on observing and evaluating communication behaviors using real-life media examples. Pr.: SPCH 311, 320, 322, 323, 326, 328, or 480.

SPCH 745. Political & Corporate Speechwriting. (3) I or II. A study of the principles and practice of professional speechwriting with a special emphasis on the role of speechwriting in a democratic society.

SPCH 756. Practicum in Conflict. (3) I, II S. This course provides a supervised opportunity to apply theoretical information into diverse conflict settings. Students will identify, conceptualize, implement, and/or test conflict and communication theories and strategies by analyzing and/or developing training/evaluation materials.

SPCH 780. Intercultural Communication. (3) I. A study of the relationship between language and culture and its impact on human communication. Examines how language and culture differ among people and how differences are handled through the process of communication. Pr.: SPCH 105 or 106.

SPCH 799. Problems in Speech. (Var.) Open to students in any speech area. Pr.: Junior standing and consent of instructor.

Graduate credit only

SPCH 810. Research Writing in Rhetoric/Communication. (1) A study of the problems of writing and rewriting the results of scholarly investigations in rhetoric/communication.

SPCH 820. Seminar in Rhetoric/Communication. (3) Selected topics in rhetoric/communication research. May be repeated for credit with change in topic.

SPCH 821. Experimental Research in Speech Communication. (3) I. Descriptive and experimental methodologies pertinent to investigation in rhetoric/communication. Topics will include such techniques as content analysis, attitude scaling, and stylistic analysis. Pr.: SPCH 520 or equivalent.

SPCH 822. Field Research in Speech Communication. (3) II. Critical and interpretive methodologies pertinent to investigations in rhetoric/communication. Topics will include participant observation, unstructured interviewing, ethnography, and discourse analysis. Pr.: SPCH 330 or equivalent.

SPCH 823. Competitive Forensic Theory. (3) Theory and study of current research in competitive debate and individual events. Pr.: SPCH 125 and 426.

SPCH 899. Research in Speech. (Var.) Pr.: Sufficient training to carry on the line of research undertaken and consent of instructor.

Linguistics courses

The department is currently not able to offer coursework in linguistics. If you have questions about the linguistics program, please contact the department head of Speech Communication, Theatre and Dance.

Undergraduate and graduate credit

LING 594. Comanche Texts. (3) I, in alternate years. General introduction to Comanche grammatical and discourse systems and study of oral narratives: published and unpublished texts including coyote stories, adventure stories, personal recollections, etc. Some attention to pronunciation,

but major emphasis on the development of a basic reading ability and understanding of the world portrayed in the narratives. Same as LG 594.

LING 595. Archeological Decipherment. (3) I, in alternate years. The art and science of four famous cases of decipherment Mesopotamian cuneiform Egyptian hieroglyphics, Creto-Mycenaean Linear B, and on-going work on the Maya script. Characteristics of successful decipherments and resultant increases in knowledge about the history of writing and the richness of various cultures of the past. Same as LG 595.

LING 600. Principles of Linguistics. (3) The scientific study of language, with examples from English, Spanish, French, German, and others. Overview of language origins, phonetics, phonology, syntax, semantics, language acquisitions, dialects, language change, and writing systems. Same as ENGL 600 and LG 600.

LING 601. General Phonetics. (3) I, in alternate years. Description and classification of speech sounds according to point and manner of articulation. Transcription in the International Phonetic Association Alphabet. Includes sounds of English, French, Spanish, German, and others. Same as ENGL 601 and LG 601.

LING 602. Historical Linguistics. (3) I, in alternate years. Internal and comparative reconstruction of earlier forms of languages. Genetic relationships in language families, and various typological considerations. Includes French, Spanish, and others. Same as ENGL 602 and LG 602.

LING 603. Topics in Linguistics. (1-3) I, in alternate years. Seminar on a special-topic in linguistics: decipherment of ancient writing systems, linguistics applied to the teaching of English or other languages, discourse analysis (especially of spoken texts), etc. Topic to be announced for semester in which offered. Repeatable for credit on a different topic. Same as ENGL 603 and LG 603.

LING 792. Field Methods in Linguistics. (3) On sufficient demand. Techniques of collecting and analyzing linguistic data in the field. Work with language consultants in class, on languages such as Swahili. Pr.: Consent of the instructor. Same as LG 792 and ANTH 792.

Theatre courses

Undergraduate and graduate credit

THTRE 560. Advanced Stage Movement. (3) Study in the physical development of character and advanced techniques of stage movement. May be repeated for a total of 9 hours credit by qualified students.

THTRE 561. Vocal Expression for Actors. (3) Studies and application of vocal techniques for stage productions; emphasis on development of the actor's vocal mechanism. May be repeated for a total of 9 hours credit by qualified students. Pr.: Consent of instructor.

THTRE 562. Playwriting. (3) Theoretical study and practical application of techniques of playwriting with regard to plot, characters, and production; emphasis on the one-act form.

THTRE 563. Storytelling. (2) A consideration of literary materials appropriate for children in nursery schools, kindergarten, and elementary schools. Major emphasis is on training in the art of storytelling. Pr.: SPCH 105 or 106.

THTRE 565. Principles of Directing. (3) Principles, processes and techniques of directing for the theatre. Pr.: THTRE 261.

THTRE 566. Rehearsal Techniques. (0-3) I, II. A laboratory course for students enrolled in performance and production classes. May be repeated for 6 hours. Pr.: Conc. enrollment in THTRE 765 or 783 or 779.

THTRE 568. Fundamentals of Scene Design. (3) Examination of the role of scene design in theatre, principles and techniques of design. Development, presentation, and synthesis of design images with the scripted play. Pr.: THTRE 368 and THTRE 369.

THTRE 569. Advanced Technical Production. (3) A lecture-lab course in advanced technical theatre problems of organization, planning, drafting and execution of scenery and lighting. Pr.: THTRE 368.

THTRE 570. The Musical Comedy. (3) On sufficient demand. The history of operetta and musical comedy from Offenbach to the present. Same as MUSIC 570. Pr.: MUSIC 150 or THTRE 165 or equiv.

THTRE 572. History of Theatre I. (3) II. A survey of the development of the theatre from ancient times to 1700. Pr.: Junior standing and consent of instructor.

THTRE 573. History of Theatre II. (3) I. A survey of the development of the theatre from 1700 to the present. Pr.: Junior standing or consent of instructor.

THTRE 579. Fundamentals of Stage Lighting. (3) Theory and practice of theatrical lighting design, control systems, projection equipment, and lighting consulting. Production work with KSU Theatre season required. Pr.: THTRE 369.

THTRE 580. Music Theatre Workshop. (2) II. Principles and techniques of musical theatre production with emphasis on rehearsal and performance of selected scenes from musical theatre. Dance, music, and theatre are studied as integrated elements within the musical theatre genre. Culminates in a public performance. Course may be repeated twice for credit. Pr.: MUSIC 202, two semesters of voice; THTRE 261; and DANCE 380; or consent of instructor.

THTRE 630. Topics in Theatre (1-4) I, II, S. Selected topics in theatre may be repeated with topic change to a maximum of 12 hours credit. Pr.: Junior standing and consent of instructor.

THTRE 632. Costume Design. (3) I. Studies in the theory and practice of costume design for stage and film. Pr.: THTRE 267.

THTRE 660. Professional Theatre Tour. (2-3) Intersession, S. Supervised viewing and analysis of professional theatre productions. Travel to one or more theatre centers such as New York, London, or Los Angeles. Students are charged an additional fee to cover travel expenses. Written critical reviews of the productions are required. May be repeated once by undergraduates. Pr.: Six hours of credit in theatre.

THTRE 661. Professional Development. (1) I. Study of audition techniques including supervised preparation of appropriate material. Business aspects of professional theatre, including unions, contracts, and professional ethics. Pr.: 12 hours in theatre, music, and/or dance.

THTRE 664. Creative Drama. (3) The development of creative imagination and personal well-being through theatre games, improvisation, storytelling, and puppetry for use in educational and recreational settings. Pr.: Junior standing.

THTRE 665. Drama Therapy with Special Populations. (3) The therapeutic uses of drama in the development of creative imagination, self expression, and social relatedness with special populations such as clients who have developmental disabilities, physical disabilities, health issues, or are aging. Pr.: Junior standing.

THTRE 666. Stage Management. (3) I, II. Theory and practice of stage management in the professional and nonprofessional theatre. Emphasis is on the organization of all areas of theatre knowledge needed for the running of theatrical productions. Pr.: THTRE 368.

THTRE 667. Period Styles for the Theatre 1. (3) II. Survey of historical styles of architecture, furnishings, and clothing in relation to theatrical design and the history of the theatre from the Greeks to 1800. Pr.: THTRE 572 or concurrent enrollment.

THTRE 668. Period Styles for the Theatre 2. (3) I. Survey of historical styles of architecture, furnishings, and clothing in relation to theatrical design and the history of the theatre from 1800 to present. Pr.: THTRE 573 or concurrent enrollment.

THTRE 671. History of Opera. (3) A study of selected masterpieces of musical drama, with emphasis on the relationship of music and drama, and on the unique qualities of opera as a collective artwork. Pr.: MUSIC 201 or MUSIC 250 or THTRE 370. Same as Music 650.

THTRE 672. American Ethnic Theatre. (3) Drama and stagecraft of ethnic groups in the United States, including the theatre of African, Asian, Hispanic, Jewish, and Native Americans. Pr.: Junior standing.

THTRE 673. Theatre for Conflict Resolution. (3) S, Intersession. Drama and theatre techniques used to explore the nature of conflict and how to promote collaboration through action. Pr.: Junior standing.

THTRE 674. Drama Therapy with Adolescents. (3) S, Intersession. The therapeutic uses of drama with adolescents, including normal development, youth-at-risk, ESL, SED, and BD adolescents. Pr.: Junior standing

THTRE 675. Drama Therapy with Older Adults. (1-3) S, Intersession. L The therapeutic uses of drama with older adults, focusing on the development of life review, social relatedness, and creative self-expression in the here and now. Pr.: Junior standing.

THTRE 710. Practicum in Theatre. (0-6) Supervised participation in a position of major responsibility. May be repeated for a maximum of 12 hours credit. Pr.: THTRE 160 or 261 or 368; junior standing; consent of supervising faculty member and approval of faculty members are required.

THTRE 711. Topics in Technical Theatre. (3) Selected topics in creative techniques and investigation for technical theatre. May be repeated for credit with change in topic. Pr.: THTRE 368 and consent of instructor.

THTRE 712. Theatre Management. (3) Theatre management, promotion, finance, organization; emphasis on contract negotiations and use of facilities.

THTRE 760. Principles of Drama Therapy. (3) Study of theory and practice in the use of drama as therapy, including assessment and treatment, individual and group practice, and psychodrama. Pr.: THTRE 664 or 665.

THTRE 761. Advanced Acting. (3) Studies in style, technique, and characterization. May be repeated once. Pr.: THTRE 361 and consent of instructor.

THTRE 762. Advanced Playwriting. (3) Further study in the writing of drama; emphasis on problems of writing the full-length play. May be repeated for a total of 9 hours credit by qualified students. Pr.: THTRE 562. Cross listed as ENGL 762.

THTRE 763. Reader's Theatre. (3) The nature, purpose, and production of oral interpretation of literature in the theatre; emphasis on monologue, lecture-recital, and play reading. May be repeated for a total of 6 hours credit by qualified students. Pr.: Consent of instructor.

THTRE 764. Early American Theatre. (3) Studies in the drama and stagecraft of the colonies and the United States from the beginnings to 1900. Pr.: Junior standing.

THTRE 765. Practice in Directing. (3) A lec.-lab course with emphasis on directing dramatic productions under performance conditions. May

be repeated for a total of 9 hours credit by qualified students. Pr.: Consent of instructor.

THTRE 770. Creative Arts Therapies. (3) S. Survey of five creative arts therapy modalities: drama/ psychodrama, art, poetry/bibliotherapy, music, and dance/movement. Instruction in theory and hands-on experience with each modality, as well as reading, discussion and methods for using modalities interdisciplinarily.

THTRE 777. Aesthetics of the Theatre. (3) Principal emphasis on theoretical problems of dramatic art.

THTRE 779. Repertory Theatre. (3) Concentrated studies in theory and practice of repertory theatre productions. Reading, demonstrations, study of play scripts; play selection and production methods; operation of and assistance in production of plays in repertory. May be repeated for a total of 12 hours credit by qualified students. Pr.: Consent of instructor.

THTRE 780. Theatrical Design Studio. (0-3) I, II. Advanced problems in conceptualization and realization of design, including sets, costumes, lights and technical production. Emphasis on advanced techniques in research, analysis, and production problems. May be repeated to a maximum of 6 credits. Pr.: THTRE 567, 568, 579, or 569.

THTRE 782. Women in Theatre. (3) A history of the contributions made by women in theatre as playwrights, managers, directors, and performers; contemporary women in theatre and their experiments in expressing women's consciousness.

THTRE 783. Practice in Acting. (3) Advanced studies in characterization with emphasis on communicating with the director. Taught in conjunction with the Practice in Directing workshop. May be repeated once. Pr.: THTRE 361 and consent of instructor.

THTRE 784. Psychodrama. (3) Theory and practice of Psychodrama as a treatment modality for use in Drama Therapy.

THTRE 785. Sociodrama. (3) Theory and practice of Sociodrama as a therapeutic and educational modality for use in Drama Therapy.

THTRE 786. Israeli Theatre. (3) Drama and stagecraft of Israeli Theatre from its origins through the present. Pr.: Junior standing.

THTRE 799. Projects in Theatre (1-4) I, II. Individual guided work in selected area. Only 3 hours may be applied to MA. Pr.: Junior standing and consent of instructor.

Graduate credit

THTRE 862. Workshop in Playwriting. (3) Advanced writing of drama. Same as ENGL 862. Pr.: THTRE 762 (or ENGL 762) or proof of equiv. proficiency.

THTRE 865. Ethics and Professionalism in Drama Therapy. (3) II, S. The application of ethical principles involved in the practice of drama therapy in a variety of educational and therapeutic settings. PR.: THTRE 670 or 770.

THRE 870. Greek and Roman Theatre. (3) Studies in the drama and stagecraft of the Greek and Roman period. Pr.: THTRE 572.

THTRE 871. Medieval and Baroque Theatre. (3) Studies in the drama and stagecraft of the Medieval and Baroque periods. Pr.: THTRE 572.

THTRE 875. Contemporary Theatre. (3) Studies in drama and stagecraft since 1968. Pr.: THTRE 573.

THTRE 876. Seminar in Theatre. (3) Selected topics in theatre research. May be repeated for credit with change of topic. Pr.: THTRE 572 or 573.

THTRE 878. History of the Physical Stage. (3) A survey course in the emergence and development of the theatre building as a distinct architectural form, with particular emphasis on the effect of the physical environment on the play. Pr.: THTRE 368.

THTRE 879. Modern Theatre. (3) II, in even years. Studies in the drama and stagecraft of Europe and America in the period from 1870 to the present. Pr.: THTRE 573.

Dance courses

Undergraduate and graduate credit in minor field

DANCE 502 Performance Production. (1-2) I, II. Studies in the techniques of dance production and performance. Emphasis is on practical application. May be repeated four times. Pr.: Junior standing or consent of instructor.

DANCE 504. Performance Aesthetics. (3) On sufficient demand. Examination of performance as art. Analysis of general aesthetic theory to performance through such issues as style, content, form, gender, and role. Oral and written experience in planning, executing, and assessing performance events. Pr.: Junior standing or consent of instructor.

DANCE 505. Methods and Materials of Teaching Dance. (2) On sufficient demand. An in-depth survey of the development of dance education and a practical examination of dance for its educative, artistic, disciplinary, and therapeutic values. Emphasis on role of dance education, pedagogy, and advocacy. Pr.: DANCE 205, 405, and 504 or consent of instructor.

DANCE 506. Dance Education Fieldwork. (1) On sufficient demand. A semester of supervised fieldwork incorporating dance as an educative tool in the classroom, in a therapeutic setting, or in an advocacy position. Application of dance education theory under faculty supervision and conference. Pr.: DANCE 505.

DANCE 510. Senior Project. (1) Student creates and presents major performance, choreographic or written project demonstrating advanced level of achievement. Pr.: Senior standing and consent of instructor.

DANCE 520. Principles of Dance Technology. (3) On sufficient demand. Examination and application of video and computer technology to dance. Includes instruction and use in performance, choreography, education and research. Emphasis on conceptual framework. Pr.: Senior standing.

DANCE 599. Independent Studies in Dance. (1-3) Selected topics in dance. Maximum of 3 hours applicable toward degree. Pr.: Consent of department head.

For more information

For additional information and application materials please contact:
Director of Graduate Studies
Kansas State University
Department of Speech Communication, Theatre, and Dance
129 Nichols Hall
Manhattan, KS 66506-2301
785-532-6875
Home Page: http://www.ksu.edu/sctd/

Special Education, Counseling, and Student Affairs

Admission requirements | Program description | Academic advising graduate certificate
Master's degree in college student personnel work
Master's degree in school counseling
Master's degree in academic advising
Doctor of philosophy in counselor education and supervision
Doctor of philosophy in student affairs in higher education
Doctor of education degree | Master of science in special education requirements
Ed.D. in special education requirements
Counseling and educational psychology courses | Special education courses
More information

Chair:
Stephen Benton

Director of graduate studies:
Marjorie Hancock

Graduate faculty:

Sherry A. Benton, Ph.D., University of Kansas.

Stephen Benton, Ph.D., University of Nebraska.

Fred Bradley, Ph.D., University of Wyoming.

Aaron Carlstrom, Ph.D., University of Wisconsin-Milwaukee.

Doris Wright Carroll, Ph.D., University of Nebraska - Lincoln.

William Cashin, Emeritus, Ph.D., Catholic University.

Peggy Dettmer, Emeritus, Ph.D., Kansas State University.

Timothy Frey, Ph.D., Indiana University.

Gerald S. Hanna, Emeritus, Ed.D., University of Southern California.

Michael C. Holen, Ph.D., University of Oregon.

Judith Hughey, Ed.D., University of Missouri.

Kenneth Hughey, Ph.D., University of Missouri.

Carla E. Jones, Ph.D., University of Florida.

Marilyn Kaff, Ph.D., University of Kansas.

Ata Ul Karim, Adjunct, Ph.D., Southern Illinois University.

Elizabeth Knackendoffel, Ph.D., University of Kansas.

Adrienne Leslie-Toogood, Ph.D., University of Manitoba.

Sue C. Maes, Ph.D., Kansas State University.

Christy Moran, Ph.D., University of Arizona.

Margery Neely, Emeritus, Ph.D., University of Missouri.

Robert Newhouse, Ph.D., University of Oregon.

Fred Newton, Ph.D., University of Missouri.

Charlie L. Nutt, Ed.D., Georgia Southern University.

James Teagarden, Ed.D., Kansas State University.

Linda P. Thurston, Ph.D., University of Kansas.

Charles J. Werring, Ed.D., University of Georgia.

Warren J. White, Ph.D., University of Kansas.

Dan Wilcox, Adjunct, Ph.D., Michigan State University.

Mary Kay Zabel, Emeritus, Ph.D., University of Minnesota.

Robert H. Zabel, Emeritus, Ph.D., University of Minnesota.

Admission

For admission requirements, please see the Education catalog page.

Program description

The Special Education, Counseling, and Student Affairs graduate program offers the M.S. in counseling and student development (with emphases in college student personnel work and school counseling), the Ph.D. in student counseling and student development (with emphases in counselor education and student affairs in higher education), and the Ed.D. in counseling and student development (with emphasis in school counseling). The program also administers the granting of M.S. and Ed.D. degrees in special education. M.S. students may elect to write a thesis, a nonthesis report, or complete a comprehensive written examination. Ed.D. students must write a dissertation based on independent and original research.

The Special Education, Counseling, and Student Affairs graduate program provides support to undergraduate education students and prepares teachers at the graduate level for teaching exceptional children and youth in special education programs; and prepares personnel for special education administration and/or coordination of special education programs, or other leadership positions in the field.

The Special Education, Counseling, and Student Affairs graduate program prepares special education teachers at the masters level in two categorical areas: adaptive special education and functional special education. Advanced programs in supervision and special education administration are available, as well as a graduate certificate in austism spectrum disorders.

Academic advising graduate certificate

(available through distance education only)

Professionals who are entering the field of academic advising from teaching positions or other academic and student services areas often wish to expand their knowledge about college student personnel services, including learning theory, student development theory, counseling skill development, career development, and academic advising. Even advisors with terminal degrees or graduate degrees in other areas can benefit from some graduate work in this area. Therefore, the Department of Counseling and Educational Psychology, in collaboration with the National Academic Advising Association (NACADA), has developed a graduate certificate in academic advising. The 15-credit hour program is consistent with standards and guidelines for academic advising specified by the Council for the Advancement of Standards (CAS) in Student Services. The courses within the certificate program contribute to the student's understanding and practice of these standards and guidelines, including the areas of mission, program, leadership, organization and management, human resources, financial resources, facilities and equipment, legal responsibilities, equal opportunity and access, campus and community relations, diversity, ethics, and assessment. The courses are delivered exclusively in an on-line format.

EDCEP 829. Learning Principles. (3)
EDCEP 835. Foundations of Academic Advising. (3)
EDCEP 838. The College Student and the College Environment. (3)
EDCEP 863. Trends in Career Development. (3)
EDCEP 851. Multicultural Aspects of Academic Advising. (3)

Contact: Steve Benton
E-mail: leroy@ksu.edu
Home Page: www.nacada.ksu.edu/GraduateCertificate/
DCE Home Page: www.dce.ksu.edu/coe/advising.html

Master's degree in college student personnel work

This emphasis is designed to prepare the student for work in a college setting at one or many different student affairs agencies and to assist the student to meet the professional entry-level and advancement requirements in the field. A minimum of 39 graduate credit hours are required in the program.

Students complete 24 hours of core courses and also select one of three options. The advising option is most appropriate for those intending primarily to provide developmental counseling/advising services within a college or university. The administration option is more appropriate for those intending to work as student services/programs administrators. The student services in intercollegiate athletics option is appropriate for those who wish to pursue a career working with college student athletes. Each program of study is developed jointly by the student and advisor.

Core requirements (24 hours)

EDCEP 812	History and Philosophy of Higher Education
EDCEP 816	Research Methods
EDCEP 818	Principles of College Student Personnel Services
EDCEP 823	Counseling Theory
EDCEP 829	Learning Principles
EDCEP 838	The College Student and The College Environment
EDCEP 858	Group Processes
EDCEP 863	Trends in Career Development

Options (Select one)

A. Advising option (15 hours)

EDCEP 835	Foundations of Academic Advising
EDCEP 851	Multicultural Advising
EDCEP 877	Practicum in Counseling
EDCEP 887	Counseling Internship
EDCEP 885	Practicum in College Student Personnel Work

B. Administration option (15 hours)

EDCEP 786	Topics: Diversity in Higher Education
EDCEP 786	Topics: Current Issues in Higher Education
EDCEP 885	Practicum in College Student Personnel Work (two semesters)

An elective approved by the graduate committee

C. Student services in intercollegiate athletics option (15 hours)

EDCEP 752	College Student Athletes
EDCEP 761	Intercollegiate Athletics and the College Student Athlete
EDCEP 885	Practicum in College Student Personnel Work (two semesters)

An elective approved by graduate committee.

Master's degree in school counseling

Students who complete the M.S. degree in school counseling 48-hour program will have K-12 endorsement. Full endorsement requires two years teaching experience. If students have taught only one year, they must complete a one-year supervised field experience. Individuals seeking vocational education counseling endorsement must also document 4,000 clock hours of nonteaching experience.

The program's conceptual framework emphasizes development of knowledgeable, caring, ethical decision-makers within the context of groups and institutions, client development and learning, guidance and counseling of students leading to theory-driven and research-guided practice in school counseling. Curricular experiences include human growth and development, appraisal, research and program evaluation, professional orientation, and foundations.

1. Core requirements (27 hours)

EDCEP 721	Mental Health in Schools (3)
EDCEP 822	Principles of Guidance (3)
EDCEP 823	Counseling Theory (3)
EDCEP 852	Career Development for School Counselors (3)
EDCEP 856	Guidance in the Elementary School (3)
EDCEP 857	Guidance Program Management (3)
EDCEP 871	Consultation for Counselors (3)
EDCEP 921	Advanced Edu Psy Development (3)
EDCEP 951	Multicultural Counseling (3)

Elective (3)

2. Research and appraisal requirements (9)

EDCEP 715	Principles of Assessment (3)
EDCEP 815	Using Test in Counseling (3)

EDCEP 816 Research Methods (3)

3. Clinical requirements (12)
EDCEP 858 Group Processes (3)
EDCEP 877 Practicum in Counseling (3)
EDCEP 887 Counseling Internship (6)
(May be offered in variable units)

The internship will consist of 600 clock hours under weekly supervision of a certified school counselor and faculty professor. The student will attend class for group supervision and provide 240 clock hours of direct service in the school setting. Included activities are individual counseling, group work, developmental classroom guidance, and consultation.

Practicum and internship arrangements are made by the coordinating faculty member when required coursework has been completed and only after submission and approval of a pre-enrollment application, available in 369 Bluemont Hall. Both the coordinating faculty member and the student's committee must approve enrollment. Enrollment forms are due mid-semester for the following semester.

Master's degree in academic advising

The Master of Science in Academic Advising is designed for advising professionals and future professional advisors seeking to enhance their knowledge and ability to work more effectively with postsecondary students in their academic and career planning. All courses are offered online, which serves graduate students in Kansas and students both across and outside the country.

The program's conceptual framework emphasizes development of "highly skilled and educated" professional advisors who through their work prepare undergraduates for their future careers. Curricular experiences include interpersonal relations; needs and characteristics of specific groups of students; research methods; learning principles; advising strategies; college student development; career development and multicultural aspects of advising. Students complete 27 hours of core courses and also select one of two 3-credit hour restrictive electives.

Program Curriculum

Core Courses (27 hours)
EDCEP 752 College Student Athletes (3)
EDCEP 816 Research Methods (3)
EDCEP 829 Learning Principles (3)
EDCEP 835 Foundations of Academic Advising (3)
EDCEP 838 College Student and the College Environment (3)
EDCEP 851 Multicultural Aspects of Academic Advising (3)
EDCEP 863 Trends in Career Development (3)*
EDCEP 886 Seminar/Interpersonal Relations for Academic Advising (3)
EDSP 886 Seminar/College Students with Special Needs (3)

Restricted Elective (3 hours)
EDCEP 761 Intercollegiate Athletics and the College Student Athlete (3)
EDCEP 886 Seminar/Administration of Academic Advising (3)

For more information on Academic advising go to http://www.dce.ksu.edu/education/advising/.

Doctor of philosophy in counselor education and supervision

The Ph.D. in counselor education and supervision requires 48 hours of coursework plus research culminating in a dissertation that is a unique contribution to the field. The research will include a three-hour seminar in counseling research and may include up to 12 hours of laboratory research work. Training extends beyond that found in the entry-level, basic master's program. The doctoral program addresses the professional leadership roles in counselor education, supervision, advanced counseling practice, and research competencies.

1. Professional courses (15-21 hrs)
EDCI 943 Principles of College Teaching (3)
or
EDCEP 999 Research: Supervised Teaching Laboratory (3)
EDCEP 924 Theories of Vocational Counseling (3)
EDCEP 955 Professional Counseling Ethics (3)

EDCEP 958 Advanced Counseling Theory (3)
EDCEP 985 Advanced Group Counseling (3)
EDCEP 967 Advanced Counseling Appraisal (3) or
EDCEP 999 Research: Clinical Appraisal Laboratory (3)

2. Cognate area (12 hrs)
Students will develop an area of professional expertise constructed of courses outside of the department planned with concurrence of the committee.

3. Practicum/Internship (3-9 hrs)
EDCEP 977 Advanced Practicum (3)
EDCEP 991 Internship in CEP (6)
or
EDCEP 999 Research: Clinical Internship Laboratory (6)
(These courses may be offered for variable credit.)

The doctoral-level internship consists of 600 clock hours including supervised experiences in clinical settings, research, teaching, and supervision. The internship includes activities that are typical for a regular employed professional in the setting.

In both the practicum and internship, students receive one hour per week of individual supervision or two hours of small group supervision by qualified professionals.

Practicum and internship arrangements are made by the coordinating faculty member when coursework had been completed and only after submission and approval of a pre-enrollment application, available in 369 Bluemont Hall. Both the coordinating faculty member and the student's committee must approve enrollment. Enrollment forms are due mid-semester for the following semester.

4. Research courses (6 hrs)
EDCEP 817 Statistical Methods in Education (3)
EDCEP 917 Experimental Design in Education Research (3)
EDADL 838 Qualitative Research in Education (3)
or
EDCEP 819 Survey Research (3)

5. Research (30 hrs)
EDCEP 999 Research: Counseling Research Laboratory (3)
EDCEP 999 Research (27)

Doctor of philosophy in student affairs in higher education

The Ph.D. in student affairs in higher education requires a minimum of 93 hours of post baccalaureate. A designated core of 15 hours of graduate credit, typically a part of the master's degree in college student personnel work, is required. These courses include the following: EDCEP 812, History and Philosophy of Higher Education; EDCEP 816, Research Methods; EDCEP 818, Principles of College Student Personnel Services; EDCEP 838, The College Student and the College Environment; and EDCEP 786, Diversity in Higher Education. These courses may be part of a master's degree or must be completed in addition to the doctoral course work.

1. Professional courses (15 hours)
EDCEP 886 Seminar/Higher Education Law (3)
EDCEP 886 Seminar/Higher Education Finance (3)
EDCEP 886 Seminar/Enrollment Management (3)
EDCEP 927 Higher Education Administration (3)
EDCEP 948 Adv. Student Development Theory (3)

2. Outside Area/Specialization (9 hours)
This specialization is developed in consultation with the major professor and must be approved by the student's program of study committee.

3. Research courses (9 hours)

EDCEP 817 Statistical Methods in Education (3)
EDCEP 917 Experimental Design in Education Research (3)
EDADL 838 Qualitative Research In Education (3)

4. Dissertation Research (30 hours)

EDCEP 999 Doctoral Research (30 hours)
Preliminary examination. Candidates must successfully complete completion of all segments of a monitored, written examination of at least 12 hours over all areas of the program of study.

Doctor of education degree

The department of Special Education, Counseling, and Student Affairs offers one Ed.D. degree in counseling and student development (including an emphasis in school counseling).

Ed.D. in counseling and student development (including an emphasis in school counseling)

A minimum of 94 semesters hours beyond the baccalaureate degree is required. Up to 30 relevant graduate hours earned as part of a master's degree may be used to satisfy these requirements. Guidelines for the plan of study follow.

1. Area of emphasis (48 hours minimum)

The following courses or their equivalent (as determined by the supervisory committee) will normally be required as a part of the area of emphasis in the Ed.D.program in school counseling.

EDCEP 715 Principles of Assessment
EDCEP 815 Using Tests in Counseling
EDCEP 823 Counseling Theory
EDCEP 852 Career Development for School Counselors
EDCEP 857 Guidance Program Management
EDCEP 858 Group Processes
EDCEP 877 Practicum in Counseling
EDCEP 856 Guidance in the Elementary School
EDCEP 822 Principles of Guidance
EDCEP 887 Counseling Internship

The following list of courses is strongly suggested for the area of emphasis:

EDCEP 863 Trends in Career Development
or
EDCEP 924 Theories of Vocational Counseling
EDCEP 871 Consultation for Counselors
EDCEP 985 Advanced Counseling Theory
EDCEP 986 Advanced Counseling Practicum
EDCEP 987 Counseling Supervision Practicum

2. Foundations (12 hours)

The foundations area is intended to provide the student with a broad background in the rudimentary foundations of educational thought. Each of the following courses or their equivalent must be completed.

EDCEP 816 Research Methods
EDCEP 912 Psychological Basis of Education Thought and Practice
EDCI 910 Multicultural Curriculum Programming
EDADL 886 Seminar: Historical & Philosophical Analysis of Education

3. Research (6 hours)

The selection of courses should be made on the basis of the research to be addressed through the dissertation.

EDCEP 817 Statistical Methods in Education

(Plus one of the following courses must be completed)

EDCEP 819	Survey Research
EDCEP 917	Experimental Design in Education
EDADL 838	Qualitative Research in Education (3)
FSHS 893	Program Evaluation in Human Services

4. Clinical experience in counseling (12 hours)
The clinical experience is designed to enhance one's professional development by providing field-based exposure to the process of administration and supervision of guidance programs and personnel. The objectives, activities, and outcomes for this clinical experience/internship are commonly determined by the major professor (advisor), in consultation with the student and advisory committee.

EDCEP 991	Internship in Counseling and Educational Psychology (12 hours)

5. Dissertation: research (16 hours)
Completion of a dissertation which treats an important topic of professional education practice using a systematic methodology consistent with accepted research paradigms; the dissertation must be successfully defended in a public, oral defense. The dissertation work is closely supervised by the major professor with the guidance of the supervisory committee.

EDCEP 999	Doctoral Research (16 hours)

Master of science in special education requirements

Students pursuing a master's degree in special education are required to complete requirements for full certification in at least one area of special education. A minimum of 30 hours of academic credit comprising an appropriate program of study must be approved early in the student's program by the student's graduate committee and the Graduate School. The master's degree in special education generally requires about 36 hours of study, including a research seminar, and a thesis or comprehensive examination. Committee members may recommend additional course work based on individual student need.

Ed.D. in special education requirements

The student's Ed.D. program is directed by a minimum of five members of the university graduate faculty, including a major professor with substantial expertise in the area of emphasis, two other faculty with strengths in the area of emphasis, one faculty member outside the student's specialization, and one faculty member, appointed by the dean of the Graduate School, from another department within the College of Education who serves as the chair of the examination committee for the oral defense of the dissertation.

Each student's program of study is individualized with the approval of the major professor and the supervisory committee to optimize the student's interests, expertise, and professional goals.

Credit hour requirements
A minimum of 94 semester hours beyond the baccalaureate degree, including the following:

Foundations (12 hours)
Required courses in foundations include these areas: historical and philosophical analysis of educational ideas and practice; techniques and interpretation of educational research; social science explanations of educating a diverse society; and psychological bases of educational thought and practice. These courses satisfy these requirements:

EDADL 886	Seminar: Historical and Philosophical Analysis of Education, or equivalent course
EDCEP 816	Research Methods, or equivalent course
EDCI 910	Multicultural Curriculum Programming, or equivalent course

EDCEP 912 Psychological Bases of Educational Thought and Practice, or equivalent course

Research courses (6 hours)
Research courses are required which concern methodology consistent with that required for the dissertation.

Clinical experience (12 hours)

Area of emphasis (48 hours)

Dissertation research (16 hours)
Completion of a dissertation which treats an important topic of professional education practice using a systematic methodology consistent with accepted research paradigms; the dissertation must be successfully defended in a public, oral defense.

Preliminary examination requirement
Satisfactory completion of all segments of a monitored, written examination of at least 12 hours over all areas of the program of study, 3 of which must be over the foundation courses.

Counseling and educational psychology courses (EDCEP)

Undergraduate and graduate credit in minor field

EDCEP 502. Independent Study in Counseling and Educational Psychology. (1-3) I, II, S. Selected topics in professional education. Maximum of three hours applicable toward degree requirements. Pr.: Consent of department chair.

EDCEP 525. Interpersonal Relations in the Schools. (1) I, II. A didactic and experiential course designed to develop an understanding of human relations skills in the schools. Provides knowledge and skills necessary to work effectively with students, parents, and school personnel. Particular emphasis is on the basis for interpersonal relations in education, communication skills, the facilitative relationship, working with students in groups, and conducting meetings with parents and school personnel. Pr.: EDSEC 420, 477, and 476. Simultaneous enrollment required for EDCI 455, EDCEP 525, and EDSEC 586.

Undergraduate and graduate credit

EDCEP 711. Middle School Classroom Guidance. (3) On sufficient demand. Techniques of integrating guidance principles for pre- and early teens into a middle school concept; investigation of classroom dynamics for middle school teachers as members of the guidance team; involvement of teachers in model guidance programs. Pr.: EDCEP 315.

EDCEP 715. Principles of Assessment. (3) I, II. S. Principles of development, administration, evaluation, and constructive instructional use of paper-pencil, product, and performance assessments. Focus on norm- and criterion-referenced uses of teacher-made and published measures as an integral part of effective decision making in education. Pr.: EDCEP 315.

EDCEP 721. Mental Health in Schools. (3) S. Examines mental health and risk factors in the context of schools and student learning. Topics include: characteristics and behaviors of at-risk students; and prevention, intervention, and referral strategies to facilitate and promote mental health and a positive learning environment. Pr.: PSYCH 280 or FSHS 110.

EDCEP 725. The Teacher and Child Abuse. (3) On sufficient demand. An exploration of child abuse and neglect with specific references to legal and moral responsibilities of teaching. Suggestions for detection, reporting, and responsive instruction for suspected cases of child abuse and neglect. Pr.: Junior standing.

EDCEP 737. Drug Abuse Education. (3) Alternating summers. Emphasis on the development of effective drug abuse education programs with attention given to the role delineation for schools and teachers. Materials and procedures for developing values and attitudes in an education setting.

EDCEP 752. College Student Athletes. (3) S. Study of college student athletes. Topics include the role of intercollegiate athletics, pressures and challenges on student athletes, student development theory, life skills programming, National Collegiate Athletic Association policy, diversity, and gender issues.

EDCEP 761. Intercollegiate Athletics and the College Student Athlete. (3) II. Examines policies and procedures of the NCAA, roles and responsibilities within a department of intercollegiate athletics. Topics include marketing, fundraising, external relations, sports information, coaching, academic support, among others.

EDCEP 775. Readings in Counseling and Educational Psychology. (1-3) I, II, S. Readings in research and application in specialized areas in education. May be taken more than once. Pr.: FSHS 110.

EDCEP 786. Topics in Counseling and Educational Psychology. (1-3) I, II, S. Examination of current topic in specialization of faculty. Varied topics offered each semester so course may be repeated. Pr.: FSHS 110.

EDCEP 795. Problems in Counseling and Educational Psychology. (Var. 1-18). I, II, S. Selected students are permitted to secure specialized training appropriate to the needs of the individual. The student's project may involve intensive library investigation in a special field or the collection and analysis of data pertinent to a given problem. All work is done independently under the direction of a faculty member. As many conferences are held as necessary to assure successful completion of a project. Pr.: Background of courses necessary for the problem undertaken and consent of instructor.

Graduate credit

EDCEP 802. Stress Management for Teachers, Counselors, and Administrators. (3) On sufficient demand. Systematic training in stress-management strategies and techniques for the professional educator and for use in classroom and counseling settings. Includes knowledge of self-directed and instrumental techniques, psychophysiology of stress, issues in stress management, and role of teacher and counselor in delivering stress-management training. Pr.: EDCEP 315.

EDCEP 812. History and Philosophy of Higher Education. (3) I. History and development of higher education with a study of the philosophy, objectives, and functions of various types of institutions. Pr.: Consent of instructor.

EDCEP 815. Using Tests in Counseling. (3) II. Focus on the use of tests as an integral part of counseling. Emphasizes interpretation of scores, issues of psychological and educational measurement, and selection and evaluation of instruments. Pr.: EDCEP 715.

EDCEP 816. Research Methods. (3) I, II, S. Surveys quantitative and qualitative social science research methods applied to educational topics. Includes critical analysis of published research to foster research-enlightened decision-making in professional practice. Provides a foundation in a wide spectrum of educational research methods. Offered only via videotape for home study with exams on campus. Pr.: Nine hours of education or consent of instructor.

EDCEP 817. Statistical Methods in Education. (3) I, S. An introductory yet comprehensive survey of common statistical analyses encountered in educational research. Computer oriented. Pr.: A first course in college mathematics plus either STAT 702 or EDCEP 816.

EDCEP 818. Principles of College Student Personnel Services. (3) II. Principles, history, philosophy, current professional issues and future trends in college student personnel work; an introduction to the primary student services. Pr.: Twelve hours of undergraduate social sciences and consent of instructor.

EDCEP 819. Survey Research. (3) I, in even numbered years. Evaluation, interpretation, use, and production of survey research in education. Pr: EDCEP 816 and 817.

EDCEP 820. Individual Intelligence Testing. (3-5) On sufficient demand. Appraisal of individual intelligence with emphasis on techniques of administration, scoring, interpreting, and applying in school settings. Supervised practice in the use of WISC-III and other tests such as the Stanford-Binet, K-ABC, and WAIS-R. Pr.: EDCEP 715 and consent of instructor.

EDCEP 822. Principles of Guidance. (3) S. This is a foundation course for secondary school counselors and addresses issues relevant to secondary school guidance programs. Pr.: FSHS 110 or PSYCH 520.

EDCEP 823. Counseling Theory. (3) I, S. Theories, methods, and problems in counseling, relating the counseling process to dynamics of human behavior. Pr.: FSHS 110 or PSYCH 520.

EDCEP 825. Social Psychology of Education. (3) II. Consideration of the literature and applications of social/psychological studies of the student, student cultures, characteristics of educational institutions, and organizational change. Pr.: EDCI 611 or EDCEP 812 or consent of instructor.

EDCEP 829. Learning Principles. (2-3) II. Exploration of learning theories and an overview of research on factors that enhance academic performance, including psychosocial variables, learning styles, and learning strategies. The course covers strategies for enhancing student academic peformance, ranging from assessment to implementation. Pr.: Consent of instructor.

EDCEP 833. Creativity in Education. (3) Alternating summers. Clarification of creativity in education, discovery of creative talent, methods of encouraging creative talent; emphasis on learning models and research in creativity as compared with or contrasted with conformity; emphasis on divergent and convergent thinking and its role in creative teaching with major consideration given to the student's involvement in creative study and/or teaching. Pr.: Teaching experience.

EDCEP 835. Foundations of Academic Advising. (3) I. Examines the foundations of academic advising as essential componenets of student success and retention in higher education. Topics include developmental advising; research on academic advising; models and delivery systems; advising skills, including diverse populations; and evalution, assessment, and reward systems for advisors and advising programs. Pr.: FSHS 110 and consent of instructor.

EDCEP 838. The College Student and the College Environment. (3) I. Study of the American college student and how he/she

is influenced by institutional policies, practices, and other environmental variables. Special attention will be given to contemporary student development theory and research. Pr.: FSHS 110 and consent of instructor.

EDCEP 851. Multicultural Aspects of Academic Advising. (3) This course introduces students to the various cultural, ethnic, racial, and linguistic issues associated with advising practice.

EDCEP 852. Career Development for School Counselors. (3) I. Addresses the knowledge and competencies necessary for school counselors to use education, career, and labor market information resources, and career guidance and counseling techniques, methods, and technology in developing programs, services, and activities to meet the career development needs of students. Pr.: FSHS 110 or PSYCH 520.

EDCEP 856. Guidance in the Elementary School. (3) II. The nature and philosophy of guidance in the elementary school; the function of specialized child appraisal and counseling techniques in the unique interrelationships of the specialist and the teacher in the team approach to elementary school guidance. Pr.: EDEL 585, EDCEP 820, and consent of instructor.

EDCEP 857. Guidance Program Management. (3) II. This course addresses the issues, knowledge, and competencies relevant to planning, implementing, andevaluating effective guidance and counseling programs to meet the needs of all students. Pr.: EDCEP 822.

EDCEP 858. Group Processes. (3) I, S. Designed to acquaint students with group procedures as basic tools in counseling, guidance, and other education services. Pr.: EDCEP 823.

EDCEP 860. Adult Counseling. (3) I. On sufficient demand. Study of adults and the problems they face in their educational, psychological, social, and career development. Particular emphasis will be given to counseling theories and strategies important for counselors working with adults experiencing these developmental problems. Pr.: EDCEP 823 or conc. enrollment.

EDCEP 861. Management of Counseling Services for Adults. (3) On sufficient demand. Strategies for the development and implementation of counseling services for adults in school, community, business, and industrial settings. The course will focus on the integration of formal and informal educational, career development, and mental health programs developed for adults having life adjustment problems. Local, state, and federal programs and agencies and their role in adult counseling services will be examined. Pr.: EDCEP 823 and 860.

EDCEP 862. Leisure Counseling. (3) On sufficient demand. Course develops leisure counseling models for use in community and institutional recreational programs and to provide skills and competencies in assessing, interviewing, and counseling individuals and groups in the use of leisure experiences. Pr.: REC 725 and/or EDCEP 858. Same as REC 862.

EDCEP 863. Trends in Career Development. (3) II. Integration of major research/issue/policy contributions to major aspects of career development including occupational adjustment and vocational fitness. Pr.: FSHS 110 or PSYCH 520.

EDCEP 871. Consultation for Counselors. (3) II. This course acquaints students with the major models of consultation that may be used by counselors for intervention with individuals and organizations. Techniques, issues and ethical considerations are also addressed. Pr.: EDCEP 823 and 858.

EDCEP 875. Administration of College Student Personnel Services. (3) I. Planning, budgeting, personnel supervision and evaluation, office management, administrative use of computers, program evaluation and related applications in the primary college student personnel services. Pr.: EDCEP 818 and 838.

EDCEP 877. Practicum in Counseling. (3) I, II, S. This is a developmental counseling skills course addressing influences on the helping process such as personal characteristics, theoretical orientation, verbal and nonverbal behaviors, and ethical considerations. Includes research applications, case conceptualization, evaluation, simulation, and supervised individual and group practice in the field. Pr.: 24 credit hours of prescribed counseling curriculum.

EDCEP 885. Practicum in College Student Personnel Work. (3) I, II. Supervised professional experience in college student personnel services. Pr.: EDCEP 818, 838, 875, and consent of instructor.

EDCEP 886. Seminar in Counseling and Educational Psychology. (Var.) On sufficient demand. Intensive discussion of a problem of current professional interest based on study of pertinent original literature. May be repeated with consent of supervisory committee. Pr.: Consent of instructor.

EDCEP 887. Counseling Internship. (1-3) I, II. This supervised internship includes activities that a regularly employed school counselor would be expected to perform. The student will engage in individual counseling, group work, developmental classroom guidance, use within an ethical framework and a sensitivity to individual characteristics. Pr.: 36 credit hours of School Counseling prescribed curriculum.

EDCEP 898. Master's Report. (Var.) I, II, S. Pr.: Consent of instructor.

EDCEP 899. Master's Research. (Var.) I, II, S. Pr.: Consent of instructor.

EDCEP 912. Psychological Bases of Educational Thought and Practice. (3) S. In studying educational applications of

behavioral, social cognitive, and cognitive learning theories, attention is given to historical milieus of origin, relationships to major educational philosophies, relationships to features of instruction, and classroom motivation, and evaluation of impact on contemporary educational thought and practice. Pr.: EDCEP 315 or EDACE 790 and either EDCI 310, EDADL 811, EDADL 813.

EDCEP 915. Theory of Measurement. (3) On sufficient demand. A course designed to provide the theoretical background needed for students who wish to (1) develop greater competence in practical uses of tests in educational settings, (2) pursue academic study of measurement theory, and (3) develop instruments for research use. Pr.: EDCEP 715.

EDCEP 917. Experimental Design in Educational Research. (3) II, S. Philosophy, planning, and evaluation of research in education. Experimental designs appropriate for educational research with special emphasis on multivariate procedures. Computer oriented. Pr.: EDCEP 817.

EDCEP 920. Advanced Educational Psychology: Learning. (3) On sufficient demand. The learning process, with special emphasis on human abilities and early and contemporary learning theories, with applications to selected recent developments in teaching and persistent problems and issues in education. Pr.: EDCEP 315 or its equiv.

EDCEP 921. Advanced Educational Psychology: Development. (3) S. Advanced studies in physical, intellectual, emotional, social, and personality development across the lifespan with the focus on the importance of these factors to the educational process. Pr.: EDCEP 315.

EDCEP 924. Theories of Vocational Counseling. (3) On sufficient demand. A historical and contemporary analysis of systems and theories of vocational psychology and their implications for use in the counseling setting. Pr.: EDCEP 823, 852, and 863.

EDCEP 927. Higher Education Administration. (3) II. Administration theory applied to the organization and administration of colleges and universities; special reference to structure, governing boards, administrative roles, decision-making, and analysis of selected problems. Pr.: EDCEP 812.

EDCEP 948. Advanced Student Development Theory in College Student Affairs. (3) S. In-depth examination of the major young adult and adult development models and their implications within the context of student affairs in higher education. Pr.: EDCEP 816, 818, 838, and consent of instructor.

EDCEP 951. Multicultural Counseling. (3) S. Adaptations of generic counseling skills to meet the needs of diverse populations. Pr.: EDCEP 823 and 877.

EDCEP 955. Professional Counseling Ethics. (3) I. Examination of ethical standards developed by professional organizations of counselors. Current interpretations of standards and applications are developed through case studies, essays, reading, and literature review. Pr.: EDCEP 823, 877, and EDCEP 822 or 856.

EDCEP 958. Advanced Group Counseling. (3) II. The examination of selected group counseling theories and their relevance for the practice of group counseling in a variety of settings. Pr.: EDCEP 858.

EDCEP 959. Practicum in Group Counseling. (3) On sufficient demand. Supervised group counseling experience in a variety of settings. Pr.: EDCEP 858 and 958.

EDCEP 967. Advanced Counseling Appraisal. (3) II. Advanced application of appraisal models and methods for use with clientele. Specific personality tests and classification systems will be addressed. Pr.: EDCEP 715, EDCEP 815, PSYCH 505.

EDCEP 977. Advanced Counseling Practicum. (3) I, II. Intense supervised practice in counseling. Particular emphasis will be given to the development of skills for intervention into human problems and time-limited case management. Pr.: EDCEP 823, 877, and 887.

EDCEP 985. Advanced Counseling Theory. (3) I. Reading and analysis of primary sources in major counseling theories. Written reaction papers, presentations, discussion, and development of a major paper on a personal theory. Pr.: EDCEP 823 and 887.

EDCEP 986. Advanced Seminar in Counseling and Educational Psychology. (Var.) On sufficient demand. These seminars will critically consider recent research in the designated fields. The emphasis will be upon individual studies and small group interaction.. Enrollment is restricted to those students who have been admitted to the doctoral program in education and who have completed substantial amounts of graduate study in the designated fields. Pr.: Consent of instructor.

EDCEP 987. Counseling Supervision Practicum. (3) On sufficient demand. An advanced course in the theory, techniques, and problems of supervising persons being trained as counselors. Course emphasis is on actual supervisory experiences with beginning counselors. Open to advanced doctoral students only with consent of instructor.

EDCEP 991. Internship in Counseling and Educational Psychology. (Var.) On sufficient demand. Studies of and field experiences in the development of programs in cooperating schools and educational or related agencies under the supervision of Counseling and Educational Psychology graduate faculty members. A maximum of 6 credit hours may be chosen from the areas listed. Pr.: Consent of instructor.

EDCEP 999. Research in Counseling and Educational Psychology. (Var.) I, II, S. Individual investigation in the field of a

student's specialization. Pr.: Sufficient training to carry on the line of research undertaken.

Special education courses (EDSP)

Undergraduate and graduate credit in minor field

EDSP 502. Independent Study in Special Education. (1-3) I, II, S. Selected topics in professional education. Maximum of three hours applicable toward degree requirements. Pr.: Consent of department chair.

Undergraduate and graduate credit

EDSP 500. Introduction to Human Exceptionality. (3) II. Survey of history and legal aspects of service, etiologies, characteristics, and special needs of exceptional individuals.

EDSP 710. Education of Exceptional Individuals. (3) I, II, S. A general study of special education, with emphasis on legislation, Individual Education Plans, cross-cultural assessment and intervention, and strategies for exceptional students at the preschool, elementary, and secondary levels. Pr.: EDCEP 315 and EDSP 323 or EDSP 324.

EDSP 723. Characteristics of Cognitive Disorders.(3) I,II. Etiological, psychological, sociological, and educational aspects of cognitive disabilities. Pr.: EDSP 323 or 324, and EDCEP 315.

EDSP 728. Characteristics of Emotional and Behavioral Disorders. (3) S. Study of conceptual models for understanding emotional and behavioral disorders of childhood and adolescents, and their implications for educators. Pr.: EDCEP 315 and EDSP 323 or EDSP 324.

EDSP 742. Interventions: Emotional and Behavioral Disorders. (3) I, S. Educational planning assessment, instructional methods, curricular modification, media and materials, teacher competencies, and model programs for students with emotional and behavioral disorders. Pr.: EDSP 323 or 324, 710.

EDSP 743. Interventions: Academic Disabilities. (3) II, S. Educational planning, instructional methods, and curricula modifications for students with academic learning disabilities. Pr.: EDCEP 323 or 324; EDSP 710.

EDSP 745. The Consulting Process in Special Education. (3) S. A course to prepare special education teachers with skills for consulting effectively with classroom teachers, related services personnel, administrators, and parents about curriculum and program alternatives for exceptional children. Emphasis is upon developing collaborative consultation processes through communication, cooperation, and coordination techniques. Pr.: EDSP 323 or 324 or 500, and EDSP 742 or 743.

EDSP 750. Characteristics and Needs of Individuals Who are Gifted. (3) On sufficient demand. An overview of historical perspectives related to gifted child education, various facets of intellectual and creative functioning, national and state guidelines for planning and implementing gifted programs, modifying curriculum and classroom strategies to nurture gifted potential, current issues in gifted education. Pr.: EDSP 323 or 324 or 500.

EDSP 755. Guidance of the Exceptional Individual. (3) On sufficient demand. Strategies for teachers in working with the academic, vocational, personal, and social adjustment of the exceptional individual. The course will focus on the individual in preschool, elementary, secondary, postsecondary, and adult settings. Pr.: EDSP 722 or 763.

EDSP 775. Readings in Special Education. (1-3) I, II, S. Readings in research and application in specialized areas in education. May be taken more than once. Pr.: FSHS 110.

EDSP 777. Behavior Management for Exceptional Individuals. (3) II. Theoretical and practical applications of behavior analysis with emphasis on preventing and remediating behavior problems of students with disabilities. Pr.: EDCEP 315, EDSP 323 or EDSP 324.

EDSP 778. Technology for Special Education. (3) I. Designed to help special educators develop an awareness of assistive technology (AT) and related legislative guidelines, which can assist in the lives and learning of students receiving special education. This course will explore assistive technology devices and services and software appropriate for students with special needs. Internet resource and AT evaluation systems related to special education will also be covered. Pr.: EDETC 318 Instructional Media or related professional experiences.

EDSP 785. Practicum in Adaptive Special Education. (v. 1-6) I, II, S. Observation and participation in teaching individuals with exceptional educational needs under the supervision of selected teachers in Special Education. Pr.: EDSP 323 or 324, 710, 742, 743.

EDSP 786. Topics in Education. (1-3) I, II, S. Examination of current topic in specialization of faculty. Varied topics offered each semester so course may be repeated. Pr.: EDCEP 215.

EDSP 787. Field Experiences in Special Education. (1-3) On sufficient demand. Observation and supervised activities in schools, camps, clinics, or institutions related to student's area of special interest or preparation.

Graduate credit

EDSP 830. Assessment in Special Education. (3) I, S. A study of assessment procedures used in the preferral, identification, and instructional phases of program planning for students with special needs. Pr.: EDSP 710 and EDCEP 715.

EDSP 833. Administration of Special Education Programs. (2-3) On sufficient demand. The study of administrative units for special education, placement procedures, federal and state legislation, and program reimbursement and funding. Pr.: EDADL 818 or 811.

EDSP 841. Interventions: Functional Special Education. (3) II. Curriculum content, methods, and organization of educational programs for children and youth with functional special education needs. Pr.: EDSP 724 and EDSP 743.

EDSP 844. Special Education in Secondary Schools. (2) II, of odd years. Educational perspectives in service delivery options, educational planning, general instructional approaches, learning strategies, and adaptations and modifications of instructional materials and settings for the secondary student in special education. Pr.: EDCEP 315, EDSP 710 and EDSP 743.

EDSP 845. Special Education Programming: Parental Involvement. (2) I. An in-depth consideration of the role of home and parents in the educational programming for exceptional children. Emphasis on practical and positive strategies used in working with parents. Pr.: EDSP 710.

EDSP 846. Interventions: Early Childhood Special Education. (3) II. Strategies, policies, and procedures for the education of young children (0-5 years of age) with disabilities. Areas of emphasis include Individual Service Plans, interagency collaboration, and specific strategies for parents and young children. Pr.: EDSP 710.

EDSP 847. Methods and Materials for Learners who are Gifted. (3) On sufficient demand. Theories and strategies for differentiating the curriculum for gifted students, emphasis on appropriate methods and materials. Pr.: EDSP 750.

EDSP 848. Transitions in Special Education. (3) S. A study of transition models, curricula, assessment, career development, community resources and agencies, and materials. Pr.: EDSP 710.

EDSP 849. Interventions: Autism Spectrum Disorders. (3) S. Assessment, curriculum content, educational considerations, interventions, and organization of programs for children and youth with Autism Spectrum Disorders. Pr.: EDSP 728 and EDSP 742.

EDSP 885. Practicum in Education of Individuals with Functional Special Education Needs. (1-6) On sufficient demand. Observation and participation in teaching individuals with functional special educational needs under the supervision of selected teachers in Special Education programs. Pr.: EDSP 742, 743, 785, and 841.

EDSP 886. Seminar in Special Education. (Var.) On sufficient demand. Intensive discussion of research or problems of current professional interest based on study of pertinent original literature. Pr.: Teaching experience.

EDSP 888. Externship in Special Education. (1) I, II, S. The course provides a forum for self-directed development of competencies in Special Education. Students conduct self-assessment and develop strategies for ongoing professional development. Pr.: EDSP 885.

EDSP 889. Advanced Practicum: Autism Spectrum Disorders. (1-6) On sufficient demand. Observation and participation in teaching individuals with Autism Spectrum Disorders under the supervision of selected teachers in Special Education programs. Pr.: EDSP 849 and 885 (6 hours).

EDSP 898. Master's Report. (Var.) I, II, S. Pr.: Permission by department head.

EDSP 899. Master's Research. (Var.) I, II, S. Pr.: Permission by department head.

EDSP 986. Advanced Seminar in Special Education. (Var.) On sufficient demand. These seminars will critically consider recent research in the designated fields. The emphasis will be upon individual studies and small group interaction. Enrollment is restricted to those students who have been admitted to the doctoral program in education and who have completed substantial amounts of graduate study in the designated fields. Pr.: Consent of instructor.

EDSP 991. Internship in Special Education. (Var.) I, II, S. Studies of and field experiences in the development of programs in cooperating schools and educational or related agencies under the supervision of College of Education graduate faculty members. A maximum of 6 credit hours may be chosen from the areas listed. Pr.: Consent of department head.

EDSP 999. Research in Special Education. (Var.) I, II, S. Individual investigation in the field of a student's specialization. Pr.: Sufficient training to carry on the line of research undertaken.

For additional information on graduate programs and application materials please contact:
Office of Graduate Studies
College of Education
18 Bluemont Hall
1100 Mid-Campus Drive

Manhattan, KS 66506-5315
785-532-5595

Security Studies

M.A. in Security Studies | Ph.D. in Security Studies | More information

Security Studies is an interdepartmental graduate program with faculty participants from History and Political Science.

Director of Graduate Studies:
Mark Parillo

Graduate faculty:

Joseph A. Aistrup, Ph.D., Indiana University.

Louise Breen, Ph.D., University of Connecticut.

Marsha L. Frey, Ph.D., Ohio State University.

David A. Graff, Ph.D., Princeton University.

Albert N. Hamscher, Ph.D., Emory University.

Dale Herspring, Ph.D., University of Southern California.

Kenneth Holland, Ph.D., University of Chicago

Emizet Kisangani, Ph.D., University of Iowa.

Robert D. Linder, Ph.D., University of Iowa.

Stephen Long, Ph.D., University of North Carolina.

Bonnie Lynn-Sherow, Ph.D., Northwestern.

Brent E. Maner, Ph.D., University of Illinois at Urbana-Champaign.

John M. McCulloh, Ph.D., University of California-Berkeley.

Donald J. Mrozek, Ph.D., Rutgers University,

Mark P. Parillo, Ph.D., Ohio State University.

Jeffrey Pickering, Ph.D., Indiana University.

Michael A. Ramsay, Ph.D., Queen's University.

William L. Richter, Ph.D., University of Chicago.

Charles Sanders, Ph.D., Kansas State University

James E. Sherow, Ph.D., University of Colorado.

Craig Stapley, Ph.D., University of Oklahoma.

David Stone, Ph.D., Yale University.

Michael W. Suleiman, Ph.D., University of Wisconsin.

Lou Falkner Williams Ph.D., University of Florida.

Sue Zschoche, Ph.D., University of Kansas.

M.A. in Security Studies

This is a rigorous, interdisciplinary program intended for career professionals in the military and international affairs. It will be a professional degree providing a broad, analytical perspective on security issues. Coursework will concentrate on issues of strategy, politics, economics, and society from both historical and social science perspectives. Although this is a professional MA, its focus will be on issues complementing those emphasized in the military's professional training.

Course requirements

Course requirements will consist of 30 hours of graduate-level work, up to 12 hours of which may be transfer credit from other graduate-level work. The masters programs admissions committee will evaluate the suitability of transfer credits. The remaining hours will consist of 18 hours of required courses and additional graduate-level electives as needed to total 30 hours.

1. Required: Fundamentals of Security (3 hours)--HIST 812 / POLSC 812

This course will introduce students to major themes covered in the new MA. It is designed to provide students with foundations for the MA's four core courses. It must be completed before enrolling in the core courses, typically in the summer before beginning the program proper. Its content will be largely the same from year to year, though individual instructors may tailor it to some degree. Students will read key texts on international security, military history, and strategy, as well as works on the theory and research practice of history and political science. They will write essays on the assigned readings, participate in on-line synchronous and asynchronous discussions, and compose a final paper or take a final exam on the issues raised by the course.

2. Required: History and Security of Pivotal Regions (6 hours)

Students will take at least two courses on the history of regions of central importance to international affairs. These courses may focus on East Asia (Hist 850), Latin America (Hist 851), the Middle East (Hist 852), Russia and Central Asia (Hist 853), or Sub-Saharan Africa.

3. Required: International Security and Transnational Security (6 hours)--POLSC 813 and 814

Political Science will offer two courses. International Security will focus on traditional issues of the causes of war, deterrence, the relevance/role of international institutions, arms proliferation, the politics of international intervention, and conflict resolution. The second, Terrorism and Transnational Security, will cover security issues that have been given increasing emphasis over recent years. Examples include the unique context of security problems in the developing world, demographic developments and internal/external conflict, environmental issues and their relation to security, economic globalization and security, post-conflict reconstruction, and humanitarian emergencies.

4. Required: Capstone Research Course (3 hours) HIST 815 / POLSC 815

The capstone course will allow students to synthesize knowledge acquired in the core and other MA courses. In the first third of the course, students will review basic readings on research design and methodology from the disciplines of history and political science introduced in the core courses. They will provide response essays on the readings and participate in synchronous and asynchronous discussions of the works with classmates and the instructor. The remaining two-thirds of the course will be devoted to the production of a publishable quality research paper of roughly 30-35 pages in length.

Course delivery and flexible scheduling

The new MA degree is designed with maximum flexibility in its course offerings, and is intended to be attainable within one calendar year of full-time study while maintaining academic standards in accord with existing MA degrees in History and Political Science. It will make maximum use of web-based, evening, and summer courses to provide this flexibility. A minimum of 30 credits is required with 6 to 8 research hours. Courses must include:

Committees

Each student will be supervised by a master's committee consisting of three members of the Security Studies graduate faculty. As in any graduate program, adjunct professors are eligible to serve on committees.

Ph.D. in Security Studies

This is a rigorous, interdisciplinary program intended to prepare its students for careers in research, teaching, and security and international affairs through a broad exploration of social science and historical methodologies as well as topics relating to security issues. Many students will already have a Master of Arts in Security Studies from Kansas State University, but this is not required. Students with other relevant masters degrees may apply to the Ph.D program directly.

Ph.D coursework

The Ph.D degree will require 90 hours of course work. Up to 30 hours from a previous masters degree may be counted towards these 90 hours. The Ph.D committee will judge the suitability and applicability of the previous credits. An additional 30 hours of those 90 will be research hours towards the dissertation. The remaining coursework to reach the total of 90 hours will include 15 hours of required courses The required courses consist of:

1. The Historical Research Sequence.

This sequence consists of two courses of three hours each. The first (Hist 911) will study various approaches to the history of security, international relations, and military affairs. The second will be a methodology course in the theory and concrete practice of historical research in security studies (Hist 912).

2. The Political Research Sequence.

This sequence also consists of two courses. The first, Research Design and Qualitative Methods (Poli Sci 900), focuses on the construction of social science research and the various research design issues students must understand to construct qualitative social science studies. The second course, Quantitative Methods (Poli Sci 901), will introduce students to the statistical tools used by political scientists studying international security issues.

3. The final PhD-level required course

The final PhD-level required course must be taken after completing the history and political science two-course research sequences. Each student must complete a directed reading (Hist 985 or Poli Sci 785) with the chair of the student's Ph.D committee. The course is intended to allow the student to hone his or her dissertation topic in one-on-one consultation with the PhD chair.

The other fifteen hours of coursework will be elective courses chosen in consultation with the Ph.D committee to prepare the student for research and teaching in security studies, as well as to help prepare for the Ph.D exams. These electives may be drawn from History, Political Science, or from other disciplines deemed appropriate by the committee.

The intent of the Ph.D coursework is to prepare students for writing the dissertation. Upon completion of the Ph.D coursework students will have the research skills necessary to complete a dissertation-length scholarly study on a well-defined topic developed in consultation with their PhD Chair.

Ph.D comprehensive exams

After completing coursework, the student will take comprehensive exams. Comprehensive exams will consist of two components. Each component will be a take-home written exam to be completed within a specified time limit. The first will be a general field exam consisting of two parts:

1. The History of International Security.
2. The Politics of International Security.

The second will be a special field, devised by the student in consultation with his or her committee. The special field can be geographic in focus (post-Soviet states, Africa, or Latin America, for example) or thematic (civil-military relations or arms proliferation, for example). Format of the special field will be determined by the examiner in consultation with the student's Ph.D committee.

An interdisciplinary Exam Committee of Security Studies faculty at KSU will administer the written comprehensive exam. The content of the general field exam will be uniform for each matriculating class of students. After passing the written exam, students will take the oral exam. The oral exam will be administered with live streaming video as needed between KSU and Ft. Leavenworth by the same interdisciplinary Exam Committee that designed and evaluated the written component of the exam. The make-up of the Exam Committee will change annually, as will the content of the written exams. The examination committee will organize repeat exams for those who fail. A second failure will result in dismissal from the program.

Dissertation prospectus defense

Following the completion of the Ph.D coursework, the student will submit a written dissertation prospectus to his/her Ph.D Committee. The Committee will provide written feedback on the prospectus. After the student revises the prospectus, he/she will present and defend it orally to the Committee (via live video streaming if necessary). After completion of comprehensive exams and the completion of an acceptable prospectus, the student officially becomes a Ph.D candidate in the program and commences the dissertation.

Writing the dissertation

The student will research and write the dissertation, consulting with the Ph.D Committee as often as necessary. The dissertation should be a substantial and original contribution to knowledge and scholarship.

Dissertation defense

After completing the dissertation, the student will defend it orally before the Ph.D Committee (again, via live video streaming if necessary).

Submission of dissertation

Upon successful completion of the oral defense, the student will make any additional revisions to the dissertation required by the Ph.D Committee and submit the final version of the dissertation to the Graduate School at KSU.

Ph.D committee

Within their first two semesters in the program, students will choose a Ph.D Committee consisting of at least four members of the KSU Security Studies faculty, including at least one member from History and at least one member from Political Science. As in any graduate program, adjunct professors are eligible to serve on committees. This committee will work with the student to craft an appropriate and feasible dissertation topic and advise the student on suitable coursework and preparation. Students will report to their committee at regular intervals. The Ph.D Committee may require the student to master specific research skills appropriate for the dissertation, including foreign languages or quantitative methods.

For more information

For additional information and application materials please contact:
Security Studies Graduate Program Director
Institute for Military History & 20th Century Studies
Kansas State University
221 Eisenhower Hall
Manhattan, KS 66506-1002

Phone: 785-532-0374
E-mail: parillo@ksu.edu
Home Page: http://www.k-state.edu/polsci/programs/security-studies/index.html

Statistics

Careers | Preparation | Programs | Master's degree | Ph.D. degree | Graduate certificate Consulting opportunities | Statistics courses | More information

Head:
John Boyer

Director of graduate studies:
James Neill

Graduate faculty:

John Boyer, Ph.D., Michigan State University.

Suzanne Dubnicka, Ph.D., Pennsylvania State University.

James Higgins, Ph.D., University of Missouri-Columbia.

Dallas Johnson, Emeritus, Ph.D., Colorado State University.

Kenneth Kemp, Emeritus, Ph.D., Michigan State University.

George Milliken, Emeritus, Ph.D., Colorado State University.

James Neill, Ph.D., Kansas State University.

Paul Nelson, Ph.D., Rutgers University.

Weixing Song, Ph.D., Michigan State University.

Haiyan Wang, Ph.D., The Pennsylvania State University.

Winston Yang, Ph.D., Iowa State University.

Careers

To solve problems we need information. But, what kind? How much? And after we get it, what do we do with it? Statisticians deal with numerical information usually called data. Their job is to match the data with the problem, and to figure out what to collect and how to make the numbers manageable so that other people can understand them. All areas that involve the collection and analysis of data can benefit from the skills of a statistician. Monitoring the environment, developing new vaccines, making more reliable products, growing crops more efficiently, and setting insurance rates are just some endeavors in which statisticians have had a significant impact. Statistics is a field in which experts have virtually unlimited opportunities.

Perhaps the most recognizable careers in statistics are those in the state and federal governments. Professionals are not only hired into such areas as the Bureau of Labor Statistics and the Bureau of the Census, but are in demand in many service agencies.

Universities hire statisticians in many academic departments, including mathematics, management sciences, economics, genetics, history, and psychology, and at the administrative and service levels, including business affairs, research support, and personnel.

Private industry is a heavy user of the skills of the statistician. For example, the pharmaceutical industry employs many statisticians to design studies and analyze data to show the safety and effectiveness of new drug compounds. Manufacturing industries are increasingly using statisticians to help them improve quality and productivity. Private consulting can be lucrative for the experienced statistician who works with both private industry and government. Companies of all sizes employ staff statisticians to keep the business progressing and competitive.

Preparation

The Department of Statistics accepts students from many different disciplines. Students entering the M.S. program should have a background of calculus, matrix algebra, computer programming, and introductory statistics. Students entering the Ph.D. program should have additional course work in statistics and mathematics.

Programs

The Department of Statistics offers studies leading to a master of science or a doctor of philosophy degree. A master's degree is recommended for a career in industry or government. The Ph.D. degree is usually required for post-secondary teaching and higher level positions. The department offers concentration in applied and mathematical probability and statistics.

Master's degree

Two master's degree options are available: the master's report options and the nonreport option.

- For the master's report options, the student must take 30 hours of coursework and write a reoprt for 2 additional hours of credit.
- For the nonreport option, the student must take 35 hours of coursework and pass a comprehensive exam approved by the supervisory committee.

The master's report option is strongly recommended for all students, especially those for whom the master's degree will be the terminal degree.

In either case, the coursework must include STAT 713, STAT 770, STAT 771, STAT 860, at least one of STAT 710, STAT 720, or STAT 722, and at least one credit of STAT 945.

Ph.D. degree

Students are required to have 90 credit hours. A typical program consists of 30 hours from the master's program, 30 hours of additional course work and 30 hours of research. Students are required to pass a qualifying exam, which is given in January and August each year. The qualifying exam consists of material from STAT 720, STAT 770, STAT 771, STAT 860, and STAT 861. It will test your knowledge of basic methods and introductory theory. Students who fail the exam may, upon recommendation of the faculty, be allowed to take it a second time, but approval of a second opportunity is not automatic.

Upon completion of course work, normally in the third year of Ph.D. study, students who have passed the qualifying exam must take a preliminary exam. This exam is required by the university and is intended to test the student's breadth and depth of knowledge in the chosen field of study. The exam is prepared in consultation with the student's major professor and advisory committee. It consists of two parts: (1) a statistical foundations exam; (2) an integrated topics exam over the student's area of specialization. Students are also required to present a seminar on a topic approved by the major professor and advisory committee in which the student is to demonstrate an ability to read and communicate information in the research literature.

Graduate certificate in applied statistics

The department offers the Graduate Certificate in Applied Statistics to recognize the preparation and proficiency of non-majors in data analysis in a wide variety of subject matter areas. Graduate students in a variety of academic disciplines are conducting research that requires knowledge in applied statistics. Such students may wish to demonstrate proficiency in applied statistics as it may be useful when looking for meaningful employment opporutnities, in addition to helping them become better researchers in their chosen fields. In order to strengthen their educational programs and the quality of graduate education, a Graduate Certificate in Applied Statistics has been developed.

Consulting opportunities

The department does a tremendous amount of consulting work for researchers and students on campus and for individuals and agencies off campus. Projects vary in length of time and sophistication of methods needed to complete them. Students may contact the department head to find out what is available. Those who wish to do consulting will be assigned a faculty member to direct the work. At the student's discretion, up to 2 hours credit may be earned for consulting by registering for STAT 945.

Statistics courses

Undergraduate and graduate credit in minor field

STAT 510. Introductory Probability and Statistics I. (3) I, II. Descriptive statistics, probability concepts and laws, sample spaces; random variables; binomial, uniform, normal, and Poisson; two-dimensional variates; expected values; confidence intervals; binomial parameter, median, mean, and variance; testing simple hypotheses using CIs and X^2; goodness of fit. Numerous applications. Pr.: MATH 221.

STAT 511. Introductory Probability and Statistics II. (3) I, II. Law of Large Numbers, Chebycheff's Inequality; continuation of study of continuous variates; uniform, exponential, gamma, and beta distribution; Central Limit Theorem; distributions from normal sampling; introduction to statistical inference. Pr.: STAT 510.

Undergraduate and graduate credit

STAT 702. Statistical Methods for Social Sciences. (3) I, II. Statistical methods applied to experimental and survey data from social sciences; test of hypotheses concerning treatment means; linear regression; product-moment, rank, and bi-serial correlations; contingency tables and chi-square tests. Pr.: MATH 100.

STAT 703. Statistical Methods for Natural Scientists. (3) I, II, S. Statistical concepts and methods basic to experimental research in the natural sciences; hypothetical populations; estimation of parameters; confidence intervals; parametric and nonparametric tests of hypotheses; linear regression; correlation; one-way analysis of variance; t-test; chi-square test. Pr.: Junior standing and equiv. of college algebra.

STAT 704. Analysis of Variance. (2) I, II, S. Computation and interpretation for two- and three-way analyses of variance; multiple comparisons; applications including use of computers. Meets four times a week during first half of semester. Pr.: One previous statistics course.

STAT 705. Regression and Correlation Analyses. (2) I, II, S. Multiple regression and correlation concepts and methods; curvilinear regression; applications including use of computers. Meets four times a week during second half of semester. Pr.: One previous statistics course.

STAT 706. Basic Elements of Statistical Theory. (3) I. The mathematical representation of frequency distributions, their properties, and the theory of estimation and hypothesis testing. Elementary mathematical functions are used to illustrate theory. Pr.: MATH 205, 210 or 220 and STAT 320.

STAT 710. Sample Survey Methods. (2) I, in even years. Design, conduct, and interpretation of sample surveys. Pr.: STAT 702 or 703. Meets four times a week during first half of semester.

STAT 713. Applied Linear Statistical Models. (4) I. Matrix-based regression and analysis of variance procedures at a mathematical level appropriate for a first-year graduate statistics major. Topics include simple linear regression, linear models in matrix form, multiple linear regression, model building and diagnostics, analysis of covariance, multiple comparison methods, contrasts, multifactor studies, blocking, subsampling, and split-plot designs. Pr.: Prior knowledge of matrix or linear algebra and one prior course in statistics. A student may not receive credit for both the STAT 704/705 sequence and STAT 713.

STAT 716. Nonparametric Statistics. (2) I, in odd years. Hypothesis testing when form of population sampled is unknown: rank, sign, chi-square, and slippage tests; Kolmogorov and Smirnov type tests; confidence intervals and bands. Meets four times a week during second half of semester. Pr.: One previous course in statistics.

STAT 717. Categorical Data Analysis (3) II. Analysis of categorical count and proportion data. Topics include tests of association in two-way tables; measures of association; Cochran-Mantel-Haenzel tests for 3-way tables; generalized linear models; logistic regression; loglinear models. Pr.: STAT 704, 705

STAT 720. Design of Experiments. (3) II, S. Planning experiments so as to minimize error variance and avoid bias; Latin squares; split-plot designs; switch-back or reversal designs; incomplete block designs; efficiency. Pr.: STAT 704 and 705.

STAT 722. Statistical Designs for Product Development and Process Improvement. (3) II. A study of statistically designed experiments which have proven useful in product development and process improvement. Topics include randomization, blocking, factorial treatment structures, fractional factorial designs, screening designs, Taguchi methods, response surface methods. Pr.: STAT 511 or STAT 704 and 705.

STAT 725. Introduction to the SAS Computing. (1) I. Topics may include basic environment and syntax, reading and importing data from files, writing and exporting data to files, data manipulation, basic graphics, and built-in and user-defined functions. Pr.: one graduate level course in statistics.

STAT 726. Introduction to Splus/R Computing. (1) II. Topics may include basic environment and syntax, reading and importing data from files, data manipulation, basic graphics, and built-in and user-defined functions. Pr.: one graduate level course in statistics.

STAT 730. Multivariate Statistical Methods. (3) I. Multivariate analysis of variance and covariance; classification and discrimination; principal components and introductory factor analysis; canonical correlation; digital computing procedures applied to data from natural and social sciences. Pr.: STAT 704, 705.

STAT 735. Statistics in Health Related Industries. (2) I, in odd years. Case studies and selected literature of applications of statistics to problems in the pharmaceutical and health-related industries are discussed. Topics include pharmacokinetic analysis, covariance analysis, crossover studies, bioequivalence. Meets four times a week during first half of semester. Pr.: STAT 704, 705, 720.

STAT 736. Bioassay. (2) II, in odd years. Direct assays; quantitative dose-response models; parallel line assays; slope ratio assays; experimental designs for bioassay; covariance adjustment; weighted estimates; assays based on quantal responses. Meets four times a week during second half of semester. Pr.: STAT 704 and 705.

STAT 740. Nonlinear Models. (3) S, in even years. Methods of estimating parameters of nonlinear models; procedures for testing hypotheses; construction of confidence intervals and regions; nonlinear analysis of covariance; quantal dose response and probabilistic choice models. Pr.: MATH 222, STAT 720.

STAT 745. Statistical Graphics (3) II, in even years. Visual display of quantitative information. Statistical graphics topics to include visual perception, basic graphics construction, quantitative univariate to multivariate statistical graphics, trellis displays, introduction to smoothing and graphics, introduction to density estimation and graphics, and categorical graphics. Modern graphics software will be used. Pr.: STAT 705 or equivalent.

STAT 770. Theory of Statistics I. (3) I. Probability models, concepts of probability, random discrete variables, moments and moment generating functions, bivariate distributions, continuous random variables, sampling. Central Limit Theorem, characteristic functions. More emphasis on rigor and proofs than in STAT 510 and 511. Pr.: MATH 222.

STAT 771. Theory of Statistics II. (3) II. Introduction to multivariate distributions; sampling distributions, derivation, and use; estimation of parameters, testing hypothesis; multiple regression and correlation; simple experimental designs; introduction to nonparametric statistics;

discrimination. Pr.: STAT 770.

STAT 799. Topics in Statistics. (Var.) I, II, S. Pr.: STAT 703 or 770 and consent of instructor.

STAT 810. Seminar in Probability and Statistics. (1) I, II. Discussion and lectures on topics in probability and statistics; one seminar talk by each student registered for credit. Pr.: Graduate standing and at least two graduate courses in statistics.

STAT 818. Theory of Life-Data Analysis. (3) II, in odd years. A study of models and inferential procedures important to life-data analysis. Comparison of estimators (MLE, BLUE, etc.). Pivotal quantities. Design and regression models for non-normal distributions. Analysis of censored data. Pr.: STAT 771.

STAT 825. Numerical Methods of Statistics. (3) II, in odd years. Topics may include efficient programming echniques, generating data from non-standard distributions, simulation techniques,resampling methods, optimization techniques, smoothing, and imputation. Pr.: STAT 725, STAT 726, STAT 771.

STAT 850. Stochastic Processes I. (3) II. Generating functions; conditional probability and conditional expectations; normal processes and covariance stationary processes; Poisson processes; renewal processes; Markov chains, discrete time. Pr.: STAT 770.

STAT 851. Stochastic Processes II. (3) I. Markov chains, discrete time; Markov chains continuous time; birth-death processes; Kolmogorov differential equations; diffusion processes, foward and backward Kolmogorov equations; applications. Pr.: STAT 850.

STAT 860. Linear Models I. (3) I. Subspaces, projections, and generalized inverses; multivariate normal distribution, distribution of quadratic forms; optimal estimation and hypothesis testing procedures for the general linear model; application to regression models, correlation model. Pr.: STAT 704, 705, 771; course in matrices.

STAT 861. Linear Models II. (3) II. Continued application of optimal inference procedures for the general linear model to multifactor analysis of variance, experimental design models, analysis of covariance, split-plot models, repeated measures models, mixed models, and variance component models; multiple comparison procedures. Pr.: STAT 860.

STAT 870. Analysis of Messy Data. (3) I. Design structures; treatment structures; equal and unequal variances; multiple comparisons; unequal subclass numbers; missing cells; interpretation of interaction; variance components; mixed models; split-plot and repeated measures; analysis of covariance; cross-over designs. Pr.: STAT 720.

STAT 880. Time Series Analysis. (3) I, in odd years. Autocorrelation function; spectral density; autoregressive integrated moving average processes; seasonal time series; transfer function model; intervention analysis; regression model with time series error. Pr.: STAT 705 and 770.

STAT 898. Master's Report. (2) I, II, S. Pr.: Consent of instructor.

STAT 899. Master's Thesis Research. (Var.) I, II, S. Pr.: Consent of instructor.

STAT 901. Rank and Robustness. (2) I, in even years. A study of robust and rank-based procedures for estimation and testing in one-and two-sample location problems and linear models. Topics may include; norm-based inference; asymptotic theory; asymptotic relative efficiency; evaluating robustness via the influence function and breakdown; R-estimates, M-estimates, U-statistics. Pr.: STAT 771, STAT 860.

STAT 902. Generalized Linear Models. (2) II, in odd years. Statistical models based on the exponential family of distributions where a function of the mean response is linear in the covariates. Applications to non-normal and discrete data, including binary, Poisson and gamma regression, and log-linear models. Topics include likelihood-based estimation and testing, model-fitting, residual analysis, over-dispersed models, quasi-liklihood, and the use of computer packages. Pr.: STAT 717, STAT 771, STAT 860.

STAT 903. Spatial and Longitudinal Data. (2) I, in odd years. Statistical analysis of spatially and temporally correlated data, including inference for continuous and discrete data based on linear, nonlinear and generalized linear models and methods. Inferential objectives include prediction of response and estimation of correlation/covariance structures. Pr.: STAT 720, STAT 771, STAT 861.

STAT 904. Resampling Methods. (2) II, in even years. Application, theory, and computational aspects of resampling methods. Topics include parametric, nonparametric, jackknife, and finite-population resampling; bootstrap confidence intervals and hypothesis tests; randomization theory and permutation tests; applications to regression; implementation using statistical software. Additional topics may include double bootstrap, dependent data, efficient resampling. Pr.: STAT 771, STAT 860.

STAT 920. Experimental Design Theory. (3) II, in odd years. Incomplete block designs; theory of the construction and analysis of experimental designs. Pr.: STAT 720 and 861.

STAT 930. Theory of Multivariate Analysis. (3) II, in even years. The multivariate normal distribution, the Wishart distribution, Jacobians of vector and matrix transformations, Hotelling's T2-statistic, the union-intersection principle, tests on mean vectors and covariance matrices, Box's approximations to critical points, the multivariate general linear model, discriminant analysis, and principal component analysis. Pr.: STAT 730 and 861.

STAT 945. Problems in Statistical Consulting. (Var.) I, II, S. Principles and practices of statistical consulting. Supervised experience in consultation and consequent research concerning applied statistics and probability associated with on-campus investigations. Pr.: STAT 704, 705, and 771.

STAT 950. Advanced Studies in Probability and Statistics. (Var.) I, II, S. Theoretical studies of advanced topics in probability, decision theory, Markov processes, experimental design, stochastic processes, or advanced topics. May be repeated. Pr.: STAT 771.

STAT 980. Probability and Asymptotics. (3) I. Probability theory, including independence, conditioning, modes of stochastic convergence, laws of large numbers, central limit theory, martingales. Statistical applications to asymptotic approximations and efficiency for inference in parametric and nonparametric models based on likelihood methods and statistical functionals. Pr.: Math through at least two semesters of advanced calculus and STAT 771.

STAT 981. Advanced Inference. (3) II. Foundations and methods of statistical inference including invariance, likelihood and Bayesian inference, decision theory, estimating equations and prediction. Additional topics may include E-M algorithm, Hasings-Metrolopis algorithm, exponential families, order restricted inference, density estimation, sequential methods, other likelihoods, large sample and conditional inference. Pr.: STAT 980.

STAT 999. Research in Statistics. (Var.) I, II, S. Pr.: Consent of instructor.

For more information

For additional information and application materials please contact:
Department of Statistics
Kansas State University
101 Dickens Hall
Manhattan, KS 66506-0802
Phone: 785-532-6883
FAX: 785-532-7736
E-mail: gradrec@stat.ksu.edu
Home Page: http://www.ksu.edu/stats/

Support Services

Early Childhood Laboratory
Family Center
Galichia Institute
Hoeflin Stone House Child Care Center
Office of Community Health
Other Research Facilities and Equipment
Scholarly and Professional Publications
University Press of Kansas

Early Childhood Laboratory

The Early Childhood Laboratory, located on Campus Creek Road, houses two preschool classrooms and is sponsored by the School of Family Studies and Human Services and the local public school system, U.S.D. 383. The Early Childhood Laboratory is licensed by the state and is accredited by the National Academy of Early Childhood Programs. The children enrolled at the center range in age from three to five years. Children who are eligible by age to enter kindergarten are not eligible for enrollment at the center. The group is balanced by age and sex of the children. Within these guidelines, children are accepted by date of application. The program integrates children with developmental delays with typically developing children. The children with special needs are identified by U.S.D. 383. The total group size is 44 children. About one-third of the children have handicapping conditions. The two standard half-day preschool sessions are operated Monday through Thursday, 8:30 - 11:30 a.m., 12:30 - 3:30 p.m. The two extended sessions are operated Monday through Friday 7:45-12:15 and 12:30-5:00.

Family Center

The Family Center provides applied educational training to students while offering counseling, family-related educational programs, and consultation services to Manhattan and the state. On-site services include individual, couple, family and group therapy, parent education, and family life education sessions. Outreach services include the state training office for child care providers and other training programs for children and families. These services are supported by outside funding that has averaged over a quarter of a million dollars for the past several years.

Galichia Institute

The Galichia Institute for Gerontology and Family Studies is designed to provide: increased understanding and response by students to the needs of seniors; greater awareness by society of the needs of an ever-expanding elderly population; better -prepared students to serve society, with understanding of programs for children and the elderly; support for families raising children and coping with elderly relatives; continued growth of research and information concerning aging issues; national attention for professional activities; improved care for rural and urban elderly; expanded understanding of intergenerational relations; and educational programs to families that will enrich the lives of aging family members. Recent programs include the Personal Actions to Health (PATH), a demonstration program on senior health issues, funded by the Kansas Health Foundation.

Hoeflin Stone House Child Care Center

Stone House is located on the north side of campus on North Manhattan Avenue. The two-story house and architect-designed playground provide space for two groups of children: toddlers, ranging in age from 18 months to 3 years, and preschoolers, aged 3 to 5 years. Children who are eligible by age to enter kindergarten are not eligible for the program. The toddler group accommodates 12 children, and 18 children are enrolled in the preschool group. The groups are balanced by sex and age of the children. Priority is given to children whose parents work full time. Within these guidelines, children are accepted by date of application. The center is available only for full-day enrollments, five days a week. The hours are 7:30 a.m. to 5:30 p.m., and the center is open for most of the year, with the exception of university holidays, three weeks in August, and two weeks at the end of December. The Hoeflin Stone House Child Care Center is licensed by the state and is accredited by the National Academy of Early Childhood Programs.

Office of Community Health

The Office of Community Health was initiated to serve the university, the Cooperative Extension Service, and community groups within the state. The mission of the office is to promote collaborations between K-State and other institutions in order to expand Cooperative Extension Service activities into community health. Examples of focus areas include: health and safety promotion, community education, community health assessment, community health planning, and safety promotion. The office develops multi-media curricula to train new and existing county extension agents and community leaders about various community health topics. The office also offers work study opportunities, internships, and research assistantships for undergraduate and graduate students.

Other Research Facilities and Equipment

A variety of specialized facilities is maintained to support research and scholarly work in the humanities, natural sciences, applied sciences, social sciences, and professional areas. Although an exhaustive listing is prohibitive, the following list represents a selection of supporting resources:

Aquatic and terrestrial research laboratories

Arp electronic music synthesizer

Audiovisual materials center

Center for Excellence in Computer-Controlled Automation

Center for Extended Services and Studies Computer-Aided Design Laboratories (human ecology)

Consortium for Political Research data banks

Controlled environment test facility

Editorial offices of major journals

Experimental animal facilities

Fourier transform spectroscopic laboratory

Glassblowing and instrument shops

Greenhouses

Heliodon and wind tunnel

Herbarium and monographic library

Insect reference collection

Interior architectural shops

Marriage and Family Therapy Clinic

Near infrared protein laboratory

Nuclear magnetic resonance spectrometers

Physiology of exercise laboratory

Plant disease diagnostic laboratory

Population and demographic laboratory

Recording Raman spectrometer

Scanning electron microscope

Soil testing laboratory

Speech and Hearing Center

Statistical laboratory

Textile chemistry laboratory

Textile conservation laboratory

Transmission electron microscope

Veterinary diagnostic laboratory

Weather data laboratory

Wind and soil erosion laboratory

X-ray diffractometers

Scholarly and Professional Publications

College of Architecture and Design Newsletter of the Rural/Small Town Planning Division, American Planning Association-information,

articles, and essays on the nature of rural/small town planning. Oz, modern architectural trends. Environmental and Architectural Phenomenology Newsletter, information and features on environmental design as place making.

College of Education Educational Considerations, timely papers on educational issues at all levels. Media Adult Learning, research, reviews, papers.

College of Engineering Kansas State Engineer, technical and nontechnical articles on engineering developments. Research Activities, biennial report on research in the College of Engineering.

College of Veterinary Medicine Veterinary and Human Toxicology, toxicology, research, reviews, and field observation.

Continuing Education National Issues in Higher Education, proceedings of annual meetings on educational issues. IDEA Papers, series on college teaching, from the Center for Faculty Evaluation and Development.

Cooperative Agricultural Extension Numerous publications about research, in varied formats for various audiences.

Department of English Literary Magazine Review, reviews of literary magazines and commentary on the international noncommercial literary magazine scene. Touchstone, student literary magazine. The Spenser Newsletter, the official publication of the Spenser Society.

Department of History Journal of the West, history and culture of the U.S. West.

Department of Modern Languages Studies in Twentieth Century Literature, literary theory and practical criticism of 20th-century literature in French, German, Russian, and Spanish (with University of Nebraska,Lincoln).

Libraries Bibliography Series, each bibliography on a different topic.

University Press of Kansas

Fred M. Woodward, Director
2501 West 15th Street
Lawrence, Kansas 66049-3905
785-864-4154
Home Page: www.kansaspress.ku.edu
E-mail: mail@newpress.upress.ukans.edu

Kansas State University, in association with the other five Regents universities, operates and supports the University Press of Kansas for the purpose of publishing scholarly and regional books on a nonprofit basis. K-State joined the consortium in 1967 when the press was officially reorganized by the Kansas Board of Regents. Until mid-1982, the operation was known as the Regents Press of Kansas.

The University Press of Kansas is the first American university press to operate as a statewide consortium under the specific sponsorship of all the state's universities. A member of the Association of American University Presses since its founding in 1946, the press has published over 900 titles, with more than 500 currently in print. Its ongoing American Presidency Series, with 35 titles issued to date, has been praised as one of the most interesting and rewarding historical series in this country.

The press is governed by a board of trustees, who are the chief academic officers of the sponsoring institutions and who appoint two members and two alternates from each faculty to serve on the advisory editorial committee.

Veterinary Medicine

Master of science degree | Doctor of philosophy degree |
Doctor of veterinary medicine degree | DVM curriculum |
Anatomy and physiology | Clinical sciences | Pathobiology

Dean:
Ralph Richardson

Associate Deans:
Ronnie G. Elmore
Lisa Freeman
Bonnie Rush

101 Trotter Hall
(785) 532-5660

College of Veterinary Medicine Home Page: http://www.vet.ksu.edu/

Masters of Veterinary Biomedical Science Degree

The Masters of Veterinary Biomedical Science Degree is a College of Veterinary Medicine-based program leading to an MS degree. Graduate study may be inter-disciplinary or focused in one of the three participating disciplines: Anatomy & Physiology; Clinical Sciences; Pathobiology. Each student's program will be designed by his/her supervisory committee to support the student's thesis project, educational and career goals.

Admission

To be admitted with full standing, the applicant must have either an average of B or better in the junior and senior undergraduate years or a veterinary medical degree from an approved institution. Adequate undergraduate preparation in the proposed field is essential. Applicants must complete a minimum of 30 hours of credit, which includes 6 to 12 hours of research credit. A student who has less than a B average, based on individual merit, may be admitted on probationary status. Full standing is attained automatically upon completion of at least 9 hours of course work for graduate credit with grade of B or better and upon the removal of any deficiency which was specified at the time of admission. International students must have a health certificate, demonstrated evidence of financial support if not support by a departmental assistantship and acceptable scores on the Test of English as a Foreign Language (TOEFL).

Students applying to the disciplines of Anatomy and Physiology and Pathobiology are encouraged to have completed undergraduate coursework in areas such as animal science, microbiology, biology, biochemistry/pharmacology, genetics and food science with training in biology and biochemistry being especially important.

Students admitted to the discipline of Clinical Sciences have typically completed a doctor of veterinary medicine degree or its equivalent. Applicants currently enrolled in the professional veterinary curriculum or those holding a baccalaureate degree will be considered on an individual basis.

Application for Admission

Applications are considered on a regular basis either as positions become available in research programs within each department or early in the calendar year for admission for the fall semester. Teaching and research assistantships are awarded on the basis of merit and availability, using the same criteria used for admission decisions. All students offered admission are considered for financial support.

Application information is available either from the Graduate School, Office of Associate Dean for Research and Graduate Programs, College of Veterinary Medicine or the CCVM graduate program heads. Applications should be made by February 1st for admission to the program in a fall semester.

Master's Degree Requirements

Requirements for graduate admission, credit requirements and continued enrollment in the Master's degree programs in disciplines within the College of Veterinary Medicine are in accordance with those of the Graduate School at Kansas State University. A minimum of 30 semester hours of credit including 6 to 12 semester hours of thesis research credit are required. Applicants with a bachelor's degree who are concurrently pursuing a DVM degree may apply 12 hours from relevant courses towards both the Master's and DVM degrees. Only two 500-level courses (6 hours total) may be used for an M.S. degree. A significant majority of course work (at least 60 per cent) should be at the 700 level or higher. Only 3 hours of problems or individualized study may apply toward the M.S. degree. Successful completion of a final oral or comprehensive written examination, or both, is required of all master's degree candidates. The final examination is administered by the supervisory committee and may include defense of the thesis and/or a testing of the student's understanding of the field of study.

Subject to the approval of the graduate discipline, the candidate may choose one of the following program options: (1) a minimum of 30 semester

hours of graduate credit including a master's thesis of 6 to 12 semester hours; (2) a minimum of 30 semester hours of graduate credit including a written report of 2 semester hours either of research or of problem work on a topic in the major field; or (3) a minimum of 30 semester hours of graduate credit in course work only, but including evidence of scholarly effort such as term papers or production of creative work, as determined by the student's supervisory committee. Decisions on each option will be made by the student's supervisory committee in consultation and approval by the student's advisor.

A graduate student may be denied continued enrollment in the university in case of: i) failure to satisfy conditions necessary for removal of probationary status, ii) accumulation of 6 or more semester hours of work with grades less than B, or grade point average less than 3.0, iii) demonstrable lack of diligence in meeting published degree requirements, iv) failure to acquire mastery of the methodology and content of one's field sufficient to complete a successful thesis.

Before the end of the second semester of graduate study, the student must file with the Graduate School a "program of study" that serves as a planning document. The student's program of study is prepared with the assistance of a supervisory committee consisting of the major advisor and two other graduate faculty members. The program is subject to the approval of the dean of the Graduate School upon recommendation of the student's supervisory committee and the appropriate department head. The program may be modified on further recommendation of the supervisory committee and the approval of the graduate dean.

Successful completion of a final oral examination or comprehensive written examination, or both, shall be required of all master's degree candidates, the specific form being determined by individual programs. The final examination is administered by the student's supervisory committee and may include a defense of the thesis or report, an interpretation of other scholarly products, or a testing of the student's understanding of the field(s) of study. The option for the final examination must be approved by the student's supervisory committee and his/her major professor.

If a student's program of study includes any course credits more than six years old at the time the student is about to complete all degree requirements, the final master's examination will normally include an examination over the body of course work listed on the program of study. The form and content of this competency examination is determined by each master's program, which may impose additional requirements for revalidating the student's competency in the supporting course work. Exceptions to this policy may be sought from the Dean of the Graduate School in a master's program for which such a revalidation examination may be inappropriate.

Three copies of the Master's thesis and reports are required by the Graduate School for submission to the Kansas State University Libraries and bound in cloth in accordance with specifications for Class A binding of the Library Binding Institute. A charge to cover the cost of binding will be posted to a student's University account after the Graduate School receives the notice of intention from a student to graduate. If students desire to publish all or part of their theses before the degree is conferred, major professors should notify the Graduate School in advance by letter. If approved by the major professor, master's theses may be placed on file with University Microfilms, which will also publish an abstract in Master's Abstracts. Since master's theses and reports are submitted as part of degree requirements, the University retains the right to publish any portion as a contribution to knowledge. Patentable items created under University auspices are subject to the Regents patent policy. Beginning Fall 2007 all theses, reports and dissertations will be submitted electronically. Guidelines and templates for electronic submission are available on the Graduate School website at www.k-state.edu/grad/etdr/index.htm.

Doctor of Philosophy Degree

The departments of Anatomy and Physiology and Pathobiology offer Doctor of Philosophy degree programs in the disciplines of Anatomy & Physiology and Pathobiology, respectively. For more information please see Anatomy and Physiology and Pathobiology.

Doctor of Veterinary Medicine Degree

Admission

Enrollment in the College of Veterinary Medicine is limited to qualified students who have completed the minimum 65 required hours of pre-professional courses (see pre-professional requirements at http://www.vet.ksu.edu/admit/requirements.htm). To be eligible for consideration to the professional program leading to a Doctor of Veterinary Medicine, a student must first complete the pre-professional requirements with a minimum 2.800 average GPA (on an A = 4 point basis) in an accredited college or university, and a minimum 2.800 average GPA in the last 45 semester hours of undergraduate work. The General Test of the Graduate Record Examination (GRE) is also required and must be taken before making application to the professional program.

Personal interviews are required of all students admitted. Selection is based upon academic achievement and professional potential as determined by the interview with the Admissions Committee. Applicants are evaluated on such items as motivation, maturity, communication skills, experience with and knowledge of animals, and experience with and knowledge of veterinary medicine. Therefore, all students interested in applying to the College of Veterinary Medicine are encouraged to have adequate animal exposure and to have work experience related to veterinary medicine to demonstrate to the Admissions Committee an understanding of the profession. Because veterinary medicine is so diverse, it is advisable to become acquainted with several areas of practice as well as with veterinarians in industry, public health and research.

KSU applications are available **July 1 to October 3, 2006**.

Applicants must apply through VMCAS http://www.aavmc.org and also **must** complete the KSU supplemental application.

KSU supplemental applications must be completed online, printed and mailed along with a non-refundable $50 processing fee. Applicants must request all transcripts and GRE scores be sent to: Admissions, College of Veterinary Medicine, 101 Trotter, Manhattan, KS 66506. A completed application consists of the VMCAS application, KSU supplemental application, transcripts from all Colleges/Universities attended, GRE scores and a non-refundable application fee made to College of Veterinary Medicine by October 3, 2006.

KSU supplemental application

All inquiries can be addressed to the following address:

Student Admissions Office
College of Veterinary Medicine
101 Trotter Hall
Kansas State University
Manhattan, KS 66506-5601
admit@vet.ksu.edu
(785) 532-5660

Additional information about application to the College of Veterinary Medicine can be found at: http://www.vet.ksu.edu/admit/index.htm.

Fees for veterinary medical students

College of Veterinary Medicine fees are higher than undergraduate fees. Since these are determined annually, contact the Office of the Associate Dean for current fees.

Doctor of Veterinary Medicine curriculum

The professional curriculum in veterinary medicine is balanced and comprehensive with consideration given to all species. Detailed information can be found at: http://www.vet.ksu.edu/admit/program.htm.

Veterinary medical library

The College of Veterinary Medicine has a well-equipped library that is a part of the Kansas State University libraries system. The general collection of books and journals encompasses veterinary medicine, basic biomedical sciences, and selected works in clinical medicine. The VM Library subscribes to approximately 875 journals and endeavors to subscribe to all English language veterinary medical titles. This is supplemented with core titles from human medicine, and selected subject areas representing faculty research interests, expertise, and teaching requirements.

Anatomy and physiology

The mission of the Department of Anatomy and Physiology encompasses instruction, research and continuing education in the disciplines of gross and microscopic anatomy, cell and systemic physiology, pharmacology and neuroscience, all of which are central to the education of veterinarians for Kansas, to the education and training of graduate students for biomedical careers in teaching, research, and industry, and to the fulfillment of the University's mission to conduct basic and applied research important for the diagnosis and control of animal and human disease. The department has a fundamental role in acquiring new knowledge to further our understanding of animal and human physiology and pathophysiology. To maximize resources and foster collaborative interactions, the department has established four research focus groups: Cardiovascular and Pulmonary physiology, Immunophysiology, Neuroscience, and Pharmacology. In most cases, faculty have research interests that fall under more than one group. Research programs in these groups investigate their respective topics through integrating studies at the isolated tissue or cellular level to whole organ or animal function. Programmatic strengths of these groups include an actively shared system of well-equipped laboratories and excellent support personnel, mutually supportive technical and conceptual expertise, and interrelated but diverse extramural funding sources.

Career options available with an advanced degree in anatomy or physiology include academic positions in various animal and human health science-related institutions such as Colleges of Veterinary Medicine and Schools of Medicine and Dentistry, as well as positions in industry and agribusiness. For information on graduate work, courses, and faculty, see Anatomy and Physiology.

Clinical sciences

Quality graduate education is a priority for the Department of Clinical Sciences. Strong basic and applied research programs enhance the teaching and service commitments. Most of the Clinical Sciences faculty dedicate significant time and effort to research initiatives. Research collaboration is readily available to Clinical Sciences faculty, both within the College (Food Animal Health and Management Center and the Departments of Anatomy and Physiology and Pathobiology) as well as throughout the University. Traditional research partners have been the Departments of Animal Science and Industries, Biochemistry, Dairy Sciences, Meat Sciences and the Center for Basic Cancer Research in the Division of Biology. These alliances provide a broad range of expertise that can be drawn on to answer basic and applied research questions.

Clinical Sciences in one of the disciplinary foci of the Masters of Veterinary Biomedical Sciences Degree. Many graduate students seeking a Masters with a focus in clinical sciences are also enrolled in clinical residency training programs or a dual degree (DVM-MS) program. Doctoral training opportunities are available to Clinical Sciences faculty and their candidates contingent upon faculty membership in, and collaborative

relationships with, the graduate faculties of the Pathobiology, Anatomy and Physiology, and Animal Science and Industries programs.

For more information on graduate work, courses, and faculty, see Clinical Sciences.

Pathobiology

The Department of Pathobiology includes faculty involved in the study of the epidemiology, diagnosis, pathogenesis, and prevention/control of infectious and parasitic diseases of animals and humans. Opportunities for advanced graduate work after the Master's degree include the Doctor of Philosophy degree in the areas of bacterial and viral pathogenesis, clinical and diagnostic pathology, epidemiology, immunology and immuno-modulation, parasitology, pathology (clinical and anatomic) and toxicology.

Incoming students usually have undergraduate degrees in areas such as animal science, biology, biochemistry, genetics, food science, and microbiology or the DVM degree. Training in biology and a background in either microbiology or biochemistry are essential. The department's academic responsibilities include teaching diagnostic necropsy and laboratory procedures to fourth-year professional students and graduate students. The department serves the livestock and companion animal industry by conducting investigational procedures to identify animal disease problems, by developing research projects related to disease pathogenesis and diagnosis.

The department's diagnostic laboratory is nationally recognized as fully accredited with capabilities in all areas of diagnostic medicine by A.A.V.L.D.

Basic courses in pathology/microbiology, parasitology, virology, public health, and clinical pathology are offered for students enrolled in the veterinary medicine curriculum. Practical necropsy experience is provided for students as an adjunct to their pathology education and as an aid to disease diagnosis.

For information on graduate work, courses, and faculty, see Pathobiology.

For more information

College of Veterinary Medicine
101 Troller Hall
Manhattan, KS 66506
785-532-5660
Home page: http://www.vet.ksu.edu

Women's Studies

Program description | Program requirements | Women's studies courses | More information

Program Director:
Angela Hubler

Graduate faculty:

Jennifer Askey, Ph.D., Washington University.

Janet Benson, Ph.D., Brandeis University.

Dana Britton, Ph.D., University of Texas-Austin.

Cora Cooper, D.M., Florida State University.

Karen DeBres, Ph.D., Columbia University.

Torry Dickinson, Ph.D., University of New York-Binghamton.

Janice Dinkel, M.S.W., University of Kansas.

Elizabeth Dodd, Ph.D., Indiana University.

Tanya Gonzalez, Ph.D., University of California.

Don Hedrick, Ph.D., Cornell University.

Angela Hubler, Ph.D., Duke University.

Michele Janette, Ph.D., Yale University.

Rhonda Janke, Ph.D., Cornell University

Mary McElroy, Ph.D., University of Maryland.

Nancy Muturi, Ph.D., University of Iowa.

Philip Nel, Ph.D., Vanderbilt University.

Bonnie Nelson, Ph.D., Pennsylvania State University.

Linda Richter, Ph.D., University of Kansas.

Shireen Roshanravan, Ph.D., Binghamton University.

Jacqueline Spears, Ph.D., Kansas State University.

Dolores Takemoto, Ph.D., University of Southern California.

Linda Thurston, Ph.D., University of Kansas.

Cia Verschelden, Ed.D., Harvard University.

Alison Wheatley, Ph.D., University of Virginia.

L. Susan Williams, Ph.D., University of Connecticut.

Naomi Wood, Ph.D., Duke University.

Sue Zschoche, Ph.D., University of Kansas.

Program description

The program offers a Graduate Certificate for students in M.A., M.S., doctoral, and professional programs at Kansas State. Students have the opportunity to work with specialists in feminist theory, scholarship, and pedagogy from different disciplines. The certificate will enhance job opportunities by broadening students' perspective on gender issues and by preparing them to teach women's studies courses.

Program requirements

The certificate consists of 12 hours of graduate level courses in women's studies and/or gender. One core course (WOMST 810, Gender: An Interdisciplinary Overview of Feminist Thought and Practice) is required. Three other courses can be chosen from a variety of fields.

Approved Elective Courses	
ART 654	Women in Art
ENGL 660	Shakespeare, Gender, and Performance
ENGL 670	Topic: Women in the 18th Century
ENGL 680	Topic: Asian American Literature
ENGL 695	A rubric under which a variety of courses are offered, including Women and Popular Culture
ENGL 720	Shakespeare, Comedy and Gender
ENGL 730	Restoration and 18th-Century Drama
ENGL 740	Feminist Literary Theory
ENGL 850	Gender and Power in Shakespeare and the Renaissance
HIST 512	Women in European History
HIST 540	American Women (1600 to Civil War)
HIST 542	American Women (Civil War to present)
HIST 551	History and Politics of Family Violence (Intersession only)
HIST 980	Topic: Gender in European History
HIST 984	Topic: Gender in American History
JMC 612	Gender Issues and the Media
KIN 598	Women and Sports
KIN 796	Gender Issues and Sports and Exercise
PHILO 525	Social and Political Philosophy (when offered as Women in Western Thought)
PHILO 560	Philosophy of Feminism
POLSC 606	Gender and Politics
POLSC 799	Seminar in Political Science (when offered as Women and Law)
PSYCH 540	Psychology of Women
PSYCH/SOCWK 543	Women and Mental Health Issues
PSYCH 563	Gender Issues in the Workplace
SOCIO 545	Sociology of Women
SOCIO 663	Gender, Power, and International Development
SOCIO 665	Women and Crime
ANTH/SOCIO 508	Male and Female: Cross-Cultural Perspectives
ANTH 633	Gender, Power, and International Development
SOCWK 580	Women's Perspectives on Peace and War (Intersession Only)
THTR 782	Women in Theater
EDCIP 735	Curriculum Materials for Non-Sexist Teaching
EDACE 750	Women, Education, and Work
FSHS 600	Economic Status of Women
FSHS 865	Human Sexuality
HN 520	Women's Health and Aging

Other appropriate graduate level Topics and Readings courses are offered every year in a variety of disciplines. Courses such as Philosophy of Feminism (PHILO 560) are also offered, though less frequently. Thus, graduates have a large selection of classes to choose from each year.

Women's Studies courses

Undergraduate and graduate credit

WOMST 500. Topics in Women's Studies. (1-3) I, II. Topics vary.

WOMST 505. Independent Study in Women's Studies. (1-3) I, II. Independent, interdisciplinary, supervised study in an area which does not fall within the boundaries of a traditional department. May be repeated once for credit with change of topic.

WOMST 550. Women and Popular Culture. (3) II. Images of women in a variety of popular media forms: fiction, film, television, music

(including MTV), magazines, advertising, and material culture. Women are explored as objects, consumers, and producers of popular culture. Material is drawn from a variety of disciplines, including psychology, sociology, history, literary criticism, and cultural studies. Pr.: WOMST 105 or at least 3 hours of Women's Studies credit.

WOMST 551. The History and Politics of Family Violence. (3) Intersession. Explores the history of family or domestic violence in America as a social, cultural, legal, and public policy issue from the colonial period to the present. Stress is placed upon the cultural roots and evolution of domestic law. The development of state-controlled social welfare agencies as well as the emergence of the "battered women's movement" is particularly emphasized. Pr.: sophomore standing or above. Cross-listed with HIST 551.

WOMST 560. Women and Violence. (3) I. The roots of male violence against women, cultural forms of sexual coercion and violence, and strategies for envisioning and enacting social change. Topics addressed include rape/sexual harassment. Pr.: WOMST 105 or at least 3 hours of Women's Studies credit.

WOMST 580. Women and Religion (3) I. How gender relations and women have been shaped by the development of religious ideologies and practices throughout the contemporary world, as well as in early class and pre-class societies. Construction of gender by religious institutions and feminist religious activities studied in relation to Christianity, Islam, Hinduism, Buddhism, traditional Native American faiths, and adverse forms of paganism.

WOMST 585. Women and Islam. (3), Intersession only. A study of the history and sources of Islam with particular reference to women in a variety of cultures, ranging from South east Asia, Aftica, the Middle East to the Western World.

WOMST 590. Women's Studies Practice and Theory. (3) II, in even years. An active exploration of local-to-global change in relation to feminist and nonviolence theories, concepts, and methods. Includes a social change project consisting of 52 hours of skill and research-based field experience with a campus or community organization. Students will read and discuss academic writings on inclusive approaches to social change, participatory action research, community building, social movements and theory. This course provides students with professional and academic skills that relate to employment and graduate work in diverse fields. Cross-listed with DAS 590, Applied Nonviolence. Pr.: 3 hrs of women's studies credit or by instructor permission.

WOMST 610. Seminar in Women's Studies. (3) I. This course surveys interdisciplinary, feminist methods of research and contemporary applications of this scholarship. Pr.: Senior standing, WOMST 105 and at least 6 hours of women's studies courses; or graduate standing and 3 hours in women's studies, or consent of instructor.

WOMST 700. Advanced Topics in Women's Studies. (1-3) Provides an in-depth theoretical and empirical analysis of scholarly works relating to an interdisciplinary topic in Women's Studies. Pr.: Junior standing or above and instructor permission.

WOMST 810. Gender: An Interdisciplinary Overview. (3) II. Advanced overview of feminist scholarship, including theories and methods. Examines the social construction of gender inequality and feminist movements for equity. The historical development of feminist theory, contemporary debates, and multicultural and global feminism will be studied. Required for Graduate Certificate in Women's Studies.

For more information

Women's Studies Certificate Coordinator
Kansas State University
3 Leasure Hall
Manhattan, KS 66506
785-532-5738
E-mail: dickins@ksu.edu
Home Page: http://www.ksu.edu/womst