Attachment 1

Academic Affairs

Consent Agenda Supplemental Information

College of Arts and Sciences (November 12, 2015)

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College of Engineering (November 12, 2015)

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College of Architecture, Planning, and Design (December 10, 2015)

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College of Technology and Aviation – K-State Polytechnic (December 11, 2015)

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Graduate Course and Curriculum changes (12-1-15)

Course Changes: Pages 43-58

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Curriculum Additions: Pages 65-125

College of Arts and Sciences (11-12-15)

NON-EXPEDITED COURSE PROPOSALS
Courses Numbered 000-599

Dean of Arts and Sciences

ADD: DAS 225 – Fundamentals of Global Food Systems Leadership. (3) I, II. An interdisciplinary approach to the fundamental roles people, policies, and cultures play in the global food system enterprise as it relates to sustainable food production, processing, distribution, and availability. Students will explore complexities within self, others, and community related to leadership in the context of a rapidly increasing global population. K-State 8: Global Issues and Perspectives.

K-STATE 8 RATIONALE: This course will explore the fundamentals of food systems from a global perspective including policy, international food trade, government and NGO roles. Students will explore current issues from both domestic and international settings and analyze the global connectedness of food systems.

RATIONALE: This course explores the fundamental of Global Food Systems Leadership from an interdisciplinary approach. It is the first of three core courses specifically for the secondary major. It sets the stage for students to choose their concentration courses.

IMPACT: This course does not impact another unit.

EFFECTIVE DATE: Fall 2016

ADD: DAS 325 – Uncertainty in Global Food Systems Leadership. (3) II. Explore technical and adaptive elements of grand challenges across disciplines. Students will create a community-engaged project proposal. Students will explore the impact of cultural identity, life experience, and world views on leadership relationships as it relates to privilege and inclusion in the context of global food systems. K-STATE 8: Human Diversity within the US. Pr.: LEAD 225, DAS 225, or GENAG 225.

K-STATE 8 RATIONALE: This course explores the impact of cultural identity, life experience, and world views on leadership relationships as it relates to privilege and inclusion in the context of global food systems. It will take into account human dimensions, cultural norms, and traditions.

RATIONALE: This course considers the human dimensions of Global Food Systems Leadership in addition to other complex systems. It is the second of three core classes in the secondary major. It lays the foundation for the students' community-engaged scholarship.

IMPACT: This course does not impact another unit.

EFFECTIVE DATE: Fall 2016

ADD: DAS 425 – Global Food Systems Leadership in Action. (3) I. In this capstone course, students will conduct a community-engaged global food systems leadership research/service project. Emphasis on data collection, analysis and dissemination to appropriate audiences. Additional emphases on ethical dimensions of leadership and individual exploration of careers and roles within global food systems. K-State 8: Empirical and Quantitative Reasoning; Ethical Reasoning and Responsibility. Pr.: LEAD 225, DAS 225, or GENAG 225 and LEAD 325, DAS 325, or GENAG 325.

K-STATE 8 RATIONALE: This course integrates engaged scholarship and explores the ethical dimensions of community-engaged leadership. This will include data collection, analysis and dissemination to appropriate audiences. Core readings will focus on the ethics of leadership.

RATIONALE: This course gets students actively working on community-engaged scholarship related to Global Food Systems Leadership. It is the last of three core courses for the secondary major.

IMPACT: None

EFFECTIVE DATE: Fall 2016

Modern Languages

ADD: FREN 512 – French/Francophone Cinema. (3) The course consists of readings, written assignments, viewing, and discussion of French or Francophone films. May be repeated for credit with a focus on a different topic. For French credit, must be taken in French. Pr.: FREN 301 or equivalent. K-State 8: Aesthetic Interpretation; Global Issues and Perspectives.

K-STATE 8 RATIONALE: Film is an esthetic endeavor, and the films shown will offer different international/global perspectives.

RATIONALE: Our course offerings on film have increased to the point that, instead of using the course number for 'special studies', we would like to have a dedicated course number.

IMPACT: None

EFFECTIVE DATE: Fall 2016

Philosophy

FROM: PHILO 585 – Ethics. (3) I, II. Examines key developments in moral philosophy. May focus on issues in metaethics, ethical theory, or history of ethics. Pr.: PHILO 330. K-State 8: ~~Empirical and Quantitative Reasoning.~~

TO: PHILO 585 – Ethics. (3) I, II. Examines key developments in moral philosophy. May focus on issues in metaethics, ethical theory, or history of ethics. Pr.: PHILO 330. K-State 8: Ethical Reasoning and Responsibility.

RATIONALE: PHILO 585 is currently listed as fulfilling the K-State 8 empirical and quantitative reasoning requirement. We believe that this is a result of a typographical error somewhere in the initial process of applying K-State 8 tags, as PHILO 585 is an advanced course in ethics, and should satisfy the K-State 8 ethical reasoning and responsibility requirement, but involves no specific attention to quantitative or empirical reasoning. This change rectifies the error.

IMPACT: None

EFFECTIVE DATE: Fall 2016

NON-EXPEDITED CURRICULUM PROPOSALS Undergraduate

Modern Languages

Modern Languages B.A. (French)

FROM:	TO:
Bachelor's degree requirements	**Bachelor's degree requirements**
French: (~~30 credit hours~~)	**French: (33 credit hours)**
Required:	***Required:***

• ~~Thirty credit hours of French courses at and above the 200-level.~~ • A grade of "C" or better or a minimum 2.5 GPA is required in all French courses counted towards the major. • ~~At least three 700-level literature courses **Credits:** (9)~~ ~~*15 credit hours of French courses in the 300-level and higher*~~ • ~~FREN 301 - French IV **Credits:** (4)~~ • ~~FREN 315 - Elementary French Conversation **Credits:** (2)~~ • ~~FREN 513 - French Composition and Grammar **Credits:** (3)~~ • ~~FREN 514 - Contemporary France **Credits:** (3)~~ • ~~FREN 516 - Readings in French **Credits:** (3)~~ • ~~FREN 517 - Commercial French **Credits:** (3)~~ • ~~FREN 518 - Advanced French Conversation **Credits:** (3)~~ • ~~FREN 519 - Special Studies in French **Credits:** (1-18)~~ • ~~FREN 530 - Topics in French Literature and Culture **Credits:** (3)~~ ~~*Two literature courses at the 500-level*~~ • ~~FREN 520 - Introduction to French Literature I **Credits:** (3)~~ • ~~FREN 521 - Introduction to French Literature II **Credits:** (3)~~ ~~*Three 700-level courses*~~ • ~~FREN 709 - Medieval French Literature **Credits:** (3)~~	• Thirty-three credit hours of French courses at and above the 200-level. • 15 of which must be at the 500-level (including FREN 520 and FREN 521) and 9 hours at the 700-level. • A grade of "C" or better or a minimum 2.5 GPA is required in all French courses counted towards the major. • Study abroad accepted, retroactive credit accepted. Minimum of two 700-level courses must be completed on campus. Program of Study: 1. Intermediate Languages Courses (9 hours): • FREN 201 - French III Credits: (5) • FREN 301 - French IV Credits: (4) 2. Literary, Cultural, Linguistic, and Professional Development Courses at the 500-level or above (9 hours- select three course of your choice) • FREN 501 – Readings in French Credits: (3) • FREN 503 – Composition and Grammar Credits: (3) • FREN 509 - Phonetics Credits: (1) • FREN 512 – French and Francophone Cinema Credits: (3) • FREN 514 – Contemporary France Credits: (3) • FREN 515 – History of French Culture Credits: (3) • FREN 517 – Business French Credits: (3) • FREN 518 – French Conversation Credits: (3) • FREN 519 – Special Studies in French Credits: (1-18) • FREN 530 – Topics in French/Francophone Literature and Culture Credits: (3) 3. Required Literary Studies (6 hours): • FREN 520 – Introduction to French Literature (19th Century to the Present) Credits: (3)

- ~~FREN 710 - Sixteenth-Century French Literature **Credits:** (3)~~
- ~~FREN 711 - Seventeenth-Century French Literature **Credits:** (3)~~
- ~~FREN 713 - Eighteenth-Century French Literature **Credits:** (3)~~
- ~~FREN 714 - Romantic French Literature **Credits:** (3)~~
- ~~FREN 715 - Realist French Literature **Credits:** (3)~~
- ~~FREN 716 - Contemporary French Literature **Credits:** (3)~~
- ~~FREN 719 - Advanced Spoken and Written French **Credits:** (3)~~
- ~~FREN 720 - Seminar in French Literature and Culture **Credits:** (3)~~
- ~~FREN 721 - Francophone Literature and Culture **Credits:** (3)~~
- ~~FREN 742 - Literature for Second Language Acquisition **Credits:** (3)~~
- ~~FREN 743 - Culture for Second Language Acquisition **Credits:** (3)~~
- ~~FREN 799 - Problems in Modern Languages **Credits:** (1-18)~~

Major Option "with distinction"

The department also offers a major option "with distinction".

- Students seeking this option must: maintain a 3.5 GPA in all courses taken toward the major while they fulfill the requirements.
- 6 credit hours, in addition to the regular major: Two additional courses, one of which must be on the 700 level.

- FREN 521 – Introduction to French Literature (Medieval to 18th Century) Credits: (3)

4. Advanced Literary, Cultural, Professional Development and Linguistic Studies (9 hours – select three courses):

- FREN 709 – Medieval French Literature Credits: (3)
- FREN 710 – Sixteenth-Century French Literature Credits: (3)
- FREN 711 – Seventeenth-Century French Literature Credits: (3)
- FREN 714 – Eighteenth-Century French Literature Credits: (3)
- FREN 714 – Romantic French Literature Credits: (3)
- FREN 715 – Realist French Literature Credits: (3)
- FREN 716 – Contemporary French Literature Credits: (3)
- FREN 719 – Advanced Spoken and Written French Credits: (3)
- FREN 720 – French Literature and Culture Credits: (3)
- FREN 721 – Francophone Literature and Culture Credits: (3)
- FREN 742 – French and Francophone Literature for Second Language Acquisition Credits: (3)
- FREN 743 – French and Francophone Culture for Second Language Acquisition Credits: (3)
- FREN 799 – Problems in French Credits: (1-18)

Major Option "with distinction"

The department also offers a major option "with distinction".

- Students seeking this option must: maintain a 3.5 GPA in all courses taken toward the major while they fulfill the requirements.
- 6 credit hours, in addition to the regular major: Two additional courses, one of which must be on the 700 level.

RATIONALE: In the original description of the major at 30 credit hours, we had 15 credit hours at the 300-level and higher and did not include FREN 201 (French III--a five credit course) in the major as it was written with the original 30 hours although they could receive credit for courses at the 200-level. In an attempt to render the major more transparent, we have rewritten the program of study to clarify that students will receive credit for FREN 201 and FREN 301 (9 hours total rather than the previously listed 4 hours of FREN 301 alone) and have reduced the requirements at the 500-level to 9 hours rather than 11 (once one removed the 4 credits of 301 and the 2 credits of elementary conversation that is no longer being offered in favor of offering more regularly the 3-credit conversation course). Students were already using FREN 201 to count towards their credits given that the major read "Thirty credit hours of French courses at and above the 200 level" however that was not reflected in the description of the program of study. Students before this change would actually take 33 hours (9 hours at the intermediate level, 9 hours at the 500-level or higher, 6 hours of literature, and 9 hours of 700-level courses, for a total of 33). We are merely formalizing what students were already doing in the interest of transparency for majors.

IMPACT: None

EFFECTIVE DATE: Fall 2016

French Minor

FROM:	TO:
Program requirements	**Program requirements**
In order to minor in ~~a language~~, you need to comply with the following rules: • First, declare your minor. You can do so when you start taking classes toward the minor, or later on. • To declare your minor, you need to fill out a "Add Minor" form in the Department of Modern Languages, 104 Eisenhower Hall. • ~~You do not need to have an advisor to do your minor, simply follow the requirements relative the language you've chosen.~~	In order to minor in French, you need to comply with the following rules: • First, declare your minor. You can do so when you start taking classes toward the minor, or later on. • To declare your minor, you need to fill out a "Add Minor" form in the Department of Modern Languages, 104 Eisenhower Hall or online.

- You must receive a “C” or better, or a minimum GPA of 2.5, in all courses counted toward a minor.
- We strongly encourage students to Study Abroad. While university policy requires courses applied towards the minor to be taken in residence, we will accept appropriate coursework taken toward the minor; provided that ~~at least two 400/500 level courses~~ for the minor be taken on campus.
- Retroactive Credit from KSU does apply toward the minor.
- Classes for the minor cannot be taken Pass/Fail.

Minor requirements

~~French courses in the 200 level and above, including one literature course.~~

- ~~FREN 201 - French III **Credits:** (5)~~
- ~~FREN 301 - French IV **Credits:** (4)~~
- ~~FREN 315 - Elementary French Conversation **Credits:** (2)~~
- ~~FREN 398 - Intermediate Studies in French **Credits:** (1-6)~~
- ~~FREN 502 - French Literature in Translation **Credits:** (3)~~
- ~~FREN 509 - French Phonetics **Credits:** (1)~~
- ~~FREN 510 - Modern French Culture **Credits:** (2)~~
- ~~FREN 513 - French Composition and Grammar **Credits:** (3)~~
- ~~FREN 514 - Contemporary France **Credits:** (3)~~
- ~~FREN 515 - French and Francophone Culture **Credits:** (3)~~
- ~~FREN 516 - Readings in French **Credits:** (3)~~
- ~~FREN 517 - Commercial French **Credits:** (3)~~
- ~~FREN 518 - Advanced French Conversation **Credits:** (3)~~

- 21 hours at the 200-level or above, 12 hours of which must be at the 500-level or above and must include FREN 520 or FREN 521.
- You must receive a “C” or better, or a minimum GPA of 2.5, in all courses counted toward a minor.
- We strongly encourage students to Study Abroad. While university policy requires courses applied towards the minor to be taken in residence, we will accept appropriate coursework taken toward the minor; provided that at least two 500 level courses for the minor be taken on campus.
- Retroactive Credit from KSU does apply toward the minor.
- Classes for the minor cannot be taken Pass/Fail.

Minor requirements

Program of Study:

1. Intermediate Language Courses (9 Hours):
   - FREN 201 – French III Credits: (5)
   - FREN 301 – French IV Credits: (4)
2. Literary, Cultural, Linguistic, and Professional Development Courses at the 500-level (9 hours – select three courses of your choice):
   - FREN 501 – French Readings Credits: (3)
   - FREN 503 – French Composition and Grammar Credits: (3)
   - FREN 509 – French Phonetics Credits: (1)
   - FREN 512 – French and Francophone Cinema Credits: (3)
   - FREN 514 – Contemporary France Credits: (3)
   - FREN 515 – History of French Culture Credits: (30
   - FREN 517 – Business French Credits: (3)
   - FREN 518 – French Conversation Credits: (3)
   - FREN 530 – Topics in French/Francophone Literature and Culture Credits: (3)
   - Any course at the 700-level

~~• FREN 519 - Special Studies in French **Credits:** (1-18)~~ ~~• FREN 530 - Topics in French Literature and Culture **Credits:** (3)~~ ~~• FREN 709 - Medieval French Literature **Credits:** (3)~~ ~~• FREN 710 - Sixteenth-Century French Literature **Credits:** (3)~~ ~~• FREN 711 - Seventeenth-Century French Literature **Credits:** (3)~~ ~~• FREN 713 - Eighteenth-Century French Literature **Credits:** (3)~~ ~~• FREN 714 - Romantic French Literature **Credits:** (3)~~ ~~• FREN 715 - Realist French Literature **Credits:** (3)~~ ~~• FREN 716 - Contemporary French Literature **Credits:** (3)~~ ~~• FREN 719 - Advanced Spoken and Written French **Credits:** (3)~~ ~~• FREN 720 - Seminar in French Literature and Culture **Credits:** (3)~~ ~~• FREN 721 - Francophone Literature and Culture **Credits:** (3)~~ ~~• FREN 742 - Literature for Second Language Acquisition **Credits:** (3)~~ ~~• FREN 799 - Problems in Modern Languages **Credits:** (1-18)~~ **~~Select one of the following courses to fulfill the literature requirement:~~** ~~• FREN 520 - Introduction to French Literature I **Credits:** (3)~~ ~~• or~~ ~~• FREN 521 - Introduction to French Literature II **Credits:** (3)~~ **~~Total credit hours: (20)~~**	3. Required Literary Studies (3 hours – select one course) • FREN 520 – Introduction to French Literature (19th Century to the present) Credits: (3) • FREN 521 – Introduction to French Literature (Medieval to 18th Century) Credits: (3) **Total credit hours: (21)**

RATIONALE: The change in hours reflects what students are currently doing in their programs of study in French. This change will not actually require students to take an extra course. Rather, it reflects credit students are obtaining already through retroactive credit or through their course selection.

IMPACT: None

EFFECTIVE DATE: Fall 2016

Statistics

Statistics and Data Science B.A./B.S.

FROM:	TO:
Statistics is a combination of classical mathematics, the theory of probability, and new concepts related to inductive reasoning that have developed during the past 75 years. Almost all activities of plants and animals (including people) depend to some degree on chance events, and most decisions made by people depend on sampling information— which also depends on chance events, and hence on probability. Consequently, fields of interest and activities for a statistician potentially are very broad. Likewise, the professional activities open to a trained statistician are varied. The existence of modern-day computers relieves the statistician of tedious computations and elevates his or her professional activity to dealing with people and/or engaging in basic research. Students who major in statistics may seek a bachelor of arts degree or a bachelor of science degree by satisfying the general requirements of that degree and by completing the following: **Bachelor's degree requirements**	Statistics is a combination of classical mathematics, the theory of probability, and new concepts related to inductive reasoning that have developed during the past 75 years. Almost all activities of plants and animals (including people) depend to some degree on chance events, and most decisions made by people depend on sampling information— which also depends on chance events, and hence on probability. Consequently, fields of interest and activities for a statistician potentially are very broad. Likewise, the professional activities open to a trained statistician are varied. The existence of modern-day computers relieves the statistician of tedious computations and elevates his or her professional activity to dealing with people and/or engaging in basic research. Students who major in statistics may seek a bachelor of arts degree or a bachelor of science degree by satisfying the general requirements of that degree and by completing the following: **Bachelor's degree requirements**

General requirements	General requirements
• CIS 111 - Introduction to Computer Programming **Credits:** (3) • or • CIS 200 - Programming Fundamentals **Credits:** (4) • ENGL 516 - Written Communication for the Sciences **Credits:** (3) • MATH 220 - Analytic Geometry and Calculus I **Credits:** (4) • MATH 221 - Analytic Geometry and Calculus II **Credits:** (4) • MATH 222 - Analytic Geometry and Calculus III **Credits:** (4) • STAT 341 - Biometrics II **Credits:** (3) • or • STAT 351 - Business and Economic Statistics II **Credits:** (3) • ~~STAT courses at the 400 level or higher may replace either or both of the 300-level STAT courses.~~ • STAT 510 - Introductory Probability and Statistics I **Credits:** (3) • STAT 511 - Introductory Probability and Statistics II **Credits:** (3) • STAT 705 - Regression and Analysis of Variance **Credits:** (3) ***~~One course selected from the following list:~~*** • ~~CIS 209 - C Programming for Engineers **Credits:** (3)~~ • ~~CIS 300 - Data and Program Structures **Credits:** (3)~~ • ~~MATH 551 - Applied Matrix Theory **Credits:** (3)~~ ***One course selected from the following list:***	• CIS 111 - Introduction to Computer Programming **Credits:** (3) • or • CIS 200 - Programming Fundamentals **Credits:** (4) • or • CIS 209 – C Programming for Engineers **Credits:** (3) • ENGL 516 - Written Communication for the Sciences **Credits:** (3) • MATH 220 - Analytic Geometry and Calculus I **Credits:** (4) • MATH 221 - Analytic Geometry and Calculus II **Credits:** (4) • MATH 222 - Analytic Geometry and Calculus III **Credits:** (4) • MATH 515 – Introduction to Linear Algebra **Credits:** (3) • or • MATH 551 – Applied Matrix Theory **Credits:** (3) • STAT 341 - Biometrics II **Credits:** (3) • or • STAT 351 - Business and Economic Statistics II **Credits:** (3) • STAT 510 - Introductory Probability and Statistics I **Credits:** (3) • STAT 511 - Introductory Probability and Statistics II **Credits:** (3) • STAT 705 - Regression and Analysis of Variance **Credits:** (3) • or • STAT 713 – Applied Linear Statistical Models **Credits:** (3) • STAT 725 – Introduction to SAS Computing **Credits:** (1)

- STAT 325 - Introduction to Statistics **Credits:** (3)
- STAT 340 - Biometrics I **Credits:** (3)
- STAT 350 - Business and Economic Statistics I **Credits:** (3)

One course selected from the following list:

- STAT 710 - Sample Survey Methods **Credits:** (3)
- STAT 720 - Design of Experiments **Credits:** (3)
- STAT 722 - Statistical Designs for Product Development and Process Improvement **Credits:** (3)
- ~~Additional STAT credits at 700 level **Credits:** (3)~~

Notes

Upper-division quantitative electives to give a total of ~~46~~ credit hours. Courses must be at the 400 level or above, and may include IMSE 541, math, computer science, statistics, or course in other area with substantial quantitative content. Note that STAT courses at the 400 level or higher may replace either or both of the 300-level STAT courses~~.~~

A minimum of ~~2.0 GPA~~ in STAT courses taken as part of the major is required for graduation.

Total credit hours required for graduation: (120)

- STAT 726 – Introduction to S plus/R Computing **Credits:** (1)
- Additional STAT credits at 700 level **Credits:** (3) (excluding STAT 701 and STAT 703)

One course selected from the following list:

- STAT 325 - Introduction to Statistics **Credits:** (3)
- STAT 340 - Biometrics I **Credits:** (3)
- STAT 350 - Business and Economic Statistics I **Credits:** (3)

One course selected from the following list:

- STAT 710 - Sample Survey Methods **Credits:** (3)
- STAT 720 - Design of Experiments **Credits:** (3)
- STAT 722 - Statistical Designs for Product Development and Process Improvement **Credits:** (3)

Notes

Upper-division quantitative electives to give a total of 50 credit hours. Courses must be at the 400 level or above, and may include IMSE 541, IMSE 785, ECON 630, math, computer science, statistics (excluding STAT 701 and STAT 703), or course in other area with substantial quantitative content.

Note that STAT courses at the 400 level or higher may replace either or both of the 300 level STAT courses, but credit may be received for only one of STAT 701 or STAT 703. STAT 770 and STAT 771 may replace STAT 510 and STAT 511, respectively, subject to department approval

	A minimum grade of C in each course taken as part of the major is required for graduation. **Total credit hours required for graduation: (120)**

RATIONALE: We propose (1) to modify the course requirements for the undergraduate major in statistics to modernize the program and (2) to change the name of the major to Statistics and Data Science to more accurately reflect the nature of the discipline. Statistics is fast-growing major throughout the country, and the proposed changes are intended to capitalize on the popularity. In addition, the modification of the course requirements will help in the development of a concurrent BS/MS program in statistics.

IMPACT: Departments that will be minimally impacted are Mathematics, Computing and Information Systems, and Industrial and Manufacturing Systems Engineering. All three departments were contacted via email on 8 Sept, 2015 (see attached email), and all three departments supported the changes.

EFFECTIVE DATE: Fall 2016

College of Engineering (11-12-15)

College of Engineering

Selective Admissions Proposal

ADD

[Note: At the current time, the College of Engineering does not have admission guidelines that are different from the university. For general admissions to K-State, for Fall 2015 the KBOR requires an ACT composite of at least 21; OR SAT of at least 980; or graduate in the top 1/3 of the HS class; AND have a 2.00 HS GPA on the Qualified Admission or Kansas Scholars curriculum.]

Require new students to (1) have an ACT (or SAT) score; and (2) require a composite ACT of 21 or higher, plus a HS gpa of 3.00 or higher to enter into the College of Engineering General Engineering program or CNSM. Students who have a composite ACT of 24 or higher plus a HS gpa of 3.00 or higher may be admitted to Computer Science (CS) or any of the other engineering degree programs (ARE, BSE, CHE, CE, CMPEN, EE, IE, ME). Students not admitted to the College of Engineering can enter the university Open Option program or another available college/degree program. They can still enter the College of Engineering as an internal transfer student. Internal transfer students will be required to have passed MATH 220 (or equivalent) (MATH 205 for CNSM) with a "C" or better and have a K-State cumulative gpa of at least 2.50 on 12 or more KSU hours. International students admitted to K-State as a new student without an ACT score will have the same admission requirements as an internal transfer student. External transfer students will be required to have passed MATH 220 (or equivalent) (MATH 205 for CNSM) with a "C" or better and have a transfer gpa of at least 2.75 on 12 or more transfer hours.

RATIONALE

The College of Engineering has been receiving students who are not academically prepared to enter the first year of the curriculum which includes MATH 220 and CHEM 210. Many of these students leave the college, fail one or more of their first semester courses, go on academic warning and/or create financial debt.

- 50% to 75% of the students with an ACT of 19 or lower leave the college
- 40% to 47% of the students with an ACT of 20-23 leave the college
- 76% of the students with a MATH ACT of 21 or lower earn a "D" or "F" in MATH 220. They need a "C" to move forward. Note: This does not include the number who dropped the course.

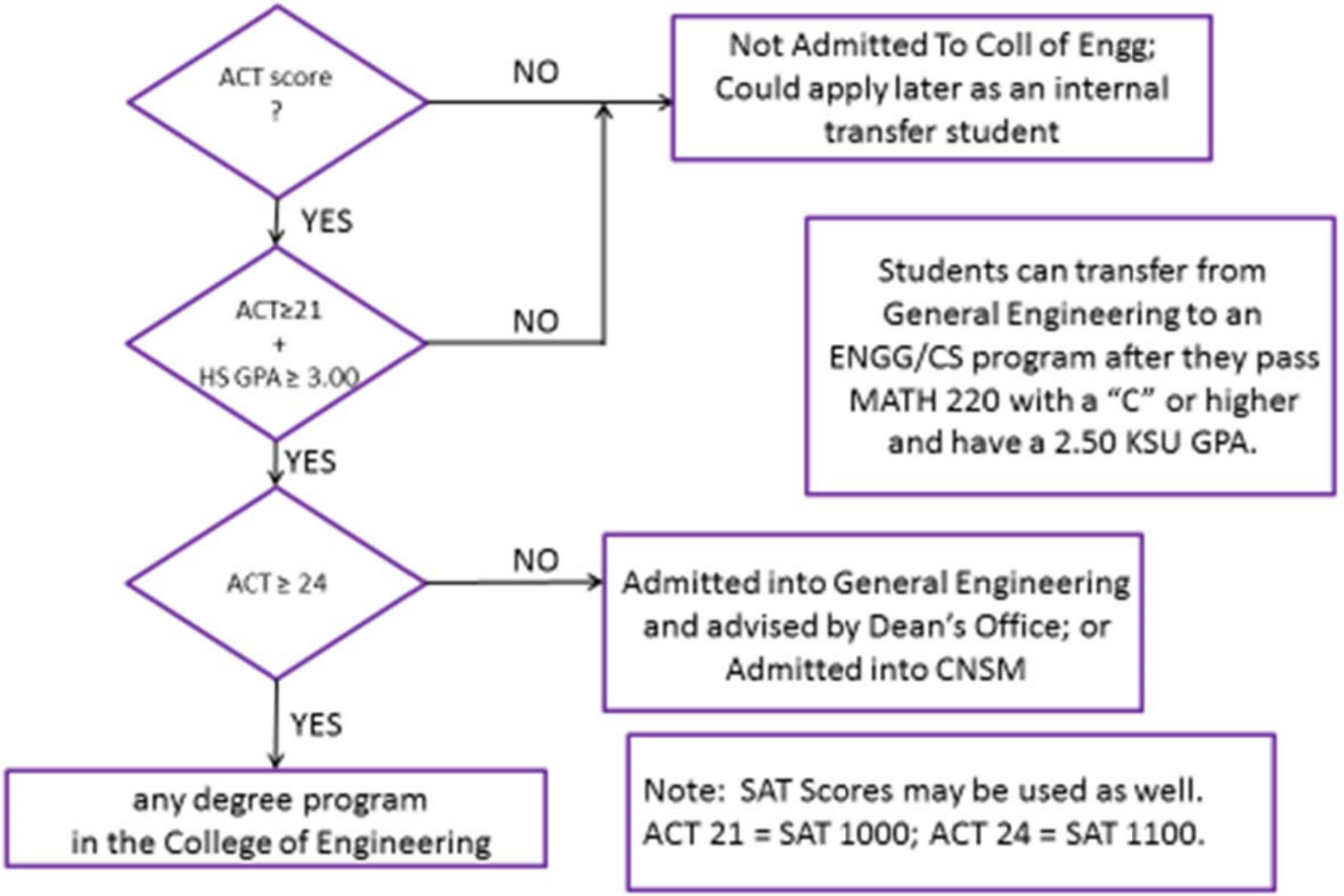
IMPACT

Fewer students will be admitted to the College of Engineering who are not prepared for the curriculum. These students could be placed in Open Option or another college.

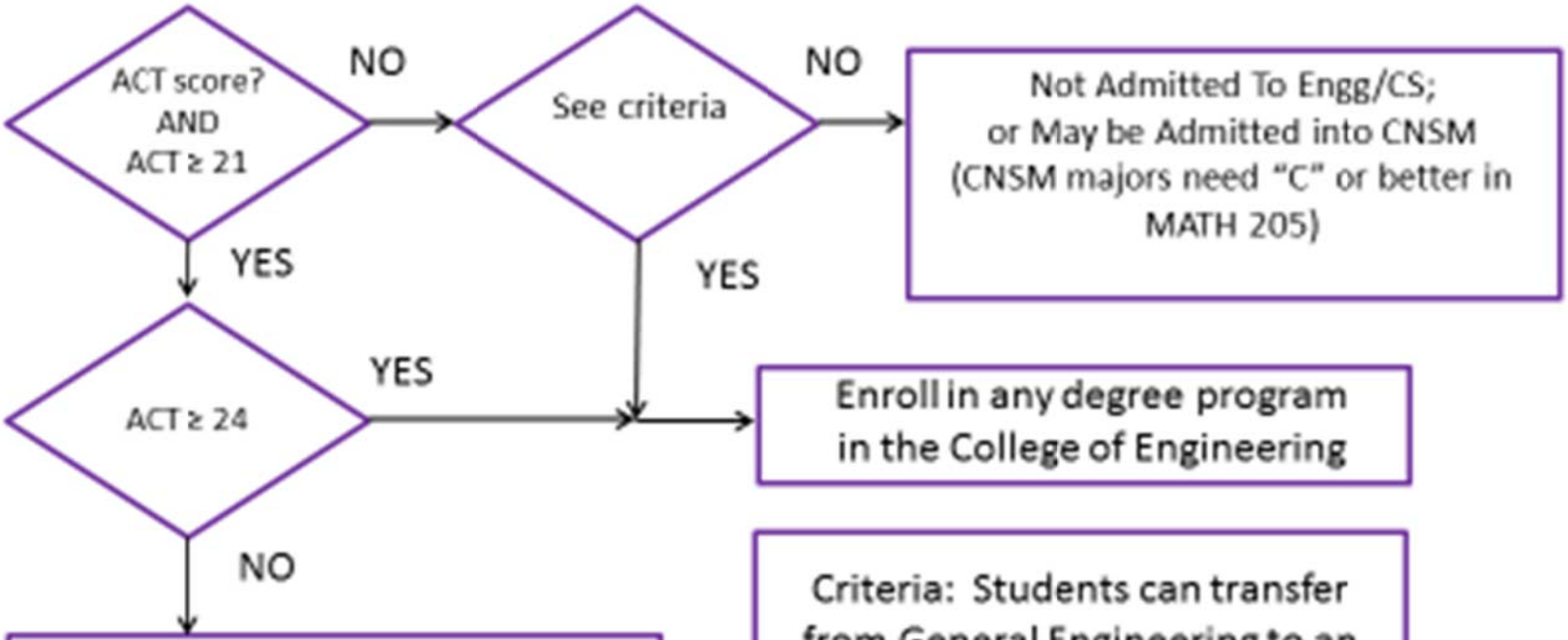
EFFECTIVE DATE

Fall 2017

New Students –102115



Transfer Students (internal and external)
Must have been admitted by K-State
And K-State GPA ≥ 2.50 (internal) and ≥ 2.75 (external) 102115



Biological & Agricultural Engineering

From:

BAE 131 - ~~Introductory Design for Biological and Agricultural Engineers~~

Credits: (1)

~~Gain skills in biological and agricultural engineering topics through experiential design labs, application-oriented problem solving, computer use, teamwork, and written and oral communication~~.

Note: Three hours lab a week

Requisites: ~~None~~

When Offered: ~~Fall~~

UGE course: No **K-State 8:** None

To:

BAE 131 – Biological Systems Engineering Project I

Credits: (1)

Team-oriented design project, with an emphasis on applying computer tools to problem solving in biological systems engineering.

Note: Three hours lab a week

Requisites: Prerequisite or co-requisite: MATH 220

When Offered: Spring

UGE course: No **K-State 8:** None

Rationale: The course title and description are being changed to reflect the activities. It is also being moved from the Fall semester to the Spring semester to allow students to complete BAE 101 (Introduction to Biological and Agricultural Engineering and Technology) prior to participation in the first engineering design class. BAE 231 and 331 – the other two courses in the design series – are also being updated.

Impact: Math Department, and they have been notified.

Effective: Spring 2016

Computing and Information Sciences

Add: CIS 090 - CIS Scholars Seminar (0). Presentation of professional problems and practices by students, faculty, and professionals associated with computing science.
Requisites
Prerequisite: Admission into the CIS Scholars Program.
When Offered
Fall, Spring

Rationale: We need a time when we can meet with the students in our Scholars Program on a regular basis. Requiring them to enroll in this course will block out a time in all of their schedules for this purpose. We can use it to introduce them to research areas, allow them to meet with company representatives, etc.

Effective: Fall 2016

Impact: None

Mechanical and Nuclear Engineering

From:
NE ~~250~~ - Reactor Operations Laboratory
Credits: (3)

A basic course in reactor operator licensing, nuclear safety, and reactor operations with structured laboratory exercises.

Note
Two hours lecture and one three-hour lab per week.

Requisites
Prerequisite: PHYS 213.

When Offered
Fall, Spring, Summer

UGE course
No

K-State 8
None

To:
NE 350 - Reactor Operations Laboratory
Credits: (3)

A basic course in reactor operator licensing, nuclear safety, and reactor operations with structured laboratory exercises.

Note
Two hours lecture and one three-hour lab per week.

Requisites
Prerequisite: PHYS 213.

When Offered
Fall, Spring, Summer

UGE course
No

K-State 8
None

Effective Spring 2016

Rationale:
We are changing the course number (from NE250 to NE350) on our Reactor Operations Laboratory for the following reasons:

1) Over the past several years the students enrolled in this course have changed from mostly underclassmen to predominantly upperclassmen.
2) Most students take NE250 after taking NE495 (2nd semester sophomore), once they want to learn more about the Nuclear Option or join the option.
3) Over the past several years, the emphasis in the course has changed from specific reactor licensing content to more of the reactor physics content (this course has PHYS213 as a pre-requisite), putting it in the first semester sophomore location. There are other 300-level courses in this location (Statics, Basic Materials, Mechanical Properties)

Impact: None outside of ME department

Undergraduate Curriculum Changes

Computing and Information Sciences

Drop: BS in Information Systems.

http://catalog.k-state.edu/preview_program.php?catoid=13&poid=3441&returnto=1331

Rationale: The recent growth in our undergraduate majors has stretched our resources to the point that maintaining two Bachelor's Degree programs is untenable. Information Systems is currently the only unaccredited Bachelor's Degree program in the College of Engineering, and getting it

accredited would require a significant additional investment in faculty resources (i.e., faculty with terminal degrees in Information Systems). Information Systems majors comprise 10-15% of this department's total undergraduate population. The students in this program tend to fall in two categories:

- Those seeking training in Information Technology as opposed to Computer Science. The Computer Systems Technology program in the College of Engineering Technology is designed for these students.
- Those seeking a computing-related degree program with less mathematics and sciences. These students also tend to struggle with programming and other advanced technical concepts. The Management Information Systems program in the College of Business seems more appropriate for these students.

Dropping this program would allow us to discontinue some classes. It would also give us more flexibility in the frequency that we offer other classes. Finally, it would allow us to do a better job with other classes by eliminating students with weak mathematical backgrounds.

Effective Date: Summer 2016. Students who have already been admitted to begin this program in this or subsequent semesters will be switched to the program of their choosing.

Impact: Many students who would ordinarily major in Information Systems would likely major in either Computer Systems Technology or Management Information Systems instead. We contacted Prof. Mark Jackson, Head of the Dept. of Engineering Technology, and Prof. Tim Bower, Program Coordinator for the BS in Computer Systems Technology, on Oct. 9, 2015. That same day, both responded in support of the proposed change. We also contacted Prof. Bill Turnley, Interim Head of the Dept. of Management, on Oct. 9, 2015. On Oct. 19, 2015, he responded by saying he would discuss it with the MIS faculty, and the next day, Prof. Michael Chilton responded that he had no concerns with the proposal.

College of Architecture, Planning, and Design (12-10-15)

Non-Expedited Proposals – Courses Numbered 000-599

Office of the Dean
(Environmental Design Studies Program)
New Course
Effective: Fall 2016
Impact on Other Units: None

Course:	**ENVD 200 Student Success Seminar**
Catalog Description:	Provides students with strategies for creating success in college and life. Topics to be covered include accepting personal responsibility, motivation, academic self-management, self-awareness, and life balance.
Credits:	(1)
Requisites:	None
When Offered:	Fall, Spring
K-State 8:	None
Rationale:	*This course has been offered for 4 semesters under our topics number (ENVD 299) to first-year APDesign students who are struggling at midterm or any student who feels they can use help with academic self-management. The course has been successful, so we would like to officially add it to the course catalog.*
Course:	**ENVD 204 Studio Seminar**
Catalog Description:	Seminar for students enrolled in ENVD 201. Topics related to studio and student success will be covered.
Credits:	(0)
Co-requisite:	ENVD 201
When Offered:	Fall
K-State 8:	None
Rationale:	*Studio Seminar will bring all students enrolled in ENVD 201 Environmental Design Studio 1 together to provide workshops related to design studio, as well as academic self-management strategies.*

College of Technology and Aviation (12-11-15)

NON-EXPEDITED COURSE ADDITIONS:
Courses Numbered 000-599

Engineering Technology

Primary Contact Person: Dr. Mark Jackson, Department Head
Phone: 785-826-7197
Email: mjjackson@ksu.edu

ADD: **CMST 183. Computer Systems Studio I**. (1) Fall. Students begin a portfolio of projects that connect the topics covered in CMST 103, CMST 135, required general education courses, and other relevant subjects. Two hours studio per week. Co.: CMST 103 and CMST 135.
K-State 8:
- None

RATIONALE: The goal of this course is to make it easier for the student to "connect the dots" between disparate topics and see the "why" behind them.

IMPACT: No impact on any other department.

EFFECTIVE DATE: Fall 2016

ADD: **CMST 185. Computer Systems Studio II**. (1) Spring. Students add to their portfolios projects that connect the topics covered in CMST 137, CMST 247, past required CMST and general education courses, and other relevant subjects. Two hours studio per week. Pr.: CMST 183. Co.: CMST 137 and CMST 247.
K-State 8:
- None

RATIONALE: The goal of this course is to continue to have students "connect the dots" between topics they are learning in the content courses. In addition, students must build on skills learned in prior courses, thus reinforcing those skills.

IMPACT: No impact on any other department.

EFFECTIVE DATE: Fall 2016

ADD: **CMST 283. Computer Systems Studio III**. (1) Fall. Students add to their portfolios projects that connect the topics covered in CMST 180, CMST 335, past required CMST and general education courses, and other relevant subjects. Two hours studio per week. Pr.: CMST 185. Co: CMST 180 and CMST 335.
K-State 8:
None

RATIONALE: The paradigm of connecting the dots, started in CMST 183 and CMST 185, is continued in this course.

IMPACT: No impact on any other department.

EFFECTIVE DATE: Fall 2016

ADD: **CMST 333. Computer Systems Portfolio Defense**. (0) Spring. Each student must orally present and defend his or her portfolio of projects to the faculty. Satisfactory completion of this course is required for a student to continue in the BETB-CP degree. Pr.: CMST 283. Co.: CMST 334.

K-State 8:
- None

RATIONALE: This course is proposed to satisfy two issues: (1) how to deal with transfer students who may not have portfolios and (2) how to deal with students who are not ready academically for the polytechnic approach of the upper division classes. The second issue is satisfied by making this a gateway course – this course is a prerequisite to the BETB-CP junior level courses. The first issue is satisfied by keeping the content courses essentially as they are now. Many of these courses can presently be transferred in from the various community colleges in Kansas. Thus, a transfer student can enter K-State having these course credits satisfied. He or she may or may not have a portfolio. If not, then the student can develop the portfolio alone or by enrolling in one or more of the studio courses. Nevertheless, all students must pass the portfolio defense to continue in the major. Transfer students who do so without having taken the studio courses will have their studio credits waived.

IMPACT: No impact on any other department.

EFFECTIVE DATE: Fall 2016

ADD: **CMST 383. Programming and Data Structures Studio**. (3-6) Fall. Students complete projects that tie together topics related to large application programming. Content topics include tools and methodologies for large program development, testing strategies, data structures and other relevant subjects. Nine hours studio per week. Pr.: CMST 333.
K-State 8:
- None

RATIONALE: The Engineering Technology Department's 2025 Strategic Action Plan calls for the incorporation of experiential learning, undergraduate research and entrepreneurial experience into its programs. The Computer Systems Technology faculty seeks to do this by moving the junior and senior students through a non-traditional model of courses that emphasize the completion of projects, applied research, class work and independent study.

This strategy will be implemented by replacing the required junior and senior courses with open-ended studio courses, in which students are required to complete significant projects that combine a variety of topics, both in computing and in the students' general education courses. These studios will be team taught. Students will learn fundamentals by completing "content modules," which are mini-courses in specific content areas. Each studio will have certain content modules required and others offered as electives so that each student learns a common core of fundamentals but has the ability to customize the experience according to his or her interests.

The upper-level studio courses have variable credit to allow flexibility for both students and faculty. For example, if a visiting professor offers a one-time 3-credit course in Cyber Security then students can take it and apply it to three credits of their studio. Transfer students can likewise apply appropriate courses to the studio credits.

This particular studio course will require all students to complete content modules on programming and data structures, content that is currently taught in the "programming language electives" and CMST 370, Applied Data Structures.

IMPACT: No impact on any other department.

EFFECTIVE DATE: Fall 2016

ADD: **CMST 385. Systems and Database Administration Studio**. (3-6) Spring. Students complete projects that tie together topics related to systems and database administration. Content topics include advanced database, network infrastructure, security, multi-platform support, systems integration and other relevant subjects. Nine hours studio per week. Pr.:

CMST 383.
K-State 8:
- None

RATIONALE: Please refer to the rationale for CMST 383. This particular studio course will require all students to complete content modules on systems and database administration, content that is currently taught in various computer technology electives and CMST 420, Advanced Database Systems.

IMPACT: No impact on any other department.

EFFECTIVE DATE: Fall 2016

ADD: **CMST 483. Emerging Technologies Studio**. (3-6) Fall. Students practice life-long learning and research methods by completing projects that combine previously learned material with newly emerging technologies that the students must research and analyze. Nine hours studio per week. Pr.: CMST 385.
K-State 8:
- None

RATIONALE: Please refer to the rationale for CMST 383. This particular studio course will require all students to complete content modules on research methods.

IMPACT: No impact on any other department.

EFFECTIVE DATE: Fall 2016

ADD: **MET 225. Additive Manufacturing.** (3) Fall. The course develops an understanding of additive manufacturing (AM) principles and applications combined with a problem-based learning project which develops design, manufacturing and maintenance skill sets for AM practitioners. Two hours lecture and three hours lab per week.
K-State 8:
- Empirical and Quantitative Reasoning

RATIONALE: This course develops specialty knowledge to complete the content base of the proposed Certificate in Applied Manufacturing. It allows students to develop and leverage specialty skills in this rapidly-growing area of manufacturing. The course has the added advantage of drawing on interest in 3D printing to attract students to the program.

KS 8 RATIONALE: Students will be required to apply foundational technical and science-based knowledge to make decisions toward successful process implementation and product manufacture.

IMPACT: No impact on any other department.

EFFECTIVE DATE: Fall 2016

NON-EXPEDITED COURSE MODIFICATIONS
Courses Numbered 000-599

Department of Engineering Technology

Primary Contact Person: Dr. Mark Jackson, Engineering Technology
Phone: 785-826-7197
Email: mjjackson@ksu.edu

FROM:

CMST 460. ~~Systems Analysis and Design.~~ (3) Fall. An in-depth study of software engineering methodologies for the analysis, design, and implementation of software systems. Topics include structured analysis and design, object-oriented analysis and design, implementation and testing strategies, and software principles and metrics. ~~Students work in teams to design, implement, and present a final capstone course project.~~ Pr.: ~~CMST 332 or CMST 334~~; and senior standing. ~~Co.: CMST 370~~.
K-State 8:
- Empirical and Quantitative Reasoning

TO:

CMST 460. Software Engineering. (3) Fall. An in-depth study of software engineering methodologies for the analysis, design, and implementation of software systems. Topics include project management, structured analysis and design, object-oriented analysis and design, implementation and testing strategies, and software principles and metrics. Pr.: CMST 383; and senior standing.
K-State 8:
- Empirical and Quantitative Reasoning

RATIONALE:

Software Engineering is a newer topic that encompasses Systems Analysis and Design. The class to date has emphasized the systems analysis and design topics that the students need to utilize in completing their senior projects, done in CMST 462. With the change in curriculum, students will be able to practice techniques in the corresponding studio course, freeing up time in CMST 460 for more software engineering topics.
Software Engineering is a newer topic that encompasses Systems Analysis and Design. The class to date has emphasized the systems analysis and design topics that the students need to utilize in completing their senior projects, done in CMST 462. With the change in curriculum, students will be able to practice techniques in the corresponding studio course, freeing up time in CMST 460 for more software engineering topics.

IMPACT:

No impact on any other department. Approval has been received from Computing and Information Sciences per email from Scot DeLoach and Rodney Howell dated November 19, 2015.

EFFECTIVE DATE:

Fall 2016

FROM:

CMST ~~462~~. Computer ~~Technology~~ Senior Project. (~~3~~) Spring. A sequel to CMST 460 in which students work individually or in teams to develop a significant project in their area of interest. Students are expected to apply the software engineering methodologies from CMST 460, write project documentation, and make verbal presentations. Whenever feasible, real-world projects are solicited from local businesses. Pr.: CMST 460.
K-State 8:
- Empirical and Quantitative Reasoning
- Ethical Reasoning and Responsibility

TO:

CMST 485. Computer Systems Senior Capstone Project. (6) Spring. A sequel to CMST 460 in which students work individually or in teams to develop a significant project in their area of interest. Students are expected to apply the software engineering methodologies from CMST 460, write project documentation, and make verbal presentations. Whenever feasible, real-world projects are solicited from local businesses. Nine hours studio per week. Pr.: CMST 460 and CMST 483.
K-State 8:
- Empirical and Quantitative Reasoning

- Ethical Reasoning and Responsibility

RATIONALE: We want the title to express the fact that this is a capstone experience. We want the course format to be consistent with the new studio courses being proposed by our department.

IMPACT: No impact on any other department.

EFFECTIVE DATE: Fall 2016

NON-EXPEDITED UNDERGRADUATE CURRICULUM DELETIONS:

Department of Aviation

Primary Contact Person: Tara Harl
Airport Management Program Lead
Phone: 785-826-2622
Email: tlharl@ksu.edu

DROP: **Airport Management Certificate (CAMC)**

RATIONALE: Per industry expert input, the Airport Management graduate will be more marketable for an entry level positon by acquiring the industry standard of certification via the American Association of Airport Executives (AAAE) not via a university certificate.

IMPACT: There will be no impact to the student since the Airport Management Curriculum will still offer AVT 464- Airport Certified Manager a 1 hour lab that prepares students to take the first AAAE certification exam.

EFFECTIVE DATE: Fall 2016

Department of Engineering Technology

Primary Contact Person: Mark Jackson, Department Head
Phone: 785-826-7197
Email: mjjackson@ksu.edu

DROP: **Associate of Technology in Engineering Technology – Computer Systems option (AETA-CP)**

RATIONALE: This associate degree option is being discontinued in order to give preference to the associate degree option in Web Development (AETA-WD), which, according to the Bureau of Labor Statistics (www.bls.gov/ooh/computer-and-information-technology/web-developers.htm), is the typical degree for individuals pursuing a web development career.

IMPACT: No impact on any other department.

EFFECTIVE DATE: Fall 2016

NON-EXPEDITED UNDERGRADUATE CURRICULUM MODIFICATIONS:

Department of Engineering Technology
Associate of Technology in Engineering Technology – Electronic and Computer Engineering Technology option (AETA-EC)

CURRENT: Electronic and computer engineering technology option (AETA-EC)		
6~~8~~ hours required for graduation		
Freshman		
Fall semester (1~~6~~ credit hours)		
~~COMM 105~~	~~Public Speaking 1A~~	~~2~~
ECET 100	Basic Electronics	4
ECET 250	Digital Logic	4
ENGL 100	Expository Writing I	3
ETA 020	Engineering Technology Seminar	0
MATH 100	College Algebra	3
Spring semester (16 credit hours)		
CHM 110	General Chemistry	3
CHM 111	General Chemistry Laboratory	1
CMST 103	~~Introduction to Program Design~~	3
ECET 101	Direct Current Circuits	3
~~ECET 110~~	~~Semiconductor Electronics~~	~~4~~
~~MATH 151~~	~~Applied Plane Trigonometry~~	~~2~~
Sophomore		
Fall semester (1~~8~~ credit hours)		
ECET 201	Alternating Current Circuits	4
~~ECET 210~~	~~Linear Circuit Applications~~	~~4~~
ENGL 302	Technical Writing	3
MATH 220	Analytic Geometry and Calculus I	4
	~~Humanities/Social Science elective~~	~~3~~
Spring semester (1~~8~~ credit hours)		
~~CMST 250~~	~~Networking I~~	~~3~~
ECET 240	Electronic Manufacturing	3
~~ECET 335~~	~~Industrial Control Topics~~	~~1~~
ECET 350	Microprocessor Fundamentals	4
MET 382	Industrial Instrumentation and Controls	3
PHYS 113	General Physics I	4

PROPOSED: Electronic and computer engineering technology option (AETA-EC)		
6<u>6</u> hours required for graduation		
Freshman		
Fall semester (1<u>7</u> credit hours)		
<u>COMM 106</u>	<u>Public Speaking 1</u>	<u>3</u>
ECET 100	Basic Electronics	4
ECET 250	Digital Logic	4
ENGL 100	Expository Writing I	3
ETA 020	Engineering Technology Seminar	0
MATH 100	College Algebra	3
Spring semester (16 credit hours)		
CHM 110	General Chemistry	3
CHM 111	General Chemistry Laboratory	1
CMST 103	<u>Computing Principles</u>	3
ECET 101	Direct Current Circuits	3
<u>CMST 250</u>	<u>Hardware and Network Fundamentals</u>	<u>3</u>
<u>MATH 150</u>	<u>Plane Trigonometry</u>	<u>3</u>
Sophomore		
Fall semester (1<u>6</u> credit hours)		
<u>ECET 110</u>	<u>Semiconductor Electronics</u>	<u>4</u>
ECET 201	Alternating Current Circuits	4
<u>ECET 335</u>	<u>Industrial Control Topics</u>	<u>1</u>
ENGL 302	Technical Writing	3
MATH 220	Analytic Geometry and Calculus I	4
Spring semester (1<u>7</u> credit hours)		
ECET 240	Electronic Manufacturing	3
ECET 350	Microprocessor Fundamentals	4
MET 382	Industrial Instrumentation and Controls	3
PHYS 113	General Physics I	4
<u>Humanities/Social Science elective</u>		<u>3</u>

RATIONALE: Per request from the ASB department removed MATH 151 and COMM 105 from the ECET curriculum; substituted it with MATH 150 and COMM 106. This increased the overall hours to 70. To keep it closer to the 60-hour target, we removed ECET 210; content will be absorbed into other ECET courses. Re-shuffled courses to even out semester loading.

IMPACT: Impacts ASB department: MATH 151 and COMM 105 removed from the ECET curriculum.

EFFECTIVE DATE: Fall 2016

Bachelor of Science in Engineering Technology – Electronic and Computer Engineering Technology option (BETB-EC)

CURRENT: Electronic and computer engineering technology option (BETB-EC)
12~~8~~ hours required for graduation

Freshman
Fall semester (1~~6~~ credit hours)
~~COMM 105 Public Speaking 1A ..... 2~~
ECET 100 Basic Electronics 4
ECET 250 Digital Logic 4
ENGL 100 Expository Writing I 3
ETA 020 Engineering Technology Seminar 0
MATH 100 College Algebra 3

Spring semester (16 credit hours)
CHM 110 General Chemistry 3
CHM 111 General Chemistry Laboratory 1
CMST 103 ~~Introduction to Program Design~~ 3
ECET 101 Direct Current Circuits 3
~~ECET 110 Semiconductor Electronics ..... 4~~
~~MATH 151 Applied Plane Trigonometry ..... 2~~

Sophomore
Fall semester (18 credit hours)
ECET 201 Alternating Current Circuits 4
~~ECET 210 Linear Circuit Applications ..... 4~~
ENGL 302 Technical Writing 3
MATH 220 Analytic Geometry and Calculus I 4
~~Humanities/Social Science elective ..... 3~~

Spring semester (1~~8~~ credit hours)
~~CMST 250 Networking I ..... 3~~
ECET 240 Electronics Manufacturing 3
~~ECET 335 Industrial Control Topics ..... 1~~
ECET 350 Microprocessor Fundamentals 4
MET 382 Industrial Instrumentation and Controls 3
PHYS 113 General Physics I 4

Junior
Fall semester (14 credit hours)
CMST 302 Applications in C Programming for Engineering Technology 3
ECET 304 Electric Power and Devices 3
ECET 352 Digital Circuits and Systems 4
MATH 221 Analytic Geometry and Calculus II 4

Spring semester (17 credit hours)
BUS 315 Supervisory Management 3
ECET 320 Electronic Communication Systems 4
ENGL 200 Expository Writing II 3
Humanities/Social Science elective 3
Science Elective with lab 4

Senior
Fall semester (14 credit hours)
ECET 430 Network Analysis 3
ECET 450 Digital Systems and Computer Architecture 4
ECET 480 Electronic Design I 1
Humanities/Social Science elective 3
Technical Elective 3

Spring semester (15 credit hours)
ECET 420 Communication Circuits Design 4
ECET 481 Electronic Design II 2
Humanities/Social Science elective 3
*Humanities/Social Science elective 3
Technical Elective 3

*Marked electives must be upper-level courses, 300 and above.

PROPOSED: Electronic and computer engineering technology option (BETB-EC)
126 hours required for graduation

Freshman
Fall semester (17 credit hours)
COMM 106 Public Speaking 1 3
ECET 100 Basic Electronics 4
ECET 250 Digital Logic 4
ENGL 100 Expository Writing I 3
ETA 020 Engineering Technology Seminar 0
MATH 100 College Algebra 3

Spring semester (16 credit hours)
CHM 110 General Chemistry 3
CHM 111 General Chemistry Laboratory 1
CMST 103 Computing Principles 3
ECET 101 Direct Current Circuits 3
CMST 250 Hardware and Network Fundamentals 3
MATH 150 Plane Trigonometry 3

Sophomore
Fall semester (16 credit hours)
ECET 110 Semiconductor Electronics 4
ECET 201 Alternating Current Circuits 4
ECET 335 Industrial Control Topics 1
ENGL 302 Technical Writing 3
MATH 220 Analytic Geometry and Calculus I 4

Spring semester (17 credit hours)
ECET 240 Electronics Manufacturing 3
ECET 350 Microprocessor Fundamentals 4
MET 382 Industrial Instrumentation and Controls 3
PHYS 113 General Physics I 4
Humanities/Social Science elective 3

Junior
Fall semester (14 credit hours)
CMST 302 Applications in C Programming for Engineering Technology 3
ECET 304 Electric Power and Devices 3
ECET 352 Digital Circuits and Systems 4
MATH 221 Analytic Geometry and Calculus II 4

Spring semester (17 credit hours)
BUS 315 Supervisory Management 3
ECET 320 Electronic Communication Systems 4
ENGL 200 Expository Writing II 3
Humanities/Social Science elective 3
Science Elective with lab 4

Senior
Fall semester (14 credit hours)
ECET 430 Network Analysis 3
ECET 450 Digital Systems and Computer Architecture 4
ECET 480 Electronic Design I 1
Humanities/Social Science elective 3
Technical Elective 3

Spring semester (15 credit hours)
ECET 420 Communication Circuits Design 4
ECET 481 Electronic Design II 2
Humanities/Social Science elective 3
*Humanities/Social Science elective 3
Technical Elective 3

*Marked electives must be upper-level courses, 300 and above.

RATIONALE: Per request from the ASB department removed MATH 151 and COMM 105 from the ECET curriculum; substituted it with MATH 150 and COMM 106. This increased the overall hours to 130. To keep it closer to the 120-hour target, we removed ECET 210; content will be absorbed into other ECET courses. Re-shuffled courses to even out semester loading.

IMPACT: Impacts ASB department: MATH 151 and COMM 105 removed from the ECET curriculum.

EFFECTIVE DATE: Fall 2016

Associate of Technology in Engineering Technology – Web Development Technology Option (AETA-WD)

Current: Web development technology option (AETA- WD)	**Proposed: Web development technology option (AETA- WD)**
6~~6~~ hours required for graduation	62 hours required for graduation
Major requirements (3~~9~~ credit hours)	**Major requirements (33 credit hours)**
~~Core courses **(33 credit hours)**~~	CMST 103 Computing Principles 3
~~CMST 102 Introduction to Computer Technology ..... 3~~	CMST 135 Web Fundamentals 3
CMST 103 ~~Introduction to Program Design~~ 3	CMST 137 Fundamentals of Visual Literacy 3
~~CMST 130 Introduction to PC Administration ..... 3~~	CMST 180 Introduction to Database Systems 3
CMST 135 Web ~~Page Development I~~ 3	CMST 183 Computer Systems Studio I 1
CMST 137 Fundamentals of Visual Literacy 3	CMST 185 Computer Systems Studio II 1
~~CMST 155 Web Page Development II ..... 3~~	CMST 247 Programming I 3
CMST 180 Introduction to Database Systems 3	CMST 250 Hardware and Network Fundamentals 3
CMST 247 ~~Java~~ Programming I 3	CMST 252 System and Software Fundamentals 3
CMST 250 ~~Networking I~~ 3	CMST 283 Computer Systems Studio III 1
CMST 332 Web Development Project 3	CMST 315 Introduction to System Administration 3
CMST 335 ~~Web~~ Programming 3	CMST 333 Computer Systems Portfolio Defense 0
~~ETA 020 Engineering Technology Seminar ..... 0~~	CMST 332 Web Development Project 3
	CMST 335 Programming II 3
~~Programming language electives (6 credit hours)~~	*Other courses may be used if approved by the AETA-WD program coordinator.*
~~Choose two courses from:~~	
~~CMST 310 Visual Basic Programming ..... 3~~	**Other requirements (29 credit hours)**
~~CMST 317 C# Programming ..... 3~~	COMM 106 Public Speaking I 3
~~CMST 341 C++ Programming ..... 3~~	EDCEP 111 University Experience 1
~~CMST 347 Java Programming II ..... 3~~	ENGL 100 Expository Writing I 3
Other ~~programming electives~~ may be used if approved by the AETA-WD program coordinator.	ENGL 302 Technical Writing 3
	Mathematics requirement* 3
Other requirements (2~~7~~ credit hours)	Humanities/Social Science/Business elective 3
~~COMM 105 Public Speaking IA ..... 2~~	Humanities/Social Science/Business elective 3
ENGL 100 Expository Writing I 3	Humanities/Social Science/Business elective 3
ENGL 302 Technical Writing 3	Science elective 4
Mathematics requirement* 3	Unrestricted elective 3
~~BUS 110 Introduction to Business ..... 3~~	
~~ECON 110 Principles of Macroeconomics ..... 3~~	* Choose from MATH 100, MATH 150, MATH 205 or MATH 220.
Humanities/Social Science/Business elective 3	
~~Humanities/Social Science elective ..... 3~~	
Science elective ~~with lab~~ 4	
* Choose from MATH 100, MATH 150, MATH 205 or MATH 220.	

RATIONALE: Concurrent to this proposal is a proposal to revise the Bachelor of Science option in Computer Systems Technology. This proposal would change the Associate of Science option in Web Development Technology to align with the bachelor's degree so as to allow student's receiving the A. T. degree to continue on to the four-year degree.

According to the Bureau of Labor Statistics web site (www.bls.gov/ooh/computer-and-information-technology/web-developers.htm) web development is a career that requires

only an Associate's Degree; demand for web developers is expected to grow 20% (faster than the average of all occupations) over the next ten years. It is also a career that appeals to individuals who have degrees but need additional marketable skills.

IMPACT: This proposal has been shared with the following departments in the college of Technology and Aviation:

- Arts, Sciences and Business (emailed to Dept. head October 5, 2015)
- Aviation (emailed to Dept. head October 5, 2015)

College of Engineering:

- Computer and Information Sciences (emailed to Undergraduate Curriculum Coordinator October 13, 2015)

Favorable responses have been received from individual faculty members in the former two departments. Questions from them about specific requirements have been addressed.

EFFECTIVE DATE: Fall 2016

Bachelor of Science in Engineering Technology – Computer Systems Technology Option (BETB-CP)

Current: Computer systems technology option (BETB-CP)	**Proposed: Computer systems technology option (BETB-CP)**
124 hours required for graduation	120 hours required for graduation
(66 hours associate degree + 58 additional hours)	(62 hours associate degree + 58 additional hours)
Major requirements (63 credit hours)	**Major requirements (60 credit hours)**
~~Core courses (39 credit hours)~~	CMST 103 Computing Principles 3
~~CMST 102 Introduction to Computer Technology .....3~~	CMST 135 Web Fundamentals 3
CMST 103 ~~Introduction to Program Design~~ 3	CMST 137 Fundamentals of Visual Literacy 3
~~CMST 130 Introduction to PC Administration .....3~~	CMST 180 Introduction to Database Systems 3
CMST 135 Web ~~Page Development I~~ 3	CMST 183 Computer Systems Studio I 1
CMST 180 Introduction to Database Systems 3	CMST 185 Computer Systems Studio II 1
CMST 247 ~~Java~~ Programming I 3	CMST 247 Programming I 3
CMST 250 ~~Networking I~~ 3	CMST 250 Hardware and Network Fundamentals 3
CMST 334 Computer ~~Technology~~ Project ~~Development~~ 3	CMST 252 System and Software Fundamentals 3
	CMST 283 Computer Systems Studio III 1
CMST 335 ~~Web~~ Programming 3	CMST 315 Introduction to System Administration 3
~~CMST 370 Applied Data Structures .....3~~	CMST 333 Computer Systems Portfolio Defense 0
~~CMST 420 Advanced Database Systems .....3~~	CMST 334 Computer Systems Project 3
CMST 460 ~~Systems Analysis and Design~~ 3	CMST 335 Programming II 3
CMST 4~~6~~2 Computer ~~Technology~~ Senior Project .....~~3~~	CMST 383 Programming & Data Structures Studio* .. 3-6
~~ETA 020 Engineering Technology Seminar .....0~~	CMST 385 Systems and Database Admin Studio* 3-6
	CMST 460 Software Engineering 3
~~Programming language electives (6 credit hours)~~	CMST 483 Emerging Technologies Studio* 3-6
~~Choose two courses from:~~	CMST 485 Computer Systems Senior Capstone Project 6
~~CMST 310 Visual Basic Programming .....3~~	*Other courses may be used if approved by the BETB-CP program coordinator.*
~~CMST 317 C# Programming .....3~~	
~~CMST 341 C++ Programming .....3~~	**Math requirements (9 credit hours)**
~~CMST 347 Java Programming II .....3~~	*Choose from these courses:*
Other ~~programming electives~~ may be used if approved by the BETB-CP program coordinator.	MATH 100 College Algebra 3
	MATH 150 Plane Trigonometry 3
~~Computer systems technology electives (9 credit hours)~~	MATH 205 General Calculus and Linear Algebra 3
~~Choose three courses from:~~	MATH 220 Analytic Geometry and Calculus I 4
~~CMST 155 Web Page Development II .....3~~	MATH 221 Analytic Geometry and Calculus II 4
~~CMST 270 Introduction to Unix .....3~~	MATH 222 Analytic Geometry and Calculus III 4
~~CMST 310 Visual Basic Programming .....3~~	*Other math courses may be used if approved by the BETB-CP program coordinator.*
~~CMST 315 Networking II .....3~~	
~~CMST 317 C# Programming .....3~~	**Other requirements (51 credit hours)**
~~CMST 323 Game Programming .....3~~	

~~CMST 341 C++ Programming ..... 3~~
~~CMST 344 Internetworking ..... 3~~
~~CMST 347 Java Programming II ..... 3~~
~~CMST 350 Unix Administration ..... 3~~
~~CMST 355 Network Programming ..... 3~~
~~CMST 362 Introduction to Business Programming ..... 3~~
~~CMST 410 Operating Systems ..... 3~~
~~CMST 412 Software Architecture & Design ..... 3~~
~~CMST 445 Network Security ..... 3~~
~~CMST 470 Applied Algorithm Design ..... 3~~
~~COT 495 Industrial Internship ..... max. 3~~
~~ECET 350 Microprocessor Fundamentals ..... 4~~
~~*Other electives may be used if approved by the ETA-CP program coordinator.*~~

~~**Advanced Computer Technology Electives (9 credit hours)**~~
~~*Choose one of the following tracks:*~~
~~**Programming Track (***choose any three courses***):**~~
~~CMST 355 Network Programming ..... 3~~
~~CMST 410 Operating Systems ..... 3~~
~~CMST 412 Software Architecture & Design ..... 3~~
~~CMST 470 Applied Algorithm Design ..... 3~~
~~**Networking Track (***choose any three courses***):**~~

~~CMST 344 Internetworking ..... 3~~
~~CMST 350 Unix Administration ..... 3~~
~~CMST 355 Network Programming ..... 3~~
~~CMST 410 Operating Systems ..... 3~~
~~CMST 445 Network Security ..... 3~~

Math requirements (9 credit hours)
~~*Choose three of these four options:*~~
MATH 100 College Algebra 3
MATH 150 Plane Trigonometry 3
~~or~~
~~MATH 151 Applied Plane Trigonometry (2)~~
MATH 205 - General Calculus and Linear Algebra 3
~~or~~
MATH 220 - Analytic Geometry and Calculus I 4
MATH 221 Analytic Geometry and Calculus II 4
Other math courses may be used if approved by the BETB-CP program coordinator.

Other requirements (~~52~~ credit hours)
~~COMM 105 Public Speaking IA ..... 2~~
ENGL 100 Expository Writing I 3
ENGL 200 Expository Writing II 3
ENGL 302 Technical Writing 3
PHILO 105 Introduction to Critical Thinking 3
PHILO 390 Business Ethics 3
STAT 325 Elements of Statistics 3
Business elective 3
Business elective~~**~~ 3
Humanities/Social Science elective 3
Humanities/Social Science elective~~**~~ 3
~~Humanities/Social Science/Business elective ..... 3~~
~~Humanities/Social Science/Business elective ..... 3~~
~~Humanities/Social Science/Business elective ..... 3~~
Humanities/Social Science/Business elective** 3
Science elective ~~with lab~~ 4
Science elective ~~with lab~~ 4
COMM 106 Public Speaking I 3
EDCEP 111 University Experience 1
ENGL 100 Expository Writing I 3
ENGL 200 Expository Writing II 3
ENGL 302 Technical Writing 3
PHILO 105 Introduction to Critical Thinking 3
PHILO 390 Business Ethics 3
STAT 325 Elements of Statistics 3
Business elective 3
Business elective 3
Humanities/Social Science elective 3
Humanities/Social Science elective 3
Humanities/Social Science/Business elective** 3
Science elective 4
Science elective 4
Unrestricted elective 3
Unrestricted elective 3

* Students may substitute up to 9 credits of studio with appropriate courses as approved by the BETB-CP program coordinator.

** Marked elective must be upper division course, 300 and above.

** Marked electives must be upper division courses, 300 and above.	

RATIONALE: The 2025 Strategic Action Plan for K-State Polytechnic calls for "experiential learning in 100% of degree programs" as a long term key outcome. The Engineering Technology Department's 2025 Strategic Plan calls for the incorporation of experiential learning, undergraduate research and entrepreneurial experience into its programs. The Computer Systems Technology faculty seeks to do this through a significant revision of its Bachelor of Science degree option in Computer Systems Technology.

In designing this proposal, the faculty sought to achieve these goals.

1. To retain a unique strength in the current degree in that it aligns very well with 2-year computing degrees in Kansas. This makes our degree a logical next step toward a Bachelor of Science degree for those students who spend their first two years at a Kansas community college.

2. To retain a unique strength in the current degree in the successful student emerges with a working knowledge that makes him or her employable in both large computer programming units and small businesses where he or she may be the only computer expert. This has resulted in our placement rate to be well above 90%.

3. To increase the level of ability of students entering the junior and senior years of the program.

4. To move the junior and senior students through a non-traditional model of courses that emphasize the completion of projects, applied research, class work and independent study.

5. To give the freshman and sophomore students a taste of "experiential learning" while still teaching them the basics and allowing for less stringent admission requirements than used for juniors and seniors.

To satisfy goals 1 and 5, the topics covered for the first two years of the degree have been left, more or less, unchanged. This allows transfer students into the program through the traditional mechanism of counting course credits. It also allows freshman to transition to college-level work before being hit with an all-out "experiential" paradigm. Experiential learning is provided to freshman and sophomores through studio courses that students take concurrently with topics courses. The topics courses teach fundamentals and use traditional student assessment techniques of homework and tests to measure student achievement. The studio courses allow the students to "connect the dots" between topics they are learning in the content courses. In addition, students are required to remember and apply skills learned in prior courses.

Goal 2 is achieved by continuing to emphasize four content tracks: programming, database, networking and web design. Computer electives for freshman and sophomores have been eliminated and the topics reorganized so that the successful student reaches a milestone at the end of each academic year. Specifically, at the end of the freshman year, the successful student will be able to program an application on an appropriate platform, currently a web site. During the sophomore year, the successful student will add the ability to administer the platform on which the application runs.

Goal 3 is achieved by a gateway course (CMST 333, Computer Systems Portfolio Defense) which all students must pass as a prerequisite to the junior and senior courses.

Goal 5 is achieved by replacing the required junior and senior courses with open-ended studio courses, in which students are required to complete significant projects that combine a variety of topics, both in computing and in the students' general education courses. These studios will be team taught. Students will learn fundamentals by completing "content modules," which are mini-courses in specific content areas. Each studio will have certain content modules required and others offered as electives so that

each student learns a common core of fundamentals but has the ability to customize the experience according to his or her interests.

These curriculum changes have been made in consultation with the Industry Advisors for the Computer Systems Technology degree.

IMPACT: This proposal has been shared with the following departments in the college of Technology and Aviation:

- Arts, Sciences and Business (emailed to Dept. head October 5, 2015)
- Aviation (emailed to Dept. head October 5, 2015)

College of Engineering:

- Computer and Information Sciences (emailed to Undergraduate Curriculum Coordinator October 13, 2015)

Favorable responses have been received from individual faculty members in the former two departments. Questions from them about specific requirements have been addressed.

EFFECTIVE DATE: Fall 2016

NON-EXPEDITED UNDERGRADUATE CERTIFICATE ADDITION:

Department of Engineering Technology

Primary Contact Person: Dr. Mark Jackson, Engineering Technology
Phone: 785-826-7197
Email: mjjackson@ksu.edu

Program Contact Person: Julia Morse, Mechanical Engineering Technology Program Coordinator
Phone: 785-826-2650
Email: jmorse@ksu.edu

PROPOSED:
Certificate in Applied Manufacturing
17 credit hours required for completion

The Certificate of Applied Manufacturing provides entry-level or career-changing students the option of immersing themselves in the principles and practice of manufacturing. The certificate can be issued as a stand-alone qualification, or can be used to gain entry to the Associate's, or Bachelor's, degree in engineering technology, mechanical engineering technology option.

Course Requirements

Minimum cumulative grade point average of 2.5 is required on courses applied to a certificate, and a grade of "C" or better is required in all coursework. All courses applied to the certificate must have letter grades. Courses with grades of "Credit" or "Pass" will not be applicable. No more than 25% of total credit hours required for the certificate may be transfer credits.

This is a free-standing certificate; it may be earned without participation in or completion of a degree program.

Required Courses (17 hours)

MET 111	Technical Graphics	3
MET 121	Manufacturing Methods	3
MET 117	Mechanical Modeling and Detailing	3
MET 125	Computer-Numerical-Controlled Machine Processes	2
MET 231	Physical Materials and Metallurgy	3
MET 225	Additive Manufacturing	3

RATIONALE: The proposed Certificate in Applied Manufacturing is consistent with the Board approved mission statement of the institution that includes the statement, "The mission of Kansas State University is to foster excellent teaching, research, and service that develop a highly skilled and educated citizenry necessary to advancing the well-being of Kansas, the nation, and the international community." The certificate responds to the need for skilled engineering and technology professionals with experience in applying both emerging and state-of-the-art computer-based manufacturing processes. Courses teach and require not only technical skill, but also communication and professionalism techniques expected in the execution of manufacturing applications, and science-based foundations required for application troubleshooting, growth, and expansion.

In particular, the certificate has found interest with the central pilot scheme of the 'Troops-to-Technology Workforce Development Initiative', which is an accelerated pathway to service member employment into manufacturing industries. The central pilot scheme is based at Fort Riley, Kansas, and the initiative is a partnership between BMNT Partners of Palo Alto, CA and the Oak Ridge Association of Universities (ORAU) to provide training and employment

opportunities for soldiers leaving service to enter the industrial workforce. The scheme is an extension of President Obama's creation of a national network of manufacturing institutes (NNMI) and includes partners such as the Department of Energy, ORAU, KSU and BMNT Partners. The applied manufacturing pilot program at Fort Riley is a partnership between Fort Riley and Kansas State University. The purpose of the pilot program is to offer between 50-100 transitioning soldiers/veterans in the first year beginning Spring 2016 and will expect soldiers/veterans to use their GI Bill funds to pay for the applied manufacturing certificate and further studies at Kansas State University using the stacking credential principle. Documentation of Fort Riley's involvement in the development and endorsement of the proposed program is attached as Appendix C.

The sequence of courses has the added benefit of giving entry-level students a taste of the applications area of manufacturing and mechanical engineering technology, which can be continued toward an Associate's degree in Technology or Bachelor of Science degree in Engineering Technology – Mechanical Engineering Technology Option.

The proposed program is aligned with the University's strategic plan and the K-State 2025 Strategic Action and Alignment Plan for K-State Polytechnic which sites a key activity for the undergraduate experience theme as the ability to "provide undergraduate degree programs that are relevant, effective (high impact learning), accessible, and valuable." The certificate in applied manufacturing will act as the first step towards providing accessible, stackable qualifications that soldiers/veterans—or any career-changing or career-growing individual--will use in the workforce, valuable to themselves and to society at large.

The program capitalizes on University resources by making use of courses that are already being taught regularly as part of Mechanical Engineering Technology programs.

Student Demand for the Certificate:
Currently, the demand is estimated to be 50-100 transitioning soldiers per year.

Estimated Budget and Staff Required:
On the Polytechnic campus, all but one of the certificate courses are already offered in support of our AETA-MT and BETB-MT degrees.

Special initiatives may allow us to offer the program at alternative locations. In such cases, a cost/benefit study would need to be completed before being offered.

IMPACT: The Industrial and Manufacturing Systems Engineering Department has been consulted and has provided its approval, as documented in Appendix B.

ASSESSMENT PROCEDURES: The assessment plan is attached as Appendix D.

EFFECTIVE DATE: Fall 2016

APPENDIX A: Notification and approval of The Bachelor of Science in Aeronautical Technology, Aviation Maintenance Management program lead on changes to MET 111 Technical Graphics which might affect their program.

Stephen Ley

Fri 3/20/2015 5:50 PM

Inbox

To:Julia Morse <jmorse@ksu.edu>;

I appreciate your concern and AVM involvement in this process. These are good changes and believe will only solidify alignment between the desired outcomes between our two programs.

Sent from my iPhone
Stephen Ley

On Mar 20, 2015, at 4:27 PM, Julia Morse <jmorse@ksu.edu> wrote:

> Stephen, MET is proposing changes to the MET 111 Technical Graphics course, attached. The main change is to remove a corequisite of MATH 100, which is not necessary to meet the outcomes of the course. The intent of the corequisite removal is to increase accessibility to entry-level and part-time students.
>
> Also, wording of the description has been adjusted to better describe existing SLO's and intent.
>
> I have attached a draft of the course change proposal.
>
> Though the course content and SLO's have not really changed, you will want to make sure the changes in wording still support the objectives of your BATN-AM program and students.
>
> Thanks!

APPENDIX B: Notification and approval of Dr. Bradley Kramer, Head of the Department of Industrial & Manufacturing Systems Engineering and Director of the Advanced Manufacturing Institute

---

From: Bradley Kramer
Sent: Wednesday, October 7, 2015 11:39 AM
To: Mark Jackson
Subject: RE: Draft Advanced Manufacturing Certificate Proposal

Not sure what you need for approval, but the IMSE department would not object to your offering a Certificate in Applied Manufacturing. Do you need that in a letter or will this email suffice?

Brad

Bradley A. Kramer, Ph.D.
Professor and Head, Industrial & Manufacturing Systems Engineering
Ike and Letty Evans Engineering Chair
Director, Advanced Manufacturing Institute

2038 Durland Hall
1701A Platt St
Department of Industrial and Manufacturing Systems Engineering
Kansas State University
Manhattan, KS 66506

Email: bradleyk@ksu.edu
Voice: (785) 532-5606
Fax: (785) 532-3738

APPENDIX C: Letter of support of Colonel Andrew Cole, Jr., Garrison Commander, Fort Riley

DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT RILEY
405 PERSHING COURT
FORT RILEY, KS 66442

October 19, 2015

Directorate of Human Resources

Dr. Mark Jackson
Kansas State University
2310 Centennial Road
Salina, KS 67401

Dear Dr. Jackson,

I am pleased to offer my support to Kansas State University in their Applied Manufacturing Certificate proposal and any programs that assist Soldiers as they transition to civilian life. Fort Riley, Kansas is the home of the 1st Infantry Division and each year, several thousand highly qualified Soldiers transition from the Army to the civilian sector. Among these outstanding Soldiers are many who have extensive experience working on highly technical equipment and who have a natural affinity for the technology and engineering fields.

Although we cannot guarantee a precise enrollment number, we believe initial demand for a program such as this will increase as this program gains recognition among our transitioning Soldiers. Additionally, offering the required classes during evening and weekend hours would maximize opportunities for Soldiers to participate in the program.

Kansas State University created a promising educational opportunity for Fort Riley Soldiers with this Applied Manufacturing Certificate. We fully support all programs that provides quality educational opportunities to our transitioning Soldiers and will inform our Soldiers regarding this unique educational opportunity.

Sincerely,

Andrew Cole, Jr.
Colonel, US Army
Garrison Commander

Certificate in Applied Manufacturing Program
Assessment of Student Learning Plan
K-State Polytechnic

A. College, Department, and Date

College: K-State Polytechnic, College of Technology and Aviation
Department: *Engineering Technology*
Date: *10/09/15*

B. Contact Person(s) for the Assessment Plans

Morse Julia, Associate Professor
Dandu Raju, Professor

Program

Certificate in Applied Manufacturing

Mission Statements

Engineering Technology Mission Statement
Approved by the Engineering Technology Faculty April 4, 2000

The Engineering Technology Department provides educational opportunities for students in a comprehensive range of engineering technology, computer science technology, and related technical disciplines. The Engineering Technology faculties are committed to delivering quality undergraduate education to students in programs offered in the department. The department provides instruction, technical assistance, and applied research expertise in these disciplines to the local, state, regional, and international communities.

Certificate in Applied Manufacturing Mission Statement
Essential to the larger mission of engineering technology department, the certificate option in Applied Manufacturing prepares entry-level or career-changing students to practice technician-level skills and knowledge to meet state-of-the-art and emerging industry needs in the areas of manufacturing.

Assessment of Student Learning

1. Program Educational Objective:

(PEOs are broad statements that describe the career and professional accomplishments that certificate in applied manufacturing is preparing certificants to achieve.)

A. Prepare certificants with entry-level technician skills or career-changing technical skills and knowledge to meet industry needs in the area of manufacturing.

(For ease of management, PEO and Student Learning Outcomes are thematically and alphanumerically aligned with related PEOs and SOs of the broader ETA-MT and BET-MT programs.)

2. Student Learning Outcome:

(SOs are narrower statements that describe what students are expected to know and be able to do by the time of certification. These relate to the skills, knowledge, and behaviors that students acquire in their matriculation through the certificate in applied manufacturing *program*.) The SOs related to the program educational objectives (underlined) are as follows:

Prepare certificants with entry-level technician skills or career-changing technical skills and knowledge to meet industry needs in the area of manufacturing.

A1. Apply principles of engineering materials.
A2. Apply the technologies of manufacturing processes.
A3. Apply concepts of technical graphics, computer-aided drafting, design, modeling, and manufacturing.

3. Performance Criteria:

Assessment Methods

A combination of direct and indirect measures are applied:

Direct: Sampling of homework or exam problems, or applicable sections of project or presentation evaluation rubrics.
Indirect: Student surveys of course outcomes.

Achievement Targets

For scoring methods:

High end: At least 10% of students achieve 90% or better.
Mid-range: At least 50% of students achieve 80% or greater score.
Low end (Baseline criteria): At least 80% of students achieve 70% or greater score.

For surveys methods:
High end: At least 10% of students rate "highly understood (5)"
Mid-range: At least 50% of students rate "(4)" (between moderately and highly understood) or higher.
Low end: At least 80% of students rate "moderately understood (3)" or higher.

Timeline of Collection

Collection of data has been distributed according to Table 1.

Evaluation of Data

Data is summarized over the summer and early fall following the academic year in which it is collected (according to the Table 1).

Table 1. Assessment Timetable

Semester	Sample (Course)	Outcome Assessed	Year of Collection 2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	Instructor/Coordinator
A1. Apply principles of engineering materials.									
Fall	MET 231	A1	X	X	X	X	X	X	Morse
Spring	MET 225	A1	X	X	X		X		Jackson
A2. Apply technologies of manufacturing processes.									
Fall	MET 121	A2	X	X	X	X	X	X	Morse
Spring	MET 125	A2	X	X		X		X	Morse
Spring	MET 225	A2	X	X	X	X	X	X	Jackson
A3. Apply concepts of technical graphics, computer-aided drafting, design, modeling, and manufacturing.									
Fall	MET 111	A3	X	X	X	X	X	X	Leaf/Morse
Spring	MET 117	A3	X	X	X	X	X	X	Leaf/Morse
Spring	MET 225	A3	X	X		X		X	Jackson

Table 2. Course Alignment Matrix

For each stated student learning outcome (SO), the table indicates which courses emphasize opportunity for the student to learn the outcome and where student achievement of the outcome is assessed.

Courses		Certificate Program Student Learning Outcomes (SOs) Covered		
		A1	A2	A3
MET 111	Technical Graphics			✓
MET 121	Manufacturing Methods	✓	✓	
MET 231	Physical Materials and Metallurgy			
MET 117	Mechanical Modeling & Detailing		✓	✓
MET 125	Computer-Numerical Controlled Machine Processes		✓	✓
MET 225	Additive Manufacturing	✓	✓	✓

Table 3. Relationship to K-State Student Learning Outcomes

	University-wide SLOs (Undergraduate Programs)				
Program SOs	Knowledge	Critical Thinking	Communication	Diversity	Academic / Professional Integrity
A1, A2, A3	X		X		

Graduate Course changes (12-1-15)

Non-Expedited New Courses

#1 LEAD 814. Graduate Studies in Leadership and Communication. (3) I, II. This course examines the intersections of community-engaged scholarship and leadership through practices of relationship, story, strategy, and action. Students are introduced to resources and opportunities for pursuing public engagement, community-engaged scholarship, and successful program completion.

IMPACT: This course does not impact another unit.

RATIONALE: This course will be required of all doctoral students in the Leadership Communication program in their first term. Students will become oriented with the graduate process specifically to this program and university. This program is in the proposal process.

EFFECTIVE DATE: Fall 2016

#2 LEAD 815. Seminar in Leadership and Communication. (1) I, II, S. This seminar provides doctoral students opportunities for collaboration and mentorship with peers, faculty, and visiting scholars, and exploration of career pathways in public engagement.

IMPACT: This course does not impact another unit.

RATIONALE: This course provides an opportunity for students in the Leadership and Communication doctoral program to stay connected to faculty, students, and current research through a seminar series. Students will be required to take this course at least three semesters. This program is in the proposal process.

EFFECTIVE DATE: Fall 2016

#3 LEAD 845. Approaches to Public/Community Engagement. (3) I, II. The course will provide students a survey of key concepts and theoretical frameworks associated with deliberative democracy and public engagement. A specific focus will be given to how forms of community-engaged scholarship intersect course content in both theory and practice.

IMPACT: Sociology reported no reservations with this course proposal on 9/2/2015. History, Political Science, and Landscape Architecture and Regional & Community Planning were contacted on 9/1/2015. There are no responses yet.

RATIONALE: This course provides the foundation for community-engaged scholarship related to leadership and communication in both theory and practice. This is intended to be part of the Leadership and Communication doctoral program. This program is in the proposal process.

EFFECTIVE DATE: Fall 2016

#4 LEAD 886. Seminar in Leadership Studies. (1-3) I, II, S. Seminar in Leadership Studies.

IMPACT: This course does not impact another unit.

RATIONALE: This will serve as a graduate level seminar course.

EFFECTIVE DATE: Fall 2016

#5 LEAD 999. Research in Leadership and Communication. (1-15) I, II, S. Doctoral research demonstrates the candidate's ability to conduct significant original research related to leadership and communication, to analyze the information obtained from the research, and to present the results in a dissertation format appropriate to the field.

IMPACT: None.

RATIONALE: This course serves as the research hours for students in the Leadership and Communication doctoral program. This program is in the proposal process.

EFFECTIVE DATE: Fall 2016

MKTG 881 Applied Business Data Analytics Credits: (3) Students will gain an understanding of econometric and statistical methods of analysis and their application to business problems. Through lectures and exercises, student will use software tools often used in business for data analysis. Students will also learn how to interpret and apply the results from the software in data analyses. Emphasis will be placed on the application of econometric and statistical methods of data analyses. Topics will include customer choice analysis, customer segmentation and targeting, customer lifetime value calculation, and forecasting.

Requisites Prerequisite: Graduate Student Standing

When Offered Fall

Rationale This graduate-level course is developed to meet the increasing demand for data analysis skills in the era of Big Data and will serve as a course in the new Data Analytics certificate. At this point we intend to offer the course only online through Global Campus. The main objective of the course is to provide a understanding of the econometric and statistical methods of data analyses that can be applied to business problems. The course will be based on lectures and hands on exercises to apply the concepts and methods covered in class to make students comfortable with practical software tools often used for data analysis in businesses. After completing this course, students will be able to understand and interpret the results of most of the econometric and statistical analyses used in data analyses. Furthermore, students should be able to successfully apply the appropriate methods in their own data analyses. The class will emphasize the application of econometric and statistical methods of data analyses. Topics will include customer choice analysis, customer segmentation and targeting, customer lifetime value calculation, and forecasting.

Impact on Other Units None.

Effective Date Fall 2016

Communications and Agricultural Education
Agricultural Communications

ADD: AGCOM 814. Graduate Studies in Leadership Communication. (3) Fall and Spring. This course examines the intersections of community-engaged scholarship and leadership through practices of relationship, story, strategy, and action. Students are introduced to resources and opportunities for pursuing public engagement, community-engaged scholarship, and successful program completion.

RATIONALE: This course will be required of all doctoral students in the Leadership Communication program in their first term. Students will become oriented with the graduate process specifically to this program and university. This program is in the proposal process.

IMPACT: Crosslisted as COMM 814, LEAD 814. No impact on other units.

EFFECTIVE DATE: Fall 2016

ADD: AGCOM 815. Seminar in Leadership Communication (1) Fall Spring and Summer. This seminar provides doctoral students opportunities for collaboration and mentorship with peers, faculty, and visiting scholars, and exploration of career pathways in public engagement. Repeatable.

RATIONALE: This course provides an opportunity for students in the Leadership Communication doctoral program to stay connected to faculty, students, and current research through a seminar series. Students will be required to take this course at least three semesters. This program is in the proposal process.

IMPACT: Crosslisted as COMM 815, LEAD 815. No impact on other units.

EFFECTIVE DATE: Fall 2016

ADD: AGCOM 845. Approaches to Public/Community Engagement (3) Fall and Spring. The course will provide students a survey of key concepts and theoretical frameworks associated with deliberative democracy and public engagement. A specific focus will be given to how forms of community-engaged scholarship intersect course content in both theory and practice.

RATIONALE: This course provides the foundation for community-engaged scholarship related to leadership and communication in both theory and practice. This is intended to be part of the Leadership Communication doctoral program. This program is in the proposal process.

IMPACT: Crosslisted as COMM 845, LEAD 845. No impact on other units.

EFFECTIVE DATE: Fall 2016

ADD: AGCOM 916. Communication Theories and Engagement (3) Fall and Spring. Focusing on the intersections of communication theory and engagement, this course reviews the paradigmatic

evolution of communication theories as they relate to culture, organizations, leadership, social influence, emerging media technologies and other pertinent areas. Additionally, students will be exposed to philosophical and theoretical work pertaining to community engaged research.

RATIONALE: This course provides foundational communication theories in the context of engagement. It is being proposed as a course in the Leadership Communication doctoral program. This program is in the proposal process.

IMPACT: Crosslisted as COMM 916, LEAD 916. No impact on other units.

EFFECTIVE DATE: Fall 2016

ADD: AGCOM 945. Public Problem-Solving (3) Fall and Spring. This course is a rigorous and applied exploration of the fundamentals of social science research, social sector evaluation, and knowledge mobilization.

RATIONALE: This course is designed for students to understand and practice applied public problem solving. This is an advanced course being proposed as part of the Leadership Communication doctoral program. This program is in the proposal process.

IMPACT: Crosslisted as COMM 945, LEAD 945. No impact on other units.

EFFECTIVE DATE: Fall 2016

ADD: AGCOM 999. Research in Leadership Communication (1-15) Fall, Spring and Summer. Doctoral research demonstrates the candidate's ability to conduct significant original research related to leadership and communication, to analyze the information obtained from the research, and to present the results in a dissertation format appropriate to the field.

RATIONALE: This course serves as the research hours for students in the Leadership Communication doctoral program. This program is in the proposal process.

IMPACT: Crosslisted as COMM 999, LEAD 999. No impact on other units.

EFFECTIVE DATE: Fall 2016

Agronomy

ADD: AGRON 700. Agricultural Meteorology. (3) Fall, Even. Fundamental concepts of meteorology and climatology and their applications to agriculture. Three hours recitation a week. Recommended Prerequisite: PHYS 113

RATIONALE: This course presents current topics in atmospheric sciences and their impact on plants and animals. This knowledge prepares students to address important issues related to crop and animal production in a changing environment and meets important needs in our academic curriculum.

IMPACT: No impact on other departments outside the College of Agriculture.

EFFECTIVE DATE: Fall 2016

ADD: AGRON 881. Grazing Ecology and Management. (3) Fall, Even. This course discusses the ecological principles of domesticated livestock grazing and their application to manage grazing lands. Theoretical and applied models of plant/animal interactions will be presented. Grazing systems and their management of ecosystem services will be presented as balance between production and conservation outcomes.

RATIONALE: This Web-based distance AG*IDEA course expands the courses available for those pursuing a graduate certificate in Grassland Management.

IMPACT: No impact on other departments outside the College of Agriculture.

EFFECTIVE DATE: Fall 2016

ADD: AGRON 902. International Agronomy Experience for Graduate Students. (0–6) Fall, Spring. Students will apply knowledge gained in their graduate curriculum focused on international crops, soils, and agronomic systems. Topics vary by offering depending on the agronomic systems studied and locations visited. Recommended Prerequisites: AGRON 360 and 375.

RATIONALE: This course will provide a mechanism to develop and offer international educational and research experiences for graduate students. The course will also provide the means to regularly advertise international experiences, encourage student participation in international experiences, and track student participation in these experiences.

IMPACT: No impact on other departments outside the College of Agriculture.

EFFECTIVE DATE: Fall 2016

Animal Sciences and Industry

ADD: ASI 741. Quantitative Genetics Applications of Matrix Algebra. (1) Fall. The goal of this course is development of skills in matrix algebra to describe and solve problems in the agricultural and life sciences, with particular focus on quantitative genetics. The course is designed for students with no prior knowledge of matrix algebra, and whose formal training in mathematics may be somewhat limited. It will consider the vocabulary, concepts, application and, to a lesser extent, theory of matrix algebra that is relevant to graduate students in the agricultural and life sciences. Application exercises will consider ecological systems, genotypic transition matrices, selection indices, and the numerator relationship matrix. Application of methods such as least squares and canonical transformation to solve problems in the biological sciences using matrix algebra will also be introduced.

RATIONALE: The following courses are part of the graduate animal breeding curriculum through the AG*IDEA consortium. Approving this course through K-State will allow our graduate students to participate in the program, and allow a venue for distance students to get credit for the course through K-State. The goal of this course is development of skills in matrix algebra to describe and solve problems in the agricultural and life sciences, with particular focus on quantitative genetics. The course is designed for students with no prior knowledge of matrix algebra, and whose formal training in mathematics may be somewhat limited. It will consider the vocabulary, concepts, application and,

to a lesser extent, theory of matrix algebra that is relevant to graduate students in the agricultural and life sciences. Application exercises will consider ecological systems, genotypic transition matrices, selection indices, and the numerator relationship matrix. Application of methods such as least squares and canonical transformation to solve problems in the biological sciences using matrix algebra will also be introduced.

IMPACT: The department of Mathematics offers Applied Matrix Theory (Math 551) for 3 credits. It has a calculus prereq, which many genetic grad students would not have. The proposed course is shorter, less in depth, and covers concepts specific to the applications of matrices in animal genetics problems (very little theory). Math 551 is also not online, so not available to AG*IDEA students. Andy Bennett was contacted via email 8-3-15. He sent it on to Math course and curriculum committee which will reply within a few weeks.

EFFECTIVE DATE: Fall 2016

ADD: ASI 742. Cybersheep: A Genetic Simulation Game. (1) Fall. The goal of this course is for students to be able to make informed and effective decisions in a livestock breeding program. In order to accomplish this goal, the course will provide hands-on experience with selection and mating decisions, and their consequences through a genetic simulation. Genetic gains require time to achieve and there is very little opportunity for students to witness the consequences of breeding decisions in a course. The simulation is designed to offer an opportunity to see in real-time, the outcome of decision-making, and to experience the stochastic (chance) elements of a breeding program

RATIONALE: This course is part of the graduate animal breeding curriculum through the AG*IDEA consortium. Approving this course through K-State will allow our graduate students to participate in the program, and allow a venue for distance students to get credit for the course through K-State. The overarching goal of this course is for students to be able to make informed and effective decisions in a livestock breeding program. In order to accomplish this goal, the course will provide “hands-on” experience with selection and mating decisions, and their consequences. The vehicle for this instruction is “CyberSheep,” a web-based genetic simulation game played by teams of students. The genetic gains achieved in livestock breeding programs have the advantages of being permanent, cumulative and, in most cases, highly cost effective. Still, such gains require time to achieve; in the course of an academic degree, let alone a semester or quarter, there is very little opportunity for students to witness the consequences of breeding decisions in any of our livestock species. Thus, CyberSheep is designed to offer you a virtual opportunity to “see,” in real-time, the outcome of your decision-making, and to experience the stochastic (chance) elements of a breeding program.

IMPACT: No impact on other units.

EFFECTIVE DATE: Fall 2016

ADD: ASI 810. History and Perspectives in Animal Breeding and Genetics. (1) Fall. The goal of this course is to provide students with a historical perspective of the discipline of Animal Breeding and Genetics and an appreciation for the contributions of several scientists that have significantly impacted the discipline. Weekly lectures will consist of pre-recorded interviews with scientists that have had an international impact in the field of animal breeding and genetics.

RATIONALE: This course is part of the graduate animal breeding curriculum through the AG*IDEA consortium. Approving this course through K-State will allow our graduate students to participate in

the program, and allow a venue for distance students to get credit for the course through K-State. The goal of this course is to provide students with a historical perspective of the discipline of Animal Breeding and Genetics and an appreciation for the contributions of several scientists that have significantly impacted the discipline. Weekly lectures will consist of pre-recorded interviews with scientists that have had an international impact in the field of animal breeding and genetics.

IMPACT: No impact on other units.

EFFECTIVE DATE: Fall 2016

ADD: ASI 811. Primer to Quantitative Genetics. (1) Spring. The goal of this course is to provide students with an introduction to the language and basic principles of quantitative genetics. Its purpose is to develop foundational knowledge for students entering a graduate program in animal breeding and genetics. Topics included will be the basic model for quantitative genetics (additive and non-additive genetic effects, including Mendelian sampling, and environmental effects), sources of variation, heritability, family resemblance and repeatability, selection response, and family selection. Expected values and concepts in applied statistics (e.g., linear regression) will also be considered.

RATIONALE: This course is part of the graduate animal breeding curriculum through the AG*IDEA consortium. Approving this course through K-State will allow our graduate students to participate in the program, and allow a venue for distance students to get credit for the course through K-State. The goal of this course is to provide students with an introduction to the language and basic principles of quantitative genetics. Its purpose is to develop foundational knowledge for students entering a graduate program in animal breeding and genetics. Topics included will be the basic model for quantitative genetics (additive and non-additive genetic effects, including Mendelian sampling, and environmental effects), sources of variation, heritability, family resemblance and repeatability, selection response, and family selection. Expected values and concepts in applied statistics (e.g., linear regression) will also be considered.

IMPACT: No impact on other units.

EFFECTIVE DATE: Spring 2017

ADD: ASI 812. Selection Index Theory and Application. (1) Spring. The overall goal of this course is to increase your skills and knowledge related to the design of animal breeding programs. The focus will be on the application of index theory to the definition of breeding objectives in animal agriculture. The course will also introduce approaches for deriving economic weights, which are useful when predicting economic response to selection.

RATIONALE: This course is part of the graduate animal breeding curriculum through the AG*IDEA consortium. Approving this course through K-State will allow our graduate students to participate in the program, and allow a venue for distance students to get credit for the course through K-State. The overall goal of this course is to increase your skills and knowledge related to the design of animal breeding programs. The focus will be on the application of index theory to the definition of breeding objectives in animal agriculture. The course will also introduce approaches for deriving economic weights, which are useful when predicting economic response to selection.

IMPACT: No impact on other units.

EFFECTIVE DATE: Spring 2017

ADD: ASI 813. Economic Breeding Programs. (1) Spring. The primary goal of this course is to provide a survey of methodology for developing an economic basis for multiple trait selection to improve the profitability of production. Much of the material is abstracted from the scientific literature, from which a sampling of relevant references will be provided. Therefore, an overarching goal of this course is to instill the capacity to critically analyze relevant literature as an aid to solving future problems. Specific topics included are: a review of concepts relevant to selection index, an introduction to the concept of systems analysis, linear programming, and simulation with emphasis on economic values useful for selection index.

RATIONALE: This course is part of the graduate animal breeding curriculum through the AG*IDEA consortium. Approving this course through K-State will allow our graduate students to participate in the program, and allow a venue for distance students to get credit for the course through K-State. The primary goal of this course is to provide a survey of methodology for developing an economic basis for multiple trait selection to improve the profitability of production. Much of the material is abstracted from the scientific literature, from which a sampling of relevant references will be provided. Therefore, an overarching goal of this course is to instill the capacity to critically analyze relevant literature as an aid to solving future problems. Specific topics included are: a review of concepts relevant to selection index, an introduction to the concept of systems analysis, linear programming, and simulation with emphasis on economic values useful for selection index.

IMPACT: No impact on other units.

EFFECTIVE DATE: Spring 2017

ADD: ASI 814. Heterosis and Crossbreeding Systems. (1) Spring. The goal of this course is to provide students with an introduction to the principles of heterosis and mating systems utilizing crossbreeding. Students completing this course should be able to evaluate and compare various crossbreeding mating schemes through predicted performance of the potential progeny and overall system performance.

RATIONALE: This course is part of the graduate animal breeding curriculum through the AG*IDEA consortium. Approving this course through K-State will allow our graduate students to participate in the program, and allow a venue for distance students to get credit for the course through K-State. The goal of this course is to provide students with an introduction to the principles of heterosis and mating systems utilizing crossbreeding. Students completing this course should be able to evaluate and compare various crossbreeding mating schemes through predicted performance of the potential progeny and overall system performance.

IMPACT: No impact on other units.

EFFECTIVE DATE: Spring 2017

ADD: ASI 815. An Introduction to "R" Programming. (1) Spring. The goal of this module is to familiarize students the R environment for statistical computing. Part of the course will be devoted to the use of R as a high-level programming language and a gateway for more formal low-level languages. No prior exposure to the language is necessary.

RATIONALE: This course is part of the graduate animal breeding curriculum through the AG*IDEA consortium. Approving this course through K-State will allow our graduate students to participate in the program, and allow a venue for distance students to get credit for the course through K-State. The goal of this module is to familiarize students the R environment for statistical computing. Part of the course will be devoted to the use of R as a high-level programming language and a gateway for more formal low-level languages. No prior exposure to the language is necessary.

IMPACT: The Stat department offers an S+/R course. That course includes S+ (which isn't part of the proposed course, and isn't used in animal breeding), and isn't offered online. Dr. Breen and Dr. Gadbury were contacted 8-3-15, no response.

EFFECTIVE DATE: Spring 2017

ADD: ASI 870. Linear Models in Animal Breeding. (1) Fall. Students completing this course will learn about linear models used in Animal Breeding. These models will be discussed in the context of the random variable that is to be predicted. Specifically, the course will cover animal models, sire/maternal grandsire models, and sire models. Models including a single record, repeated records, and models with both direct and maternal effects will be discussed.

RATIONALE: This course is part of the graduate animal breeding curriculum through the AG*IDEA consortium. Approving this course through K-State will allow our graduate students to participate in the program, and allow a venue for distance students to get credit for the course through K-State. Students completing this course will learn about linear models used in Animal Breeding. These models will be discussed in the context of the random variable that is to be predicted. Specifically, the course will cover animal models, sire/maternal grandsire models, and sire models. Models including a single record, repeated records, and models with both direct and maternal effects will be discussed.

IMPACT: No impact on other units.

EFFECTIVE DATE: Fall 2016

ADD: ASI 871. Genetic Prediction. (1) Fall. The goal of this course is to increase student understanding of best linear unbiased prediction and to develop skills in genetic prediction. A wide array of material will be covered with emphasis on real-world datasets designed to develop applied analytical skills relative in animal breeding. Topics will include data integrity diagnosis, contemporary grouping strategies, adjusting for known non-genetic effects, and use of software to perform genetic evaluations. Students will develop procedures for the utilization of various sources of information for the calculations of predictions of genetic merit in the form of estimated breeding values.

RATIONALE: This course is part of the graduate animal breeding curriculum through the AG*IDEA consortium. Approving this course through K-State will allow our graduate students to participate in the program, and allow a venue for distance students to get credit for the course through K-State. The

goal of this course is to extend the concepts learned in Selection Index Theory and Application and Linear Models in Animal Breeding to increase student understanding of best linear unbiased prediction and to develop skills in genetic prediction. A wide array of material will be covered with emphasis on real-world datasets designed to develop applied analytical skills relative in animal breeding. Topics will include data integrity diagnosis, contemporary grouping strategies, adjusting for known non-genetic effects, the AWK Programming Language, UNIX/Linux scripting, and use of the Animal Breeder's Toolkit to perform genetic evaluations. Students will develop procedures for the utilization of various sources of information for the calculations of predictions of genetic merit in the form of estimated breeding values.

IMPACT: No impact on other units.

EFFECTIVE DATE: Fall 2016

ADD: ASI 872. Applied Variance Component Estimation in Livestock Genetics. (1) Fall. The goal of this course is to extend upon content covered in linear models and genetic prediction, with specific emphasis on estimation of (co)variance components and genetic parameters required to solve mixed models typical in livestock genetics. Upon successful completion of this module, students should have an applied knowledge of approaches used to estimate the G and R sub-matrices of the mixed model equations. Several tools will be used to demonstrate the models and approaches most commonly used in parameter estimation. Where appropriate, scientific literature that explains their implementation, and some attributes of the solutions obtained will be used.

RATIONALE: This course is part of the graduate animal breeding curriculum through the AG*IDEA consortium. Approving this course through K-State will allow our graduate students to participate in the program, and allow a venue for distance students to get credit for the course through K-State. The goal of this course is to extend upon content covered in linear models and genetic prediction, with specific emphasis on estimation of (co)variance components and genetic parameters required to solve mixed models typical in livestock genetics. Upon successful completion of this module, students should have an applied knowledge of approaches used to estimate the G and R sub-matrices of the mixed model equations. Several tools will be used to demonstrate the models and approaches most commonly used in parameter estimation. Where appropriate, scientific literature that explains their implementation, and some attributes of the solutions obtained will be used. A general knowledge of linear models, matrix algebra, moment statistics, rules of expectation and familiarity with UNIX/Linux Operating Systems will be assumed, including scripting tools such as awk, octave, join, sort, paste, wc, etc. This module will begin in a somewhat historical manner, proceeding on to methods and software currently used for research and field data implementation.

IMPACT: No impact on other units.

EFFECTIVE DATE: Fall 2016

ADD: ASI 873. Prediction and Control of Inbreeding in Breeding Programs. (1) Fall. The goal of this course is for students to be introduced to, and to gain an understanding of, the concepts of inbreeding and genetic diversity, the impact of inbreeding on animal breeding and production populations, and of strategies to control and manage rates of inbreeding in animal breeding and production populations. The use of genomic data to assess and control inbreeding also will be discussed.

RATIONALE: This course is part of the graduate animal breeding curriculum through the AG*IDEA consortium. Approving this course through K-State will allow our graduate students to participate in the program, and allow a venue for distance students to get credit for the course through K-State. The goal of this course is for students to be introduced to, and to gain an understanding of, the concepts of inbreeding and genetic diversity, the impact of inbreeding on animal breeding and production populations, and of strategies to control and manage rates of inbreeding in animal breeding and production populations. The use of genomic data to assess and control inbreeding also will be discussed.

IMPACT: No impact on other units.

EFFECTIVE DATE: Fall 2016

ADD: ASI 874. Marker Assisted and Gene-Assisted Selection. (1). Spring. The goal of this module is to increase student understanding of potential methods for incorporating marker genetic information into selection decisions. Topics will include but are not limited to recombination, single-gene tests, molecular breeding values, suggested producer guidelines for use of the technologies, and incorporation of genomic information into genetic prediction procedures.

RATIONALE: This course is part of the graduate animal breeding curriculum through the AG*IDEA consortium. Approving this course through K-State will allow our graduate students to participate in the program, and allow a venue for distance students to get credit for the course through K-State. The goal of this module is to extend the concepts learned in Linear Models in Animal Breeding and Genetic Prediction to increase student understanding of potential methods for incorporating marker genetic information into selection decisions. This field is rapidly changing as new biotechnologies are developed and as statistical methodologies follow to analyze the vast amounts of information becoming available from new DNA technologies related to livestock genomes, as such a wide array of material will be covered with emphasis on application to real-world scenarios. Topics will include but are not limited to recombination, single-gene tests, molecular breeding values, suggested producer guidelines for use of the technologies, and incorporation of genomic information into genetic prediction procedures.

IMPACT: No impact on other units.

EFFECTIVE DATE: Spring 2017

ADD: ASI 875. Introduction to Marker Association Analysis and QTL Detection. (1) Spring. The goal of this course is to introduce the basic concepts of using genetic markers to identify QTL and of estimating marker-trait associations, and to expose students to applications of these methodologies. Materials will cover the basics of linkage and linkage disequilibrium, alternate designs or population structures for QTL mapping, and statistical methods for QTL detection, including QTL interval mapping and genome-wide association analyses. Properties, advantages, disadvantages, and requirements of alternate designs and analysis strategies will be discussed.

RATIONALE: This course is part of the graduate animal breeding curriculum through the AG*IDEA consortium. Approving this course through K-State will allow our graduate students to participate in the program, and allow a venue for distance students to get credit for the course through K-State. The

goal of this course is to introduce the basic concepts of using genetic markers to identify QTL and of estimating marker-trait associations, and to expose students to applications of these methodologies. Materials will cover the basics of linkage and linkage disequilibrium, alternate designs or population structures for QTL mapping, and statistical methods for QTL detection, including QTL interval mapping and genome-wide association analyses. Properties, advantages, disadvantages, and requirements of alternate designs and analysis strategies will be discussed.

IMPACT: No impact on other units.

EFFECTIVE DATE: Spring 2017

ADD: ASI 876. From Markers to Gene Function: Functional Change. (1) Spring. This course takes the results from association analyses and learns how these markers translate into functional changes in the animal genome and in animal performance. Topics covered in the course include an introduction to the tools used to generate genomic data followed by introduction and application of key bioinformatics websites, databases to identify causative genetic variation, and develop gene pathways and networks.

RATIONALE: This course is part of the graduate animal breeding curriculum through the AG*IDEA consortium. Approving this course through K-State will allow our graduate students to participate in the program, and allow a venue for distance students to get credit for the course through K-State. The one-credit course, From Markers to Gene Function: Functional Change, builds upon the course, Introduction to Marker Association Analysis and QTL Detection, by taking the results from association analyses and helping the students learn how these markers translate into functional changes in the animal genome. Students then learn how these changes translate into differences in animal performance. Topics covered in the course include an introduction to the tools used to generate genomic data followed by introduction and application of key bioinformatics websites, databases to identify causative genetic variation, and develop gene pathways and networks. Ultimately, the whole course is tied back to the overriding concept of this program: livestock genetic improvement.

IMPACT: No impact on other units.

EFFECTIVE DATE: Spring 2017

ADD: ASI 877. MCMC Methods in Animal Breeding: A Primer (1) Spring**.** The goal of this course is to introduce computational techniques based on simulation that have become a staple in the field of animal breeding (and beyond) over the last 20 years. An overview of the most popular Monte Carlo methods will be provided to the students with an emphasis on hands on reproducible examples developed through the R software. Minimal exposure to the R programming language will be required while no previous exposure to Monte Carlo methods is required. While a few examples in the class will be set in a Bayesian framework, no previous exposure to Bayesian statistics is required

RATIONALE: This course is part of the graduate animal breeding curriculum through the AG*IDEA consortium. Approving this course through K-State will allow our graduate students to participate in the program, and allow a venue for distance students to get credit for the course through K-State. The goal of this course is to introduce the student to computational techniques based on simulation that have become a staple in the field of animal breeding (and beyond) over the last 20 years. An overview

of the most popular Monte Carlo methods will be provided to the students with an emphasis on hands on reproducible examples developed through the R software. Minimal exposure to the R programming language will be required while no previous exposure to Monte Carlo methods is required. While a few examples in the class will be set in a Bayesian framework, no previous exposure to Bayesian statistics is required.

IMPACT: No impact on other units.

EFFECTIVE DATE: Spring 2017

Entomology

ADD: ENTOM 800. Professional Development in Entomology and Related Sciences. (2) Spring. This course will teach students to develop and effectively communicate scientific research and results, including skills in: critical reading of primary literature, developing meaningful hypotheses, outlining a thesis/dissertation literature review, constructing and writing a well-designed scientific proposal, presenting data, communicating effectively to professional and lay audiences, acquiring meaningful peer-review experience, and learning the basics for writing publishable journal articles.

RATIONALE: This course supports 3 of 4 Student Learning Outcomes for all Department graduate degree programs. It will allow the Department to ensure that Entomology graduate students are fully prepared to succeed in their graduate programs and professional careers. This course should be taken the year a student enters the graduate program, so students can develop effective reasoning and communication skills prior to developing their research proposals.

IMPACT: No impact on other units.

EFFECTIVE DATE: Spring 2017

ADD: ENTOM 880. Ecological Genomics. (3) Spring, odd years. Methodology and approaches for testing population genetic and community level hypotheses using next generation sequencing data. Emphasis on evaluating current technologies and applying methods appropriate for specific hypothesis tests. Course will include hands-on data analysis through exercises and a final project. Recommended Prerequisite: ENTOM 910 or BIOL 705; STAT 701 or STAT 703.

RATIONALE: Genomics research is a cross-campus research strength in both the natural and agricultural sciences. There are several course offerings available in several departments, but there are currently no available courses that focus on genomic applications in natural populations and communities. Further, the entomology department wishes to enhance course offerings in the area of genetics, a growing research discipline within the department.

IMPACT: Other genomics courses are offered in Plant Pathology (612/920), Agronomy (980), and Biology (890 and 734). These courses cover command line computing (BIOL 890), bioinformatics algorithms (BIOL 734), genomics applied to genome assembly and individual level processes (PLPTH 920), and population genomics applied to crop improvement AGRON 980. Of these courses, AGRON 980 probably has the most overlap, but there is an important distinction: that course focuses on

domesticated populations and targeted manipulations, whereas the proposed course will focus on processes in natural populations.

A request for input was sent to each of the three unit heads (Department of Agronomy, Department of Plant Pathology, and Division of Biology) on September 3, 2015 by e-mail. Dr. Mickey Ransom, Chair of the Course and Curriculum Committee and Assistant Head for Teaching in the Department of Agronomy sent back the response from the Department of Agronomy as follows: "Geoff Morris and I have reviewed the proposal for the new course, ENTOM 880. This course will be complimentary to our existing courses in plant genetics/genomics. Geoff's course focuses on crop improvement applications whereas the proposed course is geared to basic research in ecology and evolution. Geoff and Greg Ragland have been in communication in regard to the course content of the proposed ENTOM 880 course. Therefore, we support this course proposal. It has no adverse impact on our department".

Although we did not receive responses from the unit heads or their designees of the Department of Plant Pathology and the Division of Biology, the instructor, Dr. Greg Ragland, of the proposed course has been in communication with the relevant instructors of these units and has sent the course proposal and syllabus to them for their input. The instructors' responses from these units didn't indicate any concern with this proposed new course.

EFFECTIVE DATE: Spring 2017

Horticulture, Forestry, and Recreational Resources

Horticulture

ADD: HORT 796. Professional Development in Urban Food Systems (0-1). Fall and Spring. A team instructed seminar course that provides urban food systems students with a suite of skills complimentary to their research experience but still necessary for professional career success. Urban Food System students will be expected to enroll in this course 4 semesters. Repeatable. Prerequisite: Senior Standing

RATIONALE: The Urban Food Systems faculty and students are already meeting regularly each semester to cover topics not included in other parts of the curriculum. Formalizing this important part of the specialization by making it a class will allow the faculty and students to get credit.

IMPACT: No impact on other units.

EFFECTIVE DATE: Fall 2016

Grain Science and Industry

ADD: GRSC 891. Study Abroad Experience in Grain Science (0-3) Fall, Spring, Summer. Travel seminar coruse designed to prepare graduate students before their international study abroad experience and analyze, critique, and report about their faculty-led study tours or short courses. The academic topics will vary with each international activity. Prerequisite: Consent of course instructor.

RATIONALE:This course offers a study abroad experience for graduate students similar to the existing faculty-led study abroad coruse (GRSC 491) at the undergraduate level enabling graduate students to benefit from study abroad experiences.

IMPACT: No impact on other units.

EFFECTIVE DATE: Fall 2016

School of Family Studies and Human Services

Course Add
ECED 720 Challenging Behaviors in Early Childhood **Credits:** (3) The application of developmental principles and evidence-based practices to design and implement a positive learning environment for young children, including children with disabilities. Creating an environment that supports young children's social emotional competence, teaches social skills, and promotes self-regulation is emphasized. **When Offered:** Fall **Pre-Requisite:** ECED 428

Rationale: An understanding of how to appropriately support the behavior of young children, including children with disabilities is critical for early childhood teachers. A course focused specifically on children during the early childhood years is needed to ensure that the social emotional supports and behavior management approaches used by teachers of young children are appropriate.

IMPACT: None.

Effective: Fall 2016

Non-Expedited Course Changes

Staley School of Leadership Studies

FROM: ~~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.

TO: LEAD 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.

IMPACT: This change will impact the College of Business. We have been in communication with Dr. Stacy Kovar about this course over the last year. She agreed to change the prefix in August 2015.

RATIONALE: The GRAD prefix was originally created as a platform for interdisciplinary leadership courses. This course has previously been offered by the College of Business as part of the graduate certificate in Organizational Leadership. The Staley School is working with the College of Business to continue to offer this course to students in the certificate program through the LEAD prefix with Staley School faculty. Additionally, the Staley School has taught this course on campus for graduate students in any program. The course prefix should be changed to reflect that the Staley School is providing the instruction for this course.

EFFECTIVE DATE: Spring 2016

Change From:
ACCTG ~~434~~ - Accounting for Not-For-Profit Entities, Credits: ~~(2)~~
An introduction to the source of authoritative guidance, rules and regulations that govern current reporting to external entities by not-for-profit entities.
Requisites Prerequisite: ACCTG 641.
When Offered ~~Fall,~~ Spring

Change To:

ACCTG 857 - Accounting for Not-For-Profit Entities, Credits: (3)
An introduction to the source of authoritative guidance, rules and regulations that govern current reporting to external entities by not-for-profit entities.
Requisites Prerequisite: ACCTG 641.
When Offered Spring
Impact On Other Units None
Rationale Course is being changed from an undergraduate to graduate course because of changes to both the bachelor's and master's program in accounting.
Effective Date Fall 2017

Graduate Curriculum changes (12-1-15)

Non-Expedited Curriculum Changes

School of Family Studies and Human Services

Financial Therapy Graduate Certificate The Financial Therapy graduate certificate is offered through the School of Family Studies and Human Services. The program is completely on-line, combining self-study with a mentoring classroom-type experience. Students will develop skills to help clients improve financial well-being from a holistic perspective where psychological, emotional, relational, and economic aspects of financial health are considered and addressed. **Required Courses (~~15~~ credit hours)** ~~PFP 624: Fundamentals of Financial Planning (3)~~ PFP 768: Introduction to Financial Therapy (3) PFP 769: Relationships and Money (3) PFP 770: Applied Behavioral Finance (3) PFP 771: Financial Therapy Research & Theory (3) ~~*Students who have obtained the Certified Financial Planner ™ or Accredited Financial Counselor designations may substitute FSHS 700: Financial Ethics and Mediation for FSHS 624. All others will be required to complete the FSHS 624 as part of the Financial Therapy certificate.~~	**Financial Therapy Graduate Certificate** The Financial Therapy graduate certificate is offered through the School of Family Studies and Human Services. The program is completely on-line, combining self-study with a mentoring classroom-type experience. Students will develop skills to help clients improve financial well-being from a holistic perspective where psychological, emotional, relational, and economic aspects of financial health are considered and addressed. Students will be required to have completed a Fundamentals in Personal Finance equivalent course that covers basic financial planning concepts. The course can be an undergraduate or graduate course and must have been taken at an accredited university. **Required Courses (12 credit hours)** PFP 768: Introduction to Financial Therapy (3) PFP 769: Relationships and Money (3) PFP 770: Applied Behavioral Finance (3) PFP 771: Financial Therapy Research & Theory (3)

Rationale: Due to budget constraints, PFP 624 will not be offered currently. However, it is essential that all financial therapy students have a foundation in personal finance concepts. Therefore, in order to streamline the required coursework in the program and to prepare for sustainability of courses offered, students will be required to have taken an equivalent of Fundamentals in Personal Finance at either an undergraduate or graduate level from an accredited university as a prerequisite to the program.

Impact: None

Effective Term: Spring 2016

Special Education, Counseling, and Student Affairs

Doctor of Philosophy in Counseling and Student Development (Counselor Education and Supervision)

From:	To:
The Special Education, Counseling, and Student Affairs graduate program offers a Doctor of Philosophy in Counseling and Student Development with an emphasis in Counselor Education and Supervision. The program requires ~~51 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. The program is accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP).	The Special Education, Counseling, and Student Affairs graduate program offers a Doctor of Philosophy in Counseling and Student Development with an emphasis in Counselor Education and Supervision. The program requires a minimum of 96 hours post baccalaureate. 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. The program is accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP).
Professional courses (~~15-21~~ credit hours)	Professional courses (21- 24 credit hours)
~~EDCEP 999 – Research: Clinical Appraisal Laboratory (3) -OR-~~ ~~EDCEP 967 – Advanced Counseling Appraisal (3)~~ EDCEP 924 – Theories of Vocational Counseling (3) EDCEP 955 – Professional Counseling Ethics (3) EDCEP 958 – Advanced Group Counseling (3) EDCEP 985 – Advanced Counseling Theory (3) EDCEP 987 – Counseling Supervison Practicum (3)	EDCEP 924 – Theories of Vocational Counseling (3) EDCEP 955 – Professional Counseling Ethics (3) EDCEP 958 – Advanced Group Counseling (3) EDCEP 967 – Advanced Counseling Appraisal (3) EDCEP 985 – Advanced Counseling Theory (3) EDCEP 987 – Counseling Supervison Practicum (3) EDCEP 821 – Fundamentals of Program Evaluation (3)
Choose one of the following EDCEP 999 – Research: Supervised Teaching Laboratory (3) -OR- EDCI 943 – Principles of College Teaching (3)	Choose one of the following: EDCEP 999 – Research: Supervised Teaching Laboratory (3) -OR- EDCI 943 – Principles of College Teaching (3)
Cognate area (~~12~~ credit hours)	Cognate area (6 credit hours)
Students will develop an area of ~~professional expertise~~ constructed of courses outside of the department planned with concurrence of the committee.	Students will develop an area of focus constructed of courses outside of the department planned with concurrence of the committee.
Practicum/Internship (9 credit hours)	Practicum/Internship (9 credit hours)
EDCEP 977 – Advanced Counseling Practicum (3)	

~~Choose one of the following:~~ ~~EDCEP 999 – Research: Clinical Internship Laboratory Credits: (6) –OR-~~ EDCEP 991 – Internship in Counseling and Educational Psychology Credits: (~~1-18~~) Research courses (~~9~~ credit hours) EDLEA 838 – Qualitative Research in Education (3) EDCEP 817 – Statistical Methods in Education (3) EDCEP 917 – Experimental Design in Educational Research (3) Research (~~30~~ credit hours) ~~EDCEP 999 – Research: Counseling Research Laboratory (3)~~ EDCEP 999 – Research (~~27~~)	EDCEP 977 – Advanced Counseling Practicum (3) EDCEP 991 – Internship in Counseling and Educational Psychology (6) Research courses (15 credit hours) EDLEA 838 – Qualitative Research in Education (3) EDLEA 938 – Advanced Data Analysis in Qualitative Methods (3) EDCEP 817 – Statistical Methods in Education (3) EDCEP 917 – Experimental Design in Educational Research (3) Elective (3) – A quantitative or qualitative course approved by program committee or EDLEA 828 – Scholarly Orientation to Graduate Studies (3) Research (12-15 credit hours) EDCEP 999 – Research (12-15)

IMPACT: None.

RATIONALE: This change is proposed as a result of a Graduate School policy change in the number of 999 Research hours required for doctoral degrees. This change provided the opportunity to strengthen the program and require a minimum of 96 hours post baccalaureate which is consistent with requirements of CACREP.

EFFECTIVE DATE: Spring 2016

Special Education, Counseling, and Student Affairs

Doctor of Philosophy in Counseling and Student Development (Student Affairs in Higher Education)

From:	To:
Offered through the Special Education, Counseling, and Student Affairs graduate program, the Ph.D. in Counseling and Student Development with specialization in Student Affairs in Higher Education requires a minimum hours ~~of 93~~ post baccalaureate. Doctoral degree requirements 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 may be part of a master's degree or must be completed in addition to the doctoral course work. These courses include the following: EDCEP 812 – History and Philosophy of Higher Education (3) EDCEP 816 – Research Methods in Education (3) EDCEP 818 – Principles of College Student Personnel Services (3) EDCEP 838 – ~~The College Student and the College Environment~~ (3) EDCEP 830 – Diversity in Higher Education (3) 1. Professional courses (~~15~~ credit hours) EDCEP 923 – Higher Education Law (3) EDCEP 925 – Higher Education Finance (~~1~~ ~~18~~) ~~Note: EDCEP 925 must be taken for 3 credit hours.~~ EDCEP 926 – Enrollment Management in Higher Education: (3) EDCEP 927 – Higher Education Administration (3) EDCEP 948 – Advanced Student Development Theory in College Student Affairs (3) 2. Outside area/specialization (9 credit hours) This specialization is developed in consultation with the major professor and ~~ust~~ be approved by the student's program of study committee.	Offered through the Special Education, Counseling, and Student Affairs graduate program, the Ph.D. in Counseling and Student Development with specialization in Student Affairs in Higher Education requires a minimum 90 hours post baccalaureate. Doctoral degree requirements 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 may be part of a master's degree or must be completed in addition to the doctoral course work. These courses include the following: EDCEP 812 – History and Philosophy of Higher Education (3) EDCEP 816 – Research Methods in Education (3) EDCEP 818 – Principles of College Student Personnel Services (3) EDCEP 838 – Student Development Theory (3) EDCEP 830 – Diversity in Higher Education (3) 1. Professional courses (18 credit hours) EDCEP 923 – Higher Education Law (3) EDCEP 925 – Higher Education Finance (3) EDCEP 926 – Enrollment Management in Higher Education (3) EDCEP 927 – Higher Education Administration (3) EDCEP 948 – Advanced Student Development Theory in College Student Affairs (3) EDLEA 828 – Scholarly Orientation to Graduate Studies (3) 2. Outside area/specialization (9 credit 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~~ credit hours) EDLEA 838 – Qualitative Research in Education (3) EDCEP 817 – Statistical Methods in Education (3) EDCEP 917 – Experimental Design in Educational Research (3) 4. Dissertation research (~~30~~ credit hours) Preliminary examination. Candidates must successfully complete completion of all segments of a monitored, written examination of at least 12 hours overall all areas of the program of study. EDCEP 999 – Research in Counseling and Educational Psychology (~~1-18~~)	3. Research courses (15 credit hours) EDLEA 838 – Qualitative Research in Education (3) EDLEA 938 – Advanced Data Analysis in Qualitative Methods (3) EDCEP 817 – Statistical Methods in Education (3) EDCEP 917 – Experimental Design in Educational Research (3) Elective (3) – A quantitative or qualitative course approved by program committee 4. Dissertation research (18 credit hours) Preliminary examination. Candidates must successfully complete completion of all segments of a monitored, written examination of at least 12 hours overall all areas of the program of study. EDCEP 999 – Research in Counseling and Educational Psychology

IMPACT: None.

RATIONALE: This change is proposed as a result of a Graduate School policy change in the number of 999 Research hours required for doctoral degrees. This change provided the opportunity to strengthen the program and require a minimum of 90 hours post baccalaureate.

EFFECTIVE DATE: Spring 2016

Horticulture, Forestry, and Recreational Resources

M.S. Horticulture, Urban Food Systems Specialization
http://catalog.k-state.edu/preview_program.php?catoid=2&poid=308

FROM: **TO:**

Required: HORT 791 Urban Agriculture (2 hrs) HORT 792 Practicum (1hr.) HORT 794 Urban Food Systems (2 hrs) Specialization Elective, must choose at least 3 credit hours from the following: HORT 725 Postharvest Technology and Physiology of Horticultural Crops (3 hrs.) HORT 790 Sustainable Ag (2 hrs) HORT 793/FDSCI 793 Farm to Fork Produce	Required: HORT 791 Urban Agriculture (2 hrs) HORT 792 Practicum (1hr.) HORT 794 Urban Food Systems (2 hrs) HORT 796 Professional Development in Urban Food Systems (0-1 hrs.) (no credit requirement, but must enroll in it for 4 semesters) Specialization Elective, must choose at least 3 credit hours from the following: HORT 725 Postharvest Technology and Physiology of Horticultural Crops (3 hrs.) HORT 790 Sustainable Ag (2 hrs) HORT 793/FDSCI 793 Farm to Fork Produce

Safety (2 hrs.) HORT 795 Urban Agriculture Study tours (1 hr.) Total: 8 credit hours	Safety (2 hrs.) HORT 795 Urban Agriculture Study tours (1 hr.) Total: 8 credit hours

RATIONALE: HORT 796 Professional Development in Urban Food Systems is being proposed to formalize an existing component of the program in which the Urban Food Systems faculty and students are already meeting regularly each semester to cover topics not included in other parts of the curriculum

IMPACT: No impact on other units.

EFFECTIVE DATE: Fall 2016

KANSAS STATE UNIVERSITY | Olathe

Proposal for a
Graduate Certificate in Professional Interdisciplinary Sciences

Basic Program Information

Title of Program:	Graduate Certificate in Professional Interdisciplinary Sciences
Anticipated Start Date:	Spring 2016
Responsible Academic Unit:	School of Applied and Interdisciplinary Studies
Program Identification:	CIP Code: 30.00 Multi-/Interdisciplinary Studies

Program Description

This 12-credit hour Graduate Certificate in Professional Interdisciplinary Sciences is designed to help K-State Olathe achieve the Johnson County Education Research Triangle (JCERT) mandate for the campus to provide graduate programming in food, animal health and related sectors, consistent with regional demand, K-State 2025 Visionary Plan, and the Kansas Board of Regents guidelines. The program will offer students the opportunity to enhance their current skills and abilities from an interdisciplinary perspective, making them more valuable to employers. The courses in this Graduate Certificate are also a part of the planned Professional Science Master's (PSM) in Applied Science and Technology, and the students can enroll in both the degree and the certificate. The Graduate Certificate can also be taken as a free standing option where the students are admitted to the Graduate School as non-degree students. The program will be supported by K-State Olathe funds.

The Graduate Certificate in Professional Interdisciplinary Sciences, as envisaged, is consistent with the goals for K-State's 2025 themes 1, 3, 4, 5 and 6, subject to the same policies, procedures and standards of excellence applied across the University. The unique advantage of programs offered at K-State Olathe is that, given their interdisciplinary focus, JCERT financial support, and close proximity to the Greater Kansas City area, they are well poised to foster exceptional, collaborative, and transformative opportunities for students and faculty at all K-State campuses, alumni and other stakeholders.

I. Statement of the Educational Objectives of the Graduate Certificate Program

Consistent with the K-State Graduate Handbook, Chapter 4: Graduate Certificate Programs, in "*the preferred model, students are enrolled in both a graduate degree program (master's or doctoral) and a graduate certificate program … Some certificate programs are linked to specific graduate degree programs, such that they provide an interdisciplinary experience …*" This Graduate Certificate in Professional Interdisciplinary Sciences is part of a master's degree program, the Professional Science Master in Applied Science and Technology (PSM) and provides an interdisciplinary experience.

To receive the certificate, students must complete the required 12 credit hours of graduate coursework which consists of a 3-credit core Interdisciplinary Process course and 9 credits from at least two disciplines approved by their advisory committee. Elective courses can be included up to 3 credits per course.

Upon successful completion of the Graduate Certificate in Professional Interdisciplinary Sciences, the students will be able to:

1. Demonstrate ability to use information, concepts, analytical approaches, and critical thinking skills to transform ideas or solutions into entirely new forms.
2. Demonstrate ability to perform in one or more disciplines outside of their own discipline.

As documented by both the University of Kansas and the Open University*, other benefits of offering multi-/interdisciplinary choices include:

1. Students are more highly motivated when they get to choose topics that are interesting to them. As a result, the learning becomes meaningful, purposeful and deeper, resulting in learning experiences that stay with the student for a lifetime.
2. Exploring topics across a range of subject boundaries motivates students to pursue new knowledge in different subject areas.
3. Critical thinking skills are used and developed as students look across disciplinary boundaries to consider other viewpoints.
4. Transferable skills of critical thinking, synthesis and research are developed and are applicable to future learning experiences.
5. Interdisciplinary knowledge and application of different disciplines can lead to greater creativity.

*Sources:

1) Buss, J, "Why Interdisciplinary Graduate Programs Attract Great Students", Research Mission of Public Universities, University of Kansas, http://dept.ku.edu/~merrill/PDFfiles/buss.pdf, (Retrieved August 2015)
2) The Open University, http://www.open.edu/openlearn/education/what-are-the-benefits-interdisciplinary-study , (Retrieved August 2015)

Admissions

Students pursuing the Graduate Certificate in Professional Interdisciplinary Sciences must be admitted to K-State's Graduate School. A student with a bachelor's degree and a cumulative grade point average of at least 3.0 from a regionally accredited institution can expect to be fully admitted to the certificate program. In addition to the Graduate School Application Form, applicants must submit: (1) official copies of transcripts for all undergraduate and graduate work and (2) a statement of goals that addresses the applicant's current professional experience and how the certificate will assist them in reaching personal and/or professional goals.

Course Delivery

Courses are delivered in a variety of formats including face to face, hybrid and online. This design allows for flexibility in meeting student needs and delivery preferences.

Length of Program

If students take two graduate courses in a semester (two at a time in a 16-week format or one at a time in an 8-week format) they can reasonably finish the graduate certificate within 12 months. Continuous progress is expected, so that if a student does not take classes for two years, they will be put on inactive status and must reapply to the program. Courses applied to the program of study may not be more than six years old when the certificate program is completed. To be awarded a graduate certificate, the student (a) must not be on probation, (b) must have a cumulative GPA of 3.0 or higher on graduate coursework and on coursework applied to the certificate, (c) must meet all the requirements of the Graduate School and the student's certificate program, (d) must be enrolled during the semester in which the certificate requirements are completed, and (e) must provide official transcripts for any approved transfer credits.

II. Certificate Program Courses

After taking a foundation course focused on the *Interdisciplinary Process* and relevant electives that integrate methods and analytical frameworks from more than one discipline, the students are expected to have a more comprehensive understanding of complex issues and enhanced ability to address broad and multi-faceted challenges. Courses are largely drawn from existing STEM and professional skills courses offered throughout K-State. The range of courses and disciplines that are made available reflects market and Johnson County Education Research Triangle needs

Program graduation requirements are 12 credit hours, summarized as follows:

Credits	Course Category	Description
3 credits	Foundation Course	AAI 801 Interdisciplinary Process
9 credits (Chosen from a minimum of two different disciplines, determined by the course prefix. Elective courses can be included up to 3 credits per course)	STEM Courses	STEM courses available to the PSM
	Professional Skills Courses	Professional Courses available to the PSM
12 credits	**Total**	

3 credits required/Foundation course:

AAI 801 Interdisciplinary Process (3 credits)

9 credits from at least two disciplines, determined by the course prefix. Elective courses can be included up to 3 credits per course selected from the following courses (or equivalent courses as approved by the student's supervisory committee):

STEM

ASI 671 Meat Selection and Utilization (2 credits)
ASI 675 Monogastric Nutrition (1 credit)
ASI 678 Equine Nutrition (1 credit)
ASI 776 Meat Industry Technology (3 credits)
BAE 815 Graduate Seminar in Agricultural Engineering (1 credit)
BAE 820 Topics in Agricultural Engineering (1-18 credits)
DMP 710 Introduction to One Health (2 credits)
DMP 754 Introduction to Epidemiology (3 credits)
DMP 802 Introduction to Environmental Health (3 credits)
DMP 802 Environmental Health (3 credits)
DMP 815 Multidisciplinary Thought and Presentation (3 credits)
DMP 844 Global Health Issues (3 credits)
DMP 870 Pathobiology Seminar MS (1 credit)
DMP 880 Problems in Pathobiology MS (1-6 credits)
DMP 888 Globalization, Cooperation, & the Food Trade (1 credit)
DMP 895 Topics in Pathobiology MS (0-18 credits)
FDSCI 600 Food Microbiology (2 credits)
FDSCI 601 Food Microbiology Lab (2 credits)
FDSCI 630 Food Science Problems (0-6 credits)
FDSCI 690 Principles of HACCP (2 credits)
FDSCI 695 Quality Assurance of Food Products (3 credits)
FDSCI 961 Graduate Problem in Food Science (1-18 credits)
HN 841 Consumer Research - Fundamentals (1 credit)
HN 843 Consumer Research - Qualitative (1 credit)
HN 848 Consumer Research - Quantitative (1 credit)
HORT 725 Postharvest Technology and Physiology of Horticultural Crops (3 credits)
HORT 780 Health-Promoting Phytochemicals and Physiology of Fruits and Vegetables (2 credits)
HORT 790 Sustainable Agriculture (2 credits)
HORT 791 Urban Agriculture (2 credits)
HORT 793 Farm to Fork Produce Safety (2 credits)
HORT 794 Urban Food Systems (2 credits)
HORT 795 Urban Agriculture Study Tour (1 credit)

STAT 703 Introduction to Statistical Methods for the Sciences (3 credits)
STAT 705 Regression and Analysis of Variance (3 credits)

Professional

AAI 801 Interdisciplinary Process (3 credits)
AAI 840 Regulatory Aspects of Drug and Vaccine Development in Animal Health (2 credits)
AAI 858 Capstone Experience I (1 credit)
AAI 859 Capstone Experience II (2 credits)
COT 703 Project Management for Professionals (3 credits)
COT 704 Managerial Finances, Metrics, and Analytics (3 credits)
COT 706 Informatics and Technology Management (3 credits)
DMP 815 Multidisciplinary Thought and Presentation (3 credits)
DMP 816 Trade & Agricultural Health (2 credits)
DMP 888 Globalization, Cooperation, and Food Trade (1 credit)
EDACE 832 Interpersonal and Intrapersonal Dynamics (3 credits)
EDACE 834 Leading Adults in a Globalized and Diverse World (3 credits)
EDACE 835 Developing Teams and Leaders (3 credits)
EDACE 836 Group Dynamics (3 credits)
EDACE 886 Seminars in Adult Education (1-6 credits)

Students may also choose from the following:

AAI 795 Topics in Applied and Interdisciplinary Studies (1-3 credits)
AAI 870 Seminar in Applied and Interdisciplinary Studies (1-6 credits)
AAI 880 Problems in Applied and Interdisciplinary Studies (1-6 credits)
AAI 895 Advanced Topics in Applied and Interdisciplinary Studies (1-6 credits)
AAI 899 Research in Applied and Interdisciplinary Studies (1-6 credits)

Course Descriptions:

The courses with AAI prefixes are new courses developed by the School for Applied and Interdisciplinary Studies, K-State Olathe.

AAI 795. Topics in Applied and Interdisciplinary Studies (1-3 credits)
Selected topics in applied and interdisciplinary studies.

AAI 801. Interdisciplinary Process (3 credits)
The overall goal of this course is for students to develop an understanding of and practice in design thinking as both a framework that allows interdisciplinary and cross-function teams to work together and as a process to generate imaginative and creative solutions to complex challenges and problems.

AAI 840. Regulatory Aspects of Drug and Vaccine Development in the Animal Health Industry (2 credits)
This course explores the topic of regulations associated with animal health product development and manufacturing. Topics for discussion will include an overview of the regulatory affairs process in the U.S. and other countries, drug and vaccine classifications and the approval process, GCP/GLP guidelines, drug and vaccine efficacy and safety testing, human and environmental safety issues, and future challenges and current industry needs.

AAI 858. Capstone Experience I (1 credit)
This course provides students the opportunity to synthesize and integrate knowledge in its application to professional practice. It is designed for students who intend to work in an applied professional setting where they are expected to critically apply existing knowledge and methods to solve problems. Students will complete a project on a topic of interest, in consultation with the instructor.

AAI 859. Capstone Experience II (2 credits)
This course provides students the opportunity to synthesize and integrate knowledge in its application to professional practice. It is designed for students who intend to work in an applied professional setting where they are expected to critically apply existing knowledge and methods to solve problems. Students will produce written reports and oral presentations on their project of focus.

AAI 870. Seminar in Applied and Interdisciplinary Studies (1-6 credits)
Student presentations and discussion of current topics and recent findings in applied and interdisciplinary studies.

AAI 880. Problems in Applied and Interdisciplinary Studies (1-6 credits)
Opportunity for advanced independent study of a specific problem or technique in applied and interdisciplinary studies. Topics selected jointly by student and instructor.

AAI 895. Advanced Topics in Applied and Interdisciplinary Studies (1-6 credits)
Focus on advanced topics in applied and interdisciplinary studies.

AAI 899. Research in Applied and Interdisciplinary Studies (1-6 credits)
Research with a focus on applied science and interdisciplinary studies.

ASI 671 - Meat Selection and Utilization (2 credits)
Emphasis on meat cut identification, muscle and bone anatomy, grades, fabricated meat, institutional cuts, specification writing, processing, meat preparation and shrinkage costs.

ASI 675 - Monogastric Nutrition (1 credit)
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.

ASI 678 - Equine Nutrition (1 credits)
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.

ASI 776 - Meat Industry Technology (3 credits)
Apply concepts and information about meat composition, product safety and spoilage, quality; formulation, processing and evaluation of cured, precooked, and sausage; packaging, troubleshooting, and plant organization. This is a web-based lecture class intended for distance education students.

BAE 815. Graduate Seminar in Agricultural Engineering (1 credit)
Presentation and discussion of research philosophies, procedures, and results.

BAE 820. Topics in Agricultural Engineering (1-18 credits)
A course reserved for study of current topics in agricultural engineering. Topics announced when offered.

COT 703. Project Management for Professionals (3 credits)
This course focuses on applied project management methodology, tools, and techniques. Topics include career aspects of project management; business factors affecting the project; project organization, planning, execution, and communications; the project life cycle; risk analysis; and best practices in project management.

COT 704. Managerial Finances, Metrics, and Analytics (3 credits)
Provides an overview of an organization's financial statements, with an emphasis on the interaction between people in management positions and those statements, as well as an examination of the business investment decision-making process. Explores the use of metrics and analytics to measure and improve managerial

performance.

COT 706. Informatics and Technology Management (3 credits)
Provides theoretical and practical experience in using information technology to support organizational decision-making processes. Provides tools in areas such as statistics, research methods, data mining, and information technology to develop solutions tailored to business problems.

DMP 710. Introduction to One Health (2 credits)
One Health encompasses the complex interrelationships among humans, animals, and the environment. This online course provides a broad introduction to One Health, incorporating original videos of leading experts, case studies, and scientific readings. It addresses zoonotic diseases and environmental issues that impact human, animal, and ecosystem health.

DMP 754. Introduction to Epidemiology (3 credits)
The purpose of this course is to introduce students to the basic principles and methods of epidemiology in order to recognize and understand how disease affects populations (and the associated implications for individuals). This course will prepare students to use epidemiologic methods to solve current and future challenges to diagnose, treat, prevent, and control disease during their professional training and throughout their career.

DMP 802. Environmental Health (3 credits)
Students will be exposed to professional practice of environmental sciences, epidemiology, toxicology, occupational health and industrial hygiene, and consumer health and safety. Topics include the methods for defining environmental contamination; identifying contaminants, pathogens and toxins; assessing risks and causality; determining health impact; ameliorating hazards; and protecting the population through waste management, regulatory programs, environmental inspections, food and product safety, and environmental policy.

DMP 815. Multidisciplinary Thought and Presentation (3 credits)
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 816. Trade and Agricultural Health (2 credits)
This course considers the multilateral trading system as it relates to food safety, food security, animal health, plant health, and international cooperation. The course content will be of value to students interested in food safety and security, epidemiology, public health, agriculture, food science, security studies, political science, agricultural economics, veterinary medicine, and international relations.

DMP 844. Global Health Issues (3 credits)
A review of global health problems and various strategies to manage international health concerns. The class is open to graduate students, including veterinary students, with an interest in public health that have at least 12 hours in biology or related courses.

DMP 870. Pathobiology Seminar (MS) (1 credit)
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. This course is for MS students.

DMP 880. Problems in Pathobiology (MS) (1-6 credits)
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 888. Globalization, Cooperation, & the Food Trade (1 credit)
This course will include 15 45-minute lectures and/or reading assignments. They will be assessed through online quizzes and one essay project.

DMP 895. Topics in Pathobiology (MS) (0-18 credits)
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.

EDACE 832. Interpersonal and Intrapersonal Dynamics (3 credits)
This course explores various psychological and sociological factors that impact leadership. Through examining topics like verbal and nonverbal communication, active listening, learning and presentation styles, emotional intelligence, conflict, and motivation, students gain a deeper understanding of how these factors affect their personal leadership styles and impact adults they are leading.

EDACE 834. Leading Adults in a Globalized and Diverse World (3 credits)
This course provides an introduction to the foundations of adult leadership in the context of managing a culturally diverse workforce. Concepts of globalization as well as cross-cultural and international environments as they relate to adult leadership are emphasized through theory to practice projects and research.

EDACE 835. Developing Teams and Leaders (3 credits)
This course will examine how teams and leaders can be developed using theories from psychology, sociology, and learning principles. Through this course, students will be able to analyze when it is appropriate to use these tools, their strengths, weaknesses and limitations. To complement the course readings, students will be asked to share their professional experiences with team and leader development.

EDACE 836. Group Dynamics (3 credits)
This course focuses on group and team behavior and processes. Various factors that impact group behavior, processes, and effectiveness will be examined and participants will learn skills needed to more effectively manage and facilitate groups and teams of adults to achieve organizational objectives, accomplish tasks, and fulfill individual members' needs.

EDACE 886. Seminars in Adult Education (1-18 credits)
These seminars will consider research and professional development on the special interests of the students in the several fields of education represented.

FDSCI 600. Food Microbiology (2 credits)
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.

FDSCI 601. Food Microbiology Lab (2 credits)
Laboratory procedures involving isolation, identification, enumeration, and characterization of bacteria, yeasts, molds, and other microbes associated with foods and food processing.

FDSCI 630. Food Science Problems (0-18 credits)
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.

FDSCI 690 - Principles of HACCP (2 credits)
A comprehensive study of the Hazard Analysis and Critical Control Point System and its application in the food industry.

FDSCI 695 - Quality Assurance of Food Products (3 credits)
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.

FDSCI 961. Graduate Problem in Food Science (1-18 credits)
In-depth study of a topic supervised by a member of the graduate faculty.

HN 841. Consumer Research – Fundamentals (1 credit)
Fundamentals of consumer research in terms of organizing and executing studies. Planning studies, selecting products, recruiting target consumers, and organizing study execution are included.

HN 843. Consumer Research – Qualitative (1 credit)
This course provides a deep dive into qualitative research, including the design, application, execution, and reporting. This course will educate the student on the appropriate tools for qualitative data collection based on the objectives, with a particular emphasis on interviews and focus groups.

HN 848. Consumer Research – Quantitative (1 credit)
Methods and issues associated with measuring consumer responses to products including preference testing, preference ranking, acceptance testing, hedonic scales, and consumption testing.

HORT 725. Postharvest Technology and Physiology of Horticultural Crops (3 credits)
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.

HORT 780. Health-Promoting Phytochemicals and Physiology of Fruits and Vegetables (2 credits)
The course deals with various aspects of phytochemicals in plant-based foods including fruits and vegetables and their impact on human health and well-being. It includes potential effects of phytochemicals in promoting human health, preventing various diseases and fostering wellness. It also includes biosynthesis and metabolism of phytochemicals in plants. Emphasis is placed on developing strategies to improve the phytochemical content of food crops through approaches involving crop management, environmental and biotechnology tools. Two hours lecture per week.

HORT 790. Sustainable Agriculture (2 credits)
Historical perspectives of the sustainable agriculture movement in the U.S. and world-wide will be examined and critiqued. Components of sustainable agriculture such as agroecosystem theory, permaculture, energy use efficiency, and organic standards will be compared and evaluated. Students will demonstrate their understanding and application of the material by conducting research on a topic within sustainable agriculture and presenting the topic to the rest of the class.

HORT 791. Urban Agriculture (2 credits)
Students will become familiar with a wide variety of urban agriculture types and production systems utilized in urban settings. The course will include background readings, case studies, guest speakers, student-facilitated class discussion and lectures.

HORT 793. Farm to Fork Produce Safety (2 credits)
This course will cover all aspects of food safety for fresh produce grown in urban and rural environments, including pathogen ecology and production aspects as well as pre- harvest and postharvest factors that influence the risk of microbial contamination. More specifically, we will discuss ways to minimize the risk of human pathogens on fresh produce using strategies such as the implementation of Good Agricultural Practices (GAPs) and Good Handling Practices (GHPs). The course will cover postharvest interventions that are currently used (chemical sanitizers) as well as innovative technology applications like physical

treatments, irradiation, and biological control techniques. Additionally, students will explore the impact of foodborne outbreaks on public health and the fresh produce industry in terms of economics, consumer acceptance, and legal aspects.

HORT 794. Urban Food Systems (2 credits)
This course will cover all components of urban food systems through the lens of food security, food justice, access, policy, and community planning. Students will gain skills in grant-writing, non-profit planning and management, and working with urban policy and planning boards.

HORT 795. Urban Agriculture Study Tour (1 credit)
Faculty-led trip for students to explore leading examples of urban agriculture. Each year, a trip will occur within North America, lasting approximately 7 days. The study tours will focus on urban food system development in major cities and will highlight examples of how food is being grown in urban areas and the impacts that it has on the community.

STAT 701. Fundamental Methods of Biostatistics (3 credits)
A course emphasizing concepts and practices of statistical data analysis for the health sciences. Basic techniques of descriptive and inferential statistical methods applied to health related surveys and designed experiments. Populations and samples, parameters and statistics; sampling distributions for hypothesis testing and confidence intervals for means and proportions involving one sample, paired samples and multiple independent samples; odd rations, risk ratios, simple linear regression.

STAT 703. Introduction to Statistical Methods for the Sciences (3 credits)
Statistical concepts and methods applied to experimental and survey research in the sciences; tests of hypotheses, parametric and rank tests; point estimation and confidence intervals; linear regression; correlation; one-way analysis of variance; contingency tables, chi-square tests.

STAT 705. Regression and Analysis of Variance (3 credits)
Simple and multiple linear regression, analysis of covariance, correlation analysis, one-, two-, and three-way analysis of variance; multiple comparisons; applications including use of computers; blocking and random effects.

III. Statement of How the Courses Are Associated with the Certificate

There are two categories of courses, both of which are consistent with regional demand. The first consists of graduate courses in STEM that are available to students at the K-State Olathe campus. The second category is comprised of courses that provide professional skills, and also meet the requirements of the Professional Science Master's. These skills are commonly cited by employers as being crucial to employee success. Local needs assessments were done to identify educational programming market demand for K-State Olathe, and input was collected from Johnson County firms representing 59,567 employees. The results were then used as a basis in selecting which courses to include.

IV. Statement of Need

The need for this program has been documented through multiple market demand studies over the past 5 years, conducted by both K-State experts and independent consultants. Market demand information was quantified through surveys of more than 100 employers across 6 economic sectors in the Kansas City area. Additionally, K-State Olathe faculty and staff have collected qualitative input through focused discussions with regional employers and employees over the last 3 years and strategic planning sessions with the K-State Olathe advisory board over the last 2 years. The market survey by Vincent Amanor-Boadu and K. Renee Stoneman of Kansas State University obtained information on 449 respondents' preferences for academic credentials, with preferences ranging from continuing education credit through graduate certificates to degrees. They found that 62 percent of respondents would be interested in some form of a continuing education credit, 57 percent in a certificate, and 54 percent in a degree.

According to the data compiled by the Austin Peters Group, Inc., based on estimates provided by firms primarily located in Johnson County, KS and representing 59,567 employees (20% of the workforce in Johnson County, KS), there may be more than 200 working professionals, annually, who would be interested in pursuing *Professional Science* credentials. The Graduate Certificate will allow those and others to obtain a Graduate Certificate as part of the Professional Science Master's (PSM) or as a stand-alone option. The Austin Peters Group, Inc. in coordination with the Kansas Department of Labor and the Missouri Department of Labor found that occupational areas where a PSM and related skills would be highly valued are projected to grow for at least 10 years.

The Brooking's Institute 2014 report states that *"Greater Kansas City has a skilled workforce, but is not educating and retaining enough workers to meet future demand."*. It also stated *"The region has not produced enough highly educated or STEM-qualified workers to keep pace with employers' demand, and its ability to attract talent from elsewhere has diminished."* While there are other STEM programs provided in the area, they are inadequate to keep up with the demand, and no program exists in the region or at other Regents universities similar to K-State Olathe's proposed Graduate Certificate in Professional Interdisciplinary Sciences.

Sources:

3) Needs Assessment for Educational Programming, K-State Olathe Innovation Campus, Market demand report prepared by Beth Tatarko, Vice President, The Austin Peters Group, Inc., Overland Park, KS (March, 2010)
4) Educational and Professional Development Needs in the Animal Health Corridor, Market demand survey report by Dr. Vincent Amanor-Boadu, Associate Professor of Agribusiness Economics and Management, and K. Renee Stoneman, Graduate Student of Agribusiness Economics, Kansas State University. (Dec, 2010)
5) Kansas City Region Industry Interviews and Recommendations Report, K-State Olathe Advisory Board, 2012-2014
6) Prosperity at a Crossroads: Targeting Drivers of Economic Growth in Greater Kansas City, Report published by Mid-America Regional Council and the Brookings (Institute) Metropolitan Policy Program (June, 2014)
7) Resolution of the Johnson County Education Research Triangle Authority Board of Directors (Undated)

V. Description of the Certificate Program Administration

The proposed Graduate Certificate in Professional Interdisciplinary Sciences will be administered under the auspices of the K-State Olathe campus, School of Applied and Interdisciplinary Studies. Dr. Janice Barrow, the Associate Dean for Academic Affairs and Executive Education, will serve as Program Director, assist students in successful completion of the program, and also serve as the primary program administrator and contact for the certificate program. Additional administrative support will be provided by the Olathe-based Academic Affairs unit to include a Director of Student Services who is also responsible for recruitment and career placement; a Program Manager responsible for the day-to-day efficiency of academic operations; a Program Assistant responsible for student life activities; and Student Help Desk IT support. Additional academic support services for the program will be provided by staff located at K-State Olathe. These services include assistance for prospective student inquiries, admissions advising and other support already available for the 8 graduate degree programs currently offered for students at the K-State Olathe campus. The K-State Graduate School and Libraries, as well as faculty and staff from 6 colleges and 9 departments, already provide support to the K-State Olathe campus through various modalities.

VI. Estimated Budget

Instruction will be provided by existing full-time K-State faculty who are already fully supported by the University, with the potential to add qualified faculty and instructors if the demand warrants. All expenses are expected to be covered by: 1) utilizing unused capacity in existing courses, 2) revenue from tuition, and 3) JCERT funds. No additional resources will be required.

VII. Names of Faculty Leading and Contributing to the Certificate Program

Initial program faculty support is to be provided by K-State faculty from the Olathe, Manhattan and Salina campuses. The program also has the benefit of industry/expert practitioners in the form of a 12-member External Advisory Board. There will be new faculty hires to accommodate program growth, as appropriate, through the School for Applied and Interdisciplinary Studies.

Attached, is the support agreement signed by the President, Provost, all the Deans and Department Heads of the academic units offering courses as part of the curriculum, and by the proposed Program Director. Also attached is the letter of support from the 12 member External Advisory Board that will assist with clarifying program objectives, identifying expected learning and professional development outcomes, and ensuring that regional workforce needs will be met.

Core Instructional Faculty

Elizabeth Boyle, PhD, Professor and Extension Specialist, Animal Sciences and Industry (Tenured)
Teresa Douthit, PhD, Associate Professor, Animal Sciences and Industry (Tenured)
Kelly Getty, PhD, Associate Professor, Animal Sciences and Industry (Tenured)
Sara Gragg, PhD, Assistant Professor, Animal Sciences and Industry (Tenure Track) (Olathe Based)
Curtis Kastner, PhD, Professor and Director Food Science Institute (Tenured)
Justin Kastner, PhD, Associate Professor, Diagnostic Medicine/Pathobiology (Tenured)
Robert Larson, PhD, Professor, Diagnostic Medicine/Pathobiology (Tenured)
Edgar E. and M. Elizabeth Coleman Chair for Food Animal Production Medicine
Executive Director, Veterinary Medical Continuing Education
Annelise Nguyen, PhD, Associate Professor, Diagnostic Medicine/Pathobiology (Tenured)
Eleni Pliakoni, PhD, Assistant Professor, Horticulture, Forestry and Recreation Resources (Tenure Track) (Olathe Based)
C.B. Rajashekar, PhD, Professor, Horticulture, Forestry and Recreation Resources (Tenured)
Karen Schmidt, PhD, Professor, Animal Sciences and Industry (Tenured)
Candice Shoemaker, PhD, Department Head and Professor, Horticulture, Forestry and Recreation Resources (Tenured)

Supplemental Faculty

Paige Adams, PhD, DVM, Research Assistant Professor, K-State Olathe (Non-Tenure Track) (Olathe Based)
Deborah Briggs, PhD, Adjunct Faculty, Diagnostic Medicine Pathobiology (Non-Tenure Track)
Executive Director, Global Alliance for Rabies Control
Kathy Brockway, MS, Professor, College of Technology and Aviation (Tenured)
Raju Dandu, PhD, Professor, College of Technology and Aviation (Tenured)
Judy Favor, PhD, Assistant Professor, Educational Leadership (Non-Tenure Track) (Olathe Based)
Trisha Moore, PhD, Assistant Professor, Biological and Agricultural Engineering (Tenure Track)
Abbey Nutsch, PhD, Assistant Professor, Animal Sciences and Industry (Non-Tenure Track)
Mark Sorell, MS, Part-time Instructor, Graduate Faculty Associate, K-State Olathe (Non-Tenure Track) (Olathe Based)
Marianne Swaney-Stueve, PhD, Research Assistant Professor, Human Nutrition (Non-Tenure Track) (Olathe Based)
Andi Witczak, MFA, Research Assistant Professor, K-State Olathe (Non-Tenure Track) (Olathe Based)
Susan Yelich Binieki, PhD, Assistant Professor, Educational Leadership (Tenure Track)
Jeff Zacharakis, EdD, Associate Professor, Educational Leadership (Tenured)

Among the 12 core faculty members, six are professors, four are associate professors, and two are assistant professors. Ten are tenured, and two are tenure-track but not yet tenured. All 12 have terminal degrees.

Among the 12 supplemental faculty members, two are professors, one is an associate professor, four are assistant professors, three are research assistant professors, and two are part time/adjunct faculty. Three are tenured, two are tenure-track, and seven are non-tenure track. Ten have terminal degrees.

All courses that form part of the Graduate Certificate are also part of the faculty members' in load teaching requirements.

No graduate assistants will be required.

Program Coordinators

Dr. Janice Barrow
Associate Dean for Academic Affairs and
Executive Education/ Associate Professor
Phone: 913-307-7342
Email: jbarrow@k-state.edu

Dana Reinert
Program Manager
Phone: 913-307-7340
Email: danamary@k-state.edu

CURRICULUM OUTLINE
NEW DEGREE PROPOSALS
Kansas Board of Regents

I. Identify the new degree:

Graduate Certificate in Professional Interdisciplinary Sciences

II. Provide courses required for each student in the major:

	Course Name & Number	Credits
Core	AAI 801. Interdisciplinary Process	3
Electives	*9 credits of electives selected from the following courses (or equivalent courses as approved by the student's supervisory committee). Elective courses can be included up to 3 credits per course:*	
	AAI 795. Topics in Applied and Interdisciplinary Studies	1-3
	AAI 840. Regulatory Aspects of Drug/Vaccine Development in Animal Health	2
	AAI 870. Seminar in Applied and Interdisciplinary Studies	1-6
	AAI 858. Capstone Experience I	1
	AAI 859. Capstone Experience II	2
	AAI 880. Problems in Applied and Interdisciplinary Studies	1-6
	AAI 895. Advanced Topics in Applied and Interdisciplinary Studies	1-6
	AAI 899. Research in Applied and Interdisciplinary Studies	1-6
	ASI 671. Meat Selection and Utilization	2
	ASI 675. Monograstic Nutrition	1
	ASI 678. Equine Nutrition	1
	ASI 776. Meat Industry Technology	3
	BAE 815. Graduate Seminar in Agricultural Engineering	1
	BAE 820. Topics in Agricultural Engineering	1-18
	COT 703. Project Management for Professionals	3
	COT 704. Managerial Finances, Metrics, and Analytics	3
	COT 706. Informatics and Technology Management	3
	DMP 710. Introduction to One Health	2
	DMP 754. Introduction to Epidemiology	3
	DMP 802. Environmental Health	3
	DMP 815. Multidisciplinary Thought and Presentation	3
	DMP 816. Trade and Agricultural Health	2
	DMP 844. Global Health Issues	3
	DMP 870. Pathobiology Seminar (MS)	1
	DMP 880. Problems in Pathobiology (MS)	1-6
	DMP 888. Globalization, Cooperation, & the Food Trade	1
	DMP 895. Topics in Pathobiology (MS)	0-18
	EDACE 832. Interpersonal and Intrapersonal Dynamics	3
	EDACE 834. Leading Adults in a Globalized and Diverse World	3

EDACE 835. Developing Teams and Leaders	3
EDACE 836. Group Dynamics	3
EDACE 886. Seminars in Adult Education	1-18
FDSCI 600. Food Microbiology	2
FDSCI 601. Food Microbiology Lab	2
FDSCI 630. Food Science Problems	0-18
FDSCI 690. Principles of HACCP	2
FDSCI 695. Quality Assurance of Food Products	3
FDSCI 961. Graduate Problem in Food Science	1-18
HN 841. Consumer Research – Fundamentals	1
HN 843. Consumer Research – Qualitative	1
HN 848. Consumer Research – Quantitative	1
HORT 725. Postharvest Technology and Physiology of Horticultural Crops	3
HORT 780. Health-Promoting Phytochemicals/Physiology of Fruits/Vegetables	2
HORT 790. Sustainable Agriculture	2
HORT 791. Urban Agriculture	2
HORT 793. Farm to Fork Produce Safety	2
HORT 794. Urban Food Systems	2
HORT 795. Urban Agriculture Study Tour	1
STAT 701. Fundamental Methods of Biostatistics	3
STAT 703. Introduction to Statistical Methods for the Sciences	3
STAT 705. Regression and Analysis of Variance	3

Research N/A

Practica N/A

Total credits required 12

IMPLEMENTATION YEAR FY 2017

Fiscal Summary for Proposed Academic Programs

Institution: Kansas State University Proposed Program: Graduate Certificate in Professional Interdisciplinary Sciences

Part I. Anticipated Enrollment	Implementation Year		Year 2		Year 3	
	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time
A. Full-time, Part-time Headcount:	2	8	2	8	2	8
B. Total SCH taken by all students in program	120		120		120	

Part II. Program Cost Projection			
A. In implementation year one, list all identifiable General Use costs to the academic unit(s) and how they will be funded. In subsequent years, please include only the additional amount budgeted.			
	Implementation Year	Year 2	Year 3
Base Budget Salaries	$0	$0	$0
OOE	$1,000	$1,000	$1,000
Total	$1,000	$1,000	$1,000

Indicate source and amount of funds if other than internal reallocation:
1) Internal reallocation made possible by excess capacity in existing courses, 2) revenue from tuition, and 3) JCERT funds

This budget assumes the following for Part I:
Full-time students and part-time students will be able to complete the program (12 credits) during one academic year.

This budget assumes the following for Part II:
The instruction will be provided by existing K-State faculty who are already fully supported by the University.
The "Other Expenses" include materials and supplies for courses, marketing materials, and travel.
Marketing will be managed by the K-State Olathe marketing team and K-State Division of Communications & Marketing.

KANSAS STATE UNIVERSITY | Olathe

School of Applied and Interdisciplinary Studies

Professional Science Master in Applied Science and Technology
Graduate Certificate in Professional Interdisciplinary Sciences, and
Graduate Certificate in Professional Skills for STEM Practitioners

Agreement of Support

The Professional Science Master in Applied Science and Technology, the Graduate Certificate in Professional Interdisciplinary Sciences, and the Graduate Certificate in Professional Skills for STEM Practitioners (referred to as "Programs"), are proposed interdisciplinary programs to be offered through the School of Applied and Interdisciplinary Studies at the K-State Olathe Campus.

This agreement of support is entered into between K-State Olathe Innovation Campus, Inc., through its School of Applied and Interdisciplinary Studies, and Kansas State University, through its colleges and departments indicated with the signatures below. This agreement of supports is required as part of the interdisciplinary graduate program approval process.

The courses for the Programs will be accessible from the Olathe campus and utilize courses offered at the Olathe campus or online from multiple departments and other academic units across Kansas State University.

Goals and expected benefits include:

1. K-State compliance with the JCERT mandate for K-State Olathe to provide education programs and meet enrollment goals for the campus.
2. Utilize unused capacity in existing courses, facilities and infrastructure.
3. Leverage the Olathe location and funding opportunity for consulting, collaboration and growth, consistent with the K-State 2025 Visionary Plan

The School of Applied Science and Interdisciplinary Studies, will:

1. Manage the Programs and ensure the Programs meet all K-State Graduate School and Kansas Board of Regents requirements for graduate programs.
2. Ensure that policies and procedures are implemented for the Programs' development, assessment, and quality assurance.
3. Provide input, via the Olathe CEO, or designee, to the Manhattan-based or Salina-based colleges/departments relevant to the teaching effectiveness and performance of the Manhattan-based or Salina-based faculty providing courses as part of the Olathe Programs. This input may be used to determine assignment of faculty to teach courses as part of the Olathe Programs and considered in applicable evaluation processes.
4. Provide remuneration and support to participating Manhattan-based or Salina-based colleges/departments in the form of tuition distribution as follows:

   Tuition: Olathe tuition consists of resident graduate tuition and a campus fee. The tuition is set at the same level as resident graduate tuition on the Manhattan campus.

   Online courses: Any courses taught on-line as part of the Olathe Programs will be billed at tuition rates as determined through Global Campus practices.

   Face-to-face: Two basic scenarios will exist for face-to-face courses in Olathe. Courses will either be taught by Olathe-based faculty, who shall be funded by Olathe, or will be taught by Manhattan-based or Salina-based faculty, who shall be funded by the Manhattan or Salina colleges/departments. If taught by Olathe-based faculty, the Olathe campus will retain all of the tuition that students pay for the course (except for the college fee returned to the colleges). If the course is taught by Manhattan-based or Salina-based faculty, Olathe will reimburse the colleges $200 per student credit hour for face-to-face courses. The $200 per student credit hour reimbursement will be increased commensurate with tuition increases in the future.

Colleges/departments expenses and faculty support: The Manhattan-based or Salina-based colleges/departments shall be responsible for Manhattan-based or Salina-based faculty travel and other support costs based upon their own policies and practices. Olathe will provide office and support space, classrooms and laboratories, IT infrastructure and support, custodial, security, and other campus support at Olathe for the faculty teaching at Olathe.

The Manhattan-based or Salina-based participating colleges/departments, whose signatures appears below, in collaboration with the School of Applied Science and Interdisciplinary Studies, are in support of the proposed Programs and are committed to their success, and will:

1. Ensure the consistent, predictable availability of graduate courses from their departments, which are part of the Olathe Programs, as listed in the curriculum attached as Appendix "A".
2. Consistent with faculty availability, expertise and interest: (i) encourage faculty to serve as Graduate Supervisory Committee members for the Programs; and (ii) encourage faculty to participate in the academic components of the Capstone Experience Courses.
3. Assure expeditious resolution of any curricular issues related to the Programs brought forward by the Programs' Director.

To the extent there are any irreconcilable differences in carrying out the terms of this Agreement or in the delivery of the Programs, the Provost and Senior Vice President of Kansas State University shall have authority to provide and direct implementation of the final decision on behalf of all parties.

Signatures:

Kirk Schultz, President, Kansas State University/Chair, KOIC Board	9-10-15 Date
April Mason, Provost and Senior Vice President, Kansas State University	10 Sept 15 Date
Ralph Richardson, Interim Dean/CEO, Kansas State University-Olathe	14 Sept 2015 Date
Carol Shanklin, Dean, Graduate School	9-14-15 Date
Janice Barrow, Associate Dean/Programs Director, Kansas State University-Olathe	9-10-2015 Date
Sue Maes, Dean, Global Campus	9-14-15 Date
Verna Fitzsimmons, CEO/Dean, Kansas State University-Salina	9-14-15 Date
John Floros, Dean, College of Agriculture	9-14-15 Date
Peter Dorhout, Dean, College of Arts and Science	14 Sept 2015 Date
Debbie Mercer, Dean, College of Education	9.14.15 Date
Darren Dawson, Dean, College of Engineering	9/14/15 Date
John Buckwalter, Dean, College of Human Ecology	9-14-15 Date
Tammy Beckham, Dean, College of Veterinary Medicine,	9-14-15 Date
Ken Odde, Dept. Head, Animal Science and Industry	9-11-15 Date
Joe Harner, Dept. Head, Biological & Agricultural Engineering	09/15/15 Date

School of Applied and Interdisciplinary Studies

Professional Science Master in Applied Science and Technology
Graduate Certificate in Professional Interdisciplinary Sciences, and
Graduate Certificate in Professional Skills for STEM Practitioners

Agreement of Support

Signatures continued:

M.M. Chengappa, Dept. Head, Diagnostic Medicine/Pathobiology — Date 9/14/15

David Thompson, Dept. Head, Educational Leadership — Date 9/12/15

Candice Shoemaker, Dept. Head, Horticulture, Forestry, and Recreation Resources — Date 9-11-15

Mark Haub, Dept. Head, Human Nutrition — Date 9/15/15

Weixing Song, Interim Dept. Head, Statistics — Date 9/11/2015

Appendix A

Agreement of Support

Professional Science Master in Applied Science and Technology
Graduate Certificate in Professional Interdisciplinary Sciences, and
Graduate Certificate in Professional Skills for STEM Practitioners

Curriculum Courses

STEM					
Course Number	**Course Title (credits)**	**Format**	**Frequency**	**Instructor**	**Base for Instructor**
ASI 671	Meat Selection and Utilization (2 credits)	Online	Fall	Curtis Kastner	Manhattan
ASI 675	Monograstric Nutrition (1 credit)	Online	Fall	Teresa Douthit	Manhattan
ASI 678	Equine Nutrition (1 credit)	Online	Fall, odd years	Teresa Douthit	Manhattan
ASI 776	Meat Industry Technology (3 credits)	Online	Fall, Spring, Summer	Kelly Getty	Manhattan
BAE 815	Graduate Seminar in Agricultural Engineering (1 credit)	F2F Olathe	Fall, Spring	Trisha Moore / Rotates	Olathe/Manhattan
BAE 820	Topics in Agricultural Engineering (1-6 credits)	F2F Olathe	Fall, Spring	Mei He / Rotates	Olathe
DMP 710	Introduction to One Health (2 credits)	F2F Olathe, Online	Fall	Paige Adams	Olathe
DMP 754	Introduction to Epidemiology (3 credits)	Online	Fall	Bob Larson	Manhattan
DMP 802	Introduction to Environmental Health (3 credits)	Online	Spring	Annelise Nguyuen	Manhattan
DMP 815	Multidisciplinary Thought and Presentation (3 credits)	F2F Olathe	Fall, Spring	Kastner / Nutsch	Manhattan
DMP 844	Global Health Issues (3 credits)	Online	Spring	Debbie Briggs	Manhattan
DMP 870	Pathobiology Seminar MS (1 credit)	F2F Olathe	Fall, Spring, Summer	Paige Adams	Manhattan
DMP 880	Problems in Pathobiology MS (1-3 credits)	F2F Olathe	Fall, Spring, Summer	Variable	Manhattan
DMP 888	Globalization, Cooperation, & the Food Trade (1 credit)	Online	Fall, Spring	Justin Kastner	Manhattan
DMP 895	Topics in Pathobiology MS (1-3 credits)	F2F Olathe, Online	Fall, Spring, Summer	Variable	Manhattan
FDSCI 600	Food Microbiology (2 credits)	F2F Olathe, Online	Fall	Sara Gragg / Rotates	Olathe
FDSCI 601	Food Microbiology Lab (2 credits)	F2F Olathe, Online	Fall	Sara Gragg / Rotates	Olathe
FDSCI 630	Food Science Problems (0-6 credits)	F2F Olathe, Online	Fall, Spring, Summer	Sara Gragg	Olathe
FDSCI 690	Principles of HACCP (2 credits)	Online	Fall	Elizabeth Boyle	Manhattan
FDSCI 695	Quality Assurance of Food Products (3 credits)	Online	Fall	Karen Schmidt	Manhattan
FDSCI 961	Graduate Problem in Food Science (1-6 credits)	F2F Olathe, Online	Fall, Spring, Summer	Sara Gragg	Olathe
HN 841	Consumer Research - Fundamentals (1 credit)	F2F Olathe	Fall	Marianne Swaney-Stueve	Olathe
HN 843	Consumer Research - Qualitative (1 credit)	F2F Olathe	Fall	Marianne Swaney-Stueve	Olathe
HN 848	Consumer Research - Quantitative (1 credit)	F2F Olathe	Fall	Marianne Swaney-Stueve	Olathe
HORT 725	Postharvest Technology and Physiology of Horticultural Crops (3 credits)	F2F Olathe	Fall, even years	Pliakoni	Olathe
HORT 780	Health-Promoting Phytochemicals and Physiology of Fruits and Vegetables (2 credits)	F2F Olathe	Spring	Rajashekar	Manhattan
HORT 790	Sustainable Agriculture (2 credits)	F2F Olathe	Fall, odd years	Janke and Pliakoni	Manhattan
HORT 791	Urban Agriculture (2 credits)	F2F Olathe	Fall	Janke and Pliakoni	Manhattan
HORT 793	Farm to Fork Food Safety (2 credits)	F2F Olathe	Fall, even years	Gragg and Pliakoni	Olathe
HORT 794	Urban Food Systems (2 credits)	F2F Olathe	Spring, even years	Pliakoni and Shoemaker	Olathe
HORT 795	Urban Agriculture Study Tour (1 credit)	F2F Olathe	Fall, Spring, Summer	Pliakoni	Olathe
STAT 701	Fundamental Methods of Biostatistics (3 credits)	F2F Olathe	Fall, Spring, Summer	Mark Sorell	Olathe
STAT 703	Introduction to Statistical Methods for the Sciences (3 credits)	F2F Olathe	Fall, Spring, Summer	Mark Sorell	Olathe
STAT 705	Regression and Analysis of Variance (3 credits)	F2F Olathe	Fall, Spring, Summer	Mark Sorell	Olathe
Professional					
Course Number	**Course Title (credits)**	**Format**	**Frequency**	**Instructor**	**Base for Instructor**
AAI 801	Interdisciplinary Process (3 credits)	F2F Olathe	Fall, Spring	Andi Witczak	Olathe
AAI 840	Reg. Aspects of Drug and Vacc Dev. in Animal Health (2 credits)	Hybrid	Fall	Paige Adams/Mike Apley	Olathe
COT 703	Project Management for Professionals (3 credits)	Online	Fall	Raju Dandu	Salina
COT 704	Managerial Finances, Metrics, and Analytics (3 credits)	Online	Spring	Kathy Brockway	Salina
COT 706	Informatics and Technology Management (3 credits)	Online	Spring	Raju Dandu	Salina
DMP 815	Multidisciplinary Thought and Presentation (3 credits)	F2F Olathe	Fall, Spring	Kastner / Nutsch	Manhattan
DMP 816	Trade & Agricultural Health (2 credits)	Online	Spring	Justin Kastner	Manhattan
DMP 888	Globalization, Cooperation, and Food Trade (1 credit)	Online	Fall, Spring	Justin Kastner	Manhattan
EDACE 832	Interpersonal and Intrapersonal Communications (3 credits)	F2F Olathe, Online	Spring, Summer	Judy Favor	Olathe
EDACE 834	Leading Adults in a Globalized and Diverse World (3 credits)	F2F Olathe, Online	Fall	Susan Yelich Binieki	Manhattan
EDACE 835	Developing Teams & Leaders (3 credits)	F2F Olathe, Online	Spring	Jeff Zacharakia	Manhattan
EDACE 836	Group Dynamics (3 credits)	F2F Olathe, Online	Spring, Summer	Judy Favor	Olathe
EDACE 886	Seminars in Adult Education (1-6 credits)	F2F Olathe, Online	On demand	Rotates	Olathe
Students may also choose from the following K-State Olathe based courses					
AAI 795	Topics in Applied and Interdisciplinary Studies (1-3 credits)				
AAI 870	Seminar in Applied and Interdisciplinary Studies (1-6 credits)				
AAI 880	Problems in Applied and Interdisciplinary Studies (1-6 credits)				
AAI 895	Advanced Topics in Applied and Interdisciplinary Studies (1-6 credits)				
AAI 899	Research in Applied and Interdisciplinary Studies (1-6 credits)				
Capstone					
Course Number	**Course Title (credits)**	**Format**	**Frequency**	**Instructor**	**Base for Instructor**
AAI 858	Capstone Experience I (1 credits)	F2F, Online, Hybrid	On demand	Janice Barrow	Olathe
AAI 859	Capstone Experience II (2 credits)	F2F, Online, Hybrid	On demand	Janice Barrow	Olathe

Note: Courses may be added or deleted in response to demand and stakeholder needs.

Proposed Professional Science Master and Graduate Certificate at K-State Olathe

March 24, 2015

Janice Barrow
Associate Dean for Academic Affairs and Executive Education
Kansas State University Olathe Innovation Campus

Dear Dr. Barrow,

In my capacity as Chair of the K-State Olathe Advisory Board, I am pleased that discussions about offering a degree program geared to the needs of businesses in the greater KC metro are being developed. I understand that the proposed *Professional Science Master in Applied Science and Technology*, and proposed *Graduate Certificate in Professional Interdisciplinary Sciences* are designed for K-State Olathe to be compliant with the Johnson County Education Research Triangle (JCERT) mandate which is for the campus to provide graduate programming in food, animal health and related sectors, consistent with regional demand.

As members of the Advisory Board, we further understand that the programs require the input and support of *"an active external advisory board that will assist with clarifying program objectives, identifying expected learning and professional development outcomes, and ensuring that regional workforce needs will be met".*

It is with the foregoing understanding that I and other Board members offer our support for the program development and delivery pending program approval by the University and Kansas Board of Regents.

Sincerely

Allen Gross
Chair of Advisory Board, K-State Olathe Innovation Campus (KOIC)
Vice President, EFL Associates, Inc.

Additional Signatures/Affiliations of Members of the KOIC Advisory Board:

	Signature	Name	Industry Affiliation
1.		ROBERT DREGNER	BANKING
2.		LAURIE MINARD	GARMIN

3.	Joseph M. Sopcich	Joseph M. Sopcich	JCCC
4.		WAYNE C. CHEREK	KCALSI
5.		ERNST HEINEN	ARATANA THERAPEUTICS
6.		Michael Boehm	JCERT
7.		Greg Musil	JCERT
8.		JEFF PLACEK	McCOWN GORDON CONSTRUCTION
9.		DAN ABITZ	GEORGE BUTLER ASSOC.
10.		Kimberly Young	KC Animal Health Corridor
		Bernd Eichenmueller	Boehringer Ingelheim Vetmedica

Graduate School

Graduate Certificate in Professional Interdisciplinary Sciences

School of Applied and Interdisciplinary Studies, K-State Olathe
Assessment of Student Learning Plan

A. College, Department, and Date

College: School of Applied and Interdisciplinary Studies
Department: School of Applied and Interdisciplinary Studies
Date: August 24, 2015

B. Contact Person(s) for the Assessment Plan

Dr. Janice M. Barrow,
Associate Dean for Academic Affairs and Executive Education
Associate Professor, School of Applied and Interdisciplinary Studies, KSO
Email: Jbarrow@ksu.edu

C. Name of Proposed Degree Program

Graduate Certificate in Professional Interdisciplinary Sciences

D. Assessment of Student Learning Three-Year Plan

Consistent with the Graduate Handbook, Chapter 4: Graduate Certificate Programs, in "*the preferred model, students are enrolled in both a graduate degree program (master's or doctoral) and a graduate certificate program … Some certificate programs are linked to specific graduate degree programs, such that they provide an interdisciplinary experience …"* In this case the graduate certificate is part of a master's degree program, the Professional Science Master in Applied Science and Technology (PSM). The certificate also provides an interdisciplinary experience with the unique student learning outcomes, as guided.

1. Student Learning Outcome(s)

a. **Student learning outcomes for the program.**

Upon successful completion of the Graduate Certificate in Professional Interdisciplinary Sciences, the students will be able to:

1. Demonstrate ability to use information, concepts, analytical approaches, and critical thinking skills to transform ideas or solutions into entirely new forms.

2. Demonstrate ability to perform in one or more disciplines outside of their own discipline.

b. **Indicate outcomes on the above list that will be assessed by the first mid-cycle review.**

Each and every student learning outcome is equally important; therefore, all the student learning outcomes will be assessed by the first mid-cycle review.

Please see Appendix A for the Alignment Matrix

2. Assessment Strategies

How will each of the learning outcomes be assessed?

Program graduation requirements are 12 credit hours. After taking a three credit foundation course focused on developing skills in the Interdisciplinary Process the students are expected to have an enhanced ability to address broad and multi-faceted challenges. They are also to take the remaining nine credit hours from at least two different disciplines. Students are more highly motivated when they get to choose topics that are interesting to them. As a result, the learning becomes meaningful, purposeful and deeper, resulting in learning experiences that stay with the student for a lifetime.

a. Direct Measures

Both student learning outcomes will be assessed using components of the Certificate portfolio consisting of artifacts to demonstrate satisfaction of the SLOs from courses completed (assignments contained within the courses). A panel of three faculty members will use a common rubric for assessing each component of the portfolio.

b. Indirect Measures

Completion Assessments

a. Student Self-Assessment of the Student Learning Objectives
b. Program Assessment

Post Completion Assessment

Survey of alumni

c. Number of students included in the assessment

All students completing the certificate will be included in the assessment process. Using a scale of 4.0 the acceptable average is 3.0 with 2.0 considered passing. Results will be compiled for the academic year and then reported by the total group and by disaggregated groups, as appropriate. For a relatively small number of students, as determined by the degree committee, only narrative summaries will be reported.

d. **Timetable**

Direct Measures: Data from each of the measures will be compiled at the conclusion of each semester in an aggregate format, by the Program Coordinator.

Indirect Measures: The completion surveys will be sent one month prior to the completion of the program, and complied in an aggregate format, for all the students in an academic year. The post completion survey will be sent to the graduates/ alumni one year after completion of the program, during the summer.

Data will be reported and reviewed at a regularly scheduled School of Applied and Interdisciplinary Studies faculty meeting. Should numbers of students be sufficient to disaggregate, possible meaningful categories will be considered (e.g. admission criteria, location). School of Applied and Interdisciplinary Studies faculty members will review the results and make recommendations for program revisions.

3. Results and Review of Student Learning Outcomes and Assessment Strategies

a. Describe the process the faculty will follow to review the results of assessment data.

Data will be collected each semester students conclude the certificate program from the completed course portfolio rubrics and the students' self-assessment surveys. Each SLO will be analyzed by score on rubrics. The SLO will be deemed as achieved if the average rate is at least 3.0 in a 4.0 system. A course objective alignment matrix (demonstrating how each course objective is a subset of one of the SLOs) will be prepared by the instructors to ensure that all courses are in alignment with SLOs. Faculty will review this matrix along with course project and student self-assessment ratings to make sure all SLOs are being properly addressed within the curriculum. If the average rating on any SLO is found to be below the set standard of 3.0, then the faculty will analyze the content of courses where the SLO is addressed and implement adjustments to the curriculum.

The assessment plan may be modified at any time by the School of Applied and Interdisciplinary Studies faculty, but a thorough review of the data will coincide with the program review required by the Graduate School as scheduled by the Graduate School.

b. Describe any other program improvement procedures that will be followed (e.g. formative assessments of delivery method, corporate or employer surveys).

The certificate program will also be assessed using the PSM degree assessment infrastructure and tools. Post completion data will be used for longitudinal comparisons, to highlight current trends, to track career progressions, and to assess whether the goals of the Graduate Certificate in Professional Interdisciplinary Sciences are being achieved, with input from the degree program's External Advisory Board.

The follow-up surveys will be used to assess whether the curriculum is meeting the needs of the workforce. This survey data will be reviewed annually by the School of Applied and Interdisciplinary Studies faculty team. If the program is found to be missing major issues with the professional practice, then instructors will review the program in detail from admission standards through curriculum. The program will be modified as determined necessary by the faculty.

Appendix A

Alignment Matrix for Graduate Program: Graduate Certificate in Professional Interdisciplinary Sciences

SLO/Required Courses/experiences	Direct Assessment	Indirect Assessment	Student Population	Required Interdisciplinary Process: AAI 801	STEM Electives Selected*	Professional Electives Selected*
Degree program SLOs						
1. Demonstrate ability to use information, concepts, analytical approaches, and critical thinking skills to transform ideas or solutions into entirely new forms.	Portfolio	Student Self-Assessment of breath of knowledge 1. Completion survey (one month prior to completion), and 2. Post completion surveys (one year after)	All students in the certificate program	A		
2. Demonstrate ability to perform in one or more disciplines outside of their own discipline.	Portfolio	Student Self-Assessment of breath of knowledge 1. Completion survey (one month prior to completion), and 2. Post completion surveys (one year after)	All students in the certificate program		A	A
University SLOs (Graduate Programs)						
Knowledge				A	A	A
Skills				A		A
Attitudes and Professional Conduct				A		A

- Place an "X" for courses or experiences in which students have the opportunity to learn the outcome (coursework, other program requirements).
- Place an "A" for courses or experiences in which student performance is used for program level assessment of the outcome. (assignments in courses, evaluation of final thesis, report, dissertation)

*STEM and Professional elective course selections are listed on the next page

Graduate Certificate in Professional Interdisciplinary Sciences

Elective Stem and Professional Courses for Alignment Matrix

STEM	
Course Number	**Course Title (credits)**
ASI 671	Meat Selection and Utilization (2 credits)
ASI 675	Monograstric Nutrition (1 credit)
ASI 678	Equine Nutrition (1 credit)
ASI 776	Meat Industry Technology (3 credits)
DMP 710	Introduction to One Health (2 credits)
DMP 754	Introduction to Epidemiology (3 credits)
DMP 802	Introduction to Environmental Health (3 credits)
DMP 844	Global Health Issues (3 credits)
DMP 870	Pathobiology Seminar MS (1 credit)
DMP 880	Problems in Pathobiology MS (1-3 credits)
DMP 888	Globalization, Cooperation, & the Food Trade (1 credit)
DMP 895	Topics in Pathobiology MS (1-3 credits)
FDSCI 600	Food Microbiology (2 credits)
FDSCI 601	Food Microbiology Lab (2 credits)
FDSCI 630	Food Science Problems (0-6 credits)
FDSCI 690	Principles of HACCP (2 credits)
FDSCI 695	Quality Assurance of Food Products (3 credits)
FDSCI 961	Graduate Problem in Food Science (1-6 credits)
HORT 725	Postharvest Technology and Physiology of Horticultural Crops (3 credits)
HORT 780	Health-Promoting Phytochemicals and Physiology of Fruits and Vegetables (2 credits)
HORT 790	Sustainable Agriculture (2 credits)
HORT 791	Urban Agriculture (2 credits)
HORT 793	Farm to Fork Food Safety (2 credits)
HORT 794	Urban Food Systems (2 credits)
HORT 795	Urban Agriculture Study Tour (1 credit)
HN 841	Consumer Research - Fundamentals (1 credit)
HN 843	Consumer Research - Qualitative (1 credit)
HN 848	Consumer Research - Quantitative (1 credit)
STAT 701	Fundamental Methods of Biostatistics (3 credits)
STAT 703	Introduction to Statistical Methods for the Sciences (3 credits)
STAT 705	Regression and Analysis of Variance (3 credits)
Professional	
Course Number	**Course Title (credits)**
AAI 801	Interdisciplinary Process (3 credits)
AAI 840	Reg. Aspects of Drug and Vacc Dev. in Animal Health (2 credits)
AAI 858	Capstone Experience I (1 credits)
AAI 859	Capstone Experience II (2 credits)
COT 703	Project Management for Professionals (3 credits)
COT 704	Managerial Finances, Metrics, and Analytics (3 credits)
COT 706	Informatics and Technology Management (3 credits)
DMP 815	Multidisciplinary Thought and Presentation
DMP 816	Trade & Agricultural Health (2 credits)
DMP 888	Globalization, Cooperation, and Food Trade (1 credit)
EDACE 832	Interpersonal and Intrapersonal Communications (3 credits)
EDACE 834	Leading Adults in a Globalized and Diverse World (3 credits)
EDACE 835	Developing Teams & Leaders (3 credits)
EDACE 836	Group Dynamics (3 credits)
EDACE 886	Seminars in Adult Education (1-6 credits)
Students may also choose from the following K-State Olathe based courses	
AAI 795	Topics in Applied and Interdisciplinary Studies (1-3 credits)
AAI 870	Seminar in Applied and Interdisciplinary Studies (1-6 credits)
AAI 880	Problems in Applied and Interdisciplinary Studies (1-6 credits)
AAI 895	Advanced Topics in Applied and Interdisciplinary Studies (1-6 credits)
AAI 899	Research in Applied and Interdisciplinary Studies (1-6 credits)

Appendix B: Rubrics and Surveys

Graduate Certificate in Professional Interdisciplinary Sciences

Assessment of: (SLO1) Demonstrate ability to use information, concepts, analytical approaches, and critical thinking skills to transform ideas or solutions into entirely new forms.

Common Rubric used to assess model development in the AAI 801 Interdisciplinary Process Course

	Capstone 4	**Milestones** 3	 2	**Benchmark**** 1
Influence of context and assumptions (SLO1)	Thoroughly (systematically and methodically) analyzes the assumptions on at least two assumptions and carefully evaluates the relevance of contexts when presenting a position.	Identifies assumptions on at least two assumptions and several relevant contexts when presenting a position.	Questions some assumptions. Identifies several relevant contexts when presenting a position. May be more aware of assumptions from at least two disciplines.	Shows an emerging awareness of present assumptions (sometimes labels assertions as assumptions). Begins to identify some contexts when presenting a position.
Taking Risks (SLO 1)	Actively seeks out and follows through on untested and potentially risky directions or approaches to the assignment in the final product.	Incorporates new directions or approaches to the assignment in the final product.	Considers new directions or approaches without going beyond the guidelines of the assignment.	Stays strictly within the guidelines of the assignment.
Innovative Thinking (SLO 1)	Extends a novel or unique idea, question, format, or product to create new knowledge or knowledge that crosses boundaries.	Creates a novel or unique idea, question, format, or product.	Experiments with creating a novel or unique idea, question, format, or product.	Reformulates a collection of available ideas.
Connecting, Synthesizing, Transforming (SLO 1)	Transforms ideas or solutions into entirely new forms.	Synthesizes ideas or solutions into a coherent whole.	Connects ideas or solutions in novel ways.	Recognizes existing connections among ideas or solutions.

**No points for performance below benchmark level.

Graduate Certificate in Professional Interdisciplinary Sciences

Assessment of: (SLO2) Demonstrate ability to perform in one or more disciplines outside of their own.

Common Rubric used to assess competency in two or more separate disciplines, from the approved program of study, to the satisfaction of those particular departmental requirement.*

	Capstone 4	**Milestones** 3	 2	**Benchmark**** 1
Discipline 1	Very strong	Strong	Weak	Very Weak
Discipline 2	Very strong	Strong	Weak	Very Weak
Discipline 3 Optional	Very strong	Strong	Weak	Very Weak
Average				

**No points for performance below benchmark level.

Graduate Certificate in Professional Interdisciplinary Sciences

Student SLO Self-Assessment

Please rate your learning related to the four Student Learning Outcomes and provide comments below.

Student Learning Outcomes (SLO)	Ratings Low			High
1. Demonstrate ability to use information, concepts, analytical approaches, and critical thinking skills to transform ideas or solutions into entirely new forms.	1	2	3	4
Why do you rate yourself at this level?				
2. Demonstrate ability to perform in one or more disciplines outside of their own discipline.	1	2	3	4
Why do you rate yourself at this level?				
Describe how you may approach work demands differently, as a result of this program				

Graduate Certificate in Professional Interdisciplinary Sciences

Program Completion Questions

l. Please rate the following dimensions on a scale of Excellent to Poor

- The intellectual quality of the faculty
- The intellectual quality of my fellow graduate/professional students
- The relationship between faculty and graduate/professional students
- Program's ability to integrate recent developments in my field
- Program space and facilities
- Overall quality of graduate level teaching by faculty
- Amount of financial support
- Quality of academic advising and guidance
- Helpfulness of staff members in my department or program
- Assistance in finding employment
- The opportunity to interact across disciplines
- Academic standards in my program
- Overall program quality

2. To what extent do you agree or disagree with each of the following statements?

- Students in my program are treated with respect by faculty.
- Faculty members are willing to work with me.
- Rapport between faculty and students in my program is good.
- My own relationships and interaction with faculty are good.
- There are tensions among faculty that affect students.
- Financial support for students in my program is distributed fairly.
- Students in my program are collegial.
- My relationships and interaction with other students in my program are good.
- Overall, the climate of my program is positive.
- Program activities foster a sense of intellectual community.
- Program content supports my research/professional goals.
- Program structure encourages student collaboration or teamwork.
- Program structure provides opportunities to take coursework outside my own department.
- Program structure provides opportunities to engage in interdisciplinary work.
- Amount of coursework seems appropriate to the degree.

3. Please indicate the importance to you, and the extent to which you feel your abilities in the following areas were enhanced, during your program. *(This would be set up with a slide, so they could respond to which degree they were important (1-10) and then do what degree the abilities were enhanced in the program).*

Problem Solving	Written Communication Skills
Oral Communications Skills	Interdisciplinarity

4. If you could change one thing about your experience as a graduate/professional student at this university to make it more successful or fulfilling. What would it be?

5. Which aspect of your graduate/professional program pleased you the most?

6. Were there aspects of your graduate/professional program that you found problematic?

7. What changes would you recommend for the program in the future?

Graduate Certificate in Professional Interdisciplinary Sciences

Student Outcome/Post Completion Survey

The survey will collect the following core data:

Employment Status
Sector of Employment
Job Title
Primary work activity
Salary range

All things considered, my graduate certificate program met my expectations

1 = Definitely Not 2 = No 3 = Somewhat 4 = Yes 5 = Definitely Yes

DN	**N**	**S**	**Y**	**DY**
1	2	3	4	5

Regarding the Student Learning Outcomes:

1. How have you used information, concepts, analytical approaches, and critical thinking skills to transform ideas or solutions into entirely new forms?

2. Have you used information, concepts, analytical approaches, and/or critical thinking skills from a discipline outside of your own discipline?

Signature Sheet to add New Program
Graduate Certificate in Professional Interdisciplinary Sciences

Department: School of Applied and Interdisciplinary Studies

This signature sheet below is to be completed and submitted to Faculty Senate Academic Affairs Committee when proposing to add or discontinue an academic sub plan, plan, or program. Approval should be obtained in the sequence listed below:

Name(s) of Academic Sub plan(s), Plan(s,) or Program(s):

Graduate Certificate in Professional Interdisciplinary Sciences

Signatures	**Approval Date**
Designated Representative, Department Faculty	
Department Head	
Chair, College Course & Curriculum Committee	
College Dean	4/30/2015

Only if graduate curriculum

Chair, Graduate Council Subcommittee	
Dean, Graduate School	

Chair, Faculty Senate Academic Affairs	
President, Faculty Senate	
Provost/Vice President Academic Affairs	

KANSAS STATE UNIVERSITY | Olathe

Proposal for a
Graduate Certificate in Professional Skills for STEM Practitioners

Basic Program Information

Title of Program:	Graduate Certificate in Professional Skills for STEM Practitioners
Anticipated Start Date:	Spring 2016
Responsible Academic Unit:	School of Applied and Interdisciplinary Studies
Program Identification:	CIP Code: 30.00 Multi-/Interdisciplinary Studies

Program Description

This 15-credit hour Graduate Certificate in Professional Skills for STEM Practitioners is designed to help K-State Olathe achieve the Johnson County Education Research Triangle (JCERT) mandate for the campus to provide graduate programming consistent with regional demand, K-State 2025 Visionary Plan, and the Kansas Board of Regents guidelines. The program will offer students the opportunity to enhance their current skills and abilities so they are prepared to take on management and leadership roles, thereby making them more valuable to employers. The courses in this Graduate Certificate are also a part of the planned Professional Science Master's (PSM) in Applied Science and Technology, and the students can enroll in both the degree and the certificate. The Graduate Certificate can also be taken as a free standing option where the students are admitted to the Graduate School as non-degree students. The program will be supported by K-State Olathe funds.

The Graduate Certificate in Professional Skills for STEM Practitioners, as envisaged, is consistent with K-State's 2025 goals 1, 3, 4, 5 and 6, subject to the same policies, procedures and standards of excellence applied across the University. The unique advantage of this and other programs offered at K-State Olathe is that, given their interdisciplinary focus, JCERT financial support, and close proximity to the Greater Kansas City area, they are well poised to foster exceptional, collaborative, and transformative opportunities for students and faculty at all K-State campuses, alumni and other stakeholders.

I. Statement of the Educational Objectives of the Graduate Certificate Program

Consistent with the K-State Graduate Handbook, Chapter 4: Graduate Certificate Programs, in "*the preferred model, students are enrolled in both a graduate degree program (master's or doctoral) and a graduate certificate program … Some certificate programs are linked to specific graduate degree programs, such that they provide an interdisciplinary experience …*" Graduate Certificate in Professional Skills for STEM Practitioners is part of a master's degree program, the Professional Science Master in Applied Science and Technology (PSM) and provides an interdisciplinary experience.

To receive the certificate, students must complete the required 15 credit hours of graduate coursework which consists of 12 credits of interdisciplinary professional skills courses and 3 credits of capstone experience courses. Upon successful completion of the Graduate Certificate in Professional Skills for STEM Practitioners, the students will be able to:

1. Understand the basics of the management of a project or program.
2. Demonstrate appropriate oral and written communication skills in a professional environment.
3. Synthesize professional skills in order to accurately implement innovative solutions.

As documented by both the University of Kansas and the Open University*, other benefits of offering multi-/interdisciplinary choices include:

1. Students are more highly motivated when they get to choose topics that are interesting to them. As a result, the learning becomes meaningful, purposeful and deeper, resulting in learning experiences that stay with the student for a lifetime.
2. Exploring topics across a range of subject boundaries motivates students to pursue new knowledge in different subject areas.
3. Critical thinking skills are used and developed as students look across disciplinary boundaries to consider other viewpoints.
4. Transferable skills of critical thinking, synthesis and research are developed and are applicable to future learning experiences.
5. Interdisciplinary knowledge and application of different disciplines can lead to greater creativity.

*Sources:

1) Buss, J, "Why Interdisciplinary Graduate Programs Attract Great Students", Research Mission of Public Universities, University of Kansas, http://dept.ku.edu/~merrill/PDFfiles/buss.pdf, (Retrieved August 2015)
2) The Open University, http://www.open.edu/openlearn/education/what-are-the-benefits-interdisciplinary-study , (Retrieved August 2015)

Admissions

Students pursuing the Graduate Certificate in Professional Skills for STEM Practitioners must be admitted to K-State's Graduate School. A student with a bachelor's degree and a cumulative grade point average of at least 3.0 from a regionally accredited institution can expect to be fully admitted to the certificate program. In addition to the Graduate School Application Form, applicants must submit: (1) official copies of transcripts for all undergraduate and graduate work; and (2) a statement of goals that addresses the applicant's current professional experience and how the certificate will assist them in reaching personal and/or professional goals.

Course Delivery

Courses are delivered in a variety of formats including face to face, hybrid and online. This design allows for flexibility in meeting student needs and delivery preferences.

Length of Program

If students take two graduate courses in a semester (two at a time in a 16-week format or one at a time in an 8-week format), they can reasonably finish the graduate certificate in 12-18 months. Continuous progress is expected, so that if a student does not take classes for two years, they will be put on inactive status and must reapply to the program. Courses applied to the program of study may not be more than six years old when the certificate program is completed. To be awarded a graduate certificate, the student (a) must not be on probation, (b) must have a cumulative GPA of 3.0 or higher on graduate coursework and on coursework applied to the certificate, (c) must meet all the requirements of the Graduate School and the student's certificate program, (d) must be enrolled during the semester in which the certificate requirements are completed, and (e) must provide official transcripts for any approved transfer credits.

II. Certificate Program Courses

Courses are largely drawn from existing professional skills courses offered throughout K-State. Program graduation requirements are 15 credit hours as follows:

12 credits selected from the following courses (or equivalent courses, as approved by the student's supervisory committee):

AAI 795	Topics in Applied and Interdisciplinary Studies (1-3 credits)
AAI 801	Interdisciplinary Process (3 credits)
AAI 840	Regulatory Aspects of Drug and Vaccine Development in Animal Health (2 credits)

AAI 870 Seminar in Applied and Interdisciplinary Studies (1-6 credits)
AAI 880 Problems in Applied and Interdisciplinary Studies (1-6 credits)
AAI 895 Advanced Topics in Applied and Interdisciplinary Studies (1-6 credits)
COT 703 Project Management for Professionals (3 credits)
COT 704 Managerial Finances, Metrics, and Analytics (3 credits)
COT 706 Informatics and Technology Management (3 credits)
DMP 815 Multidisciplinary Thought and Presentation (3 credits)
DMP 816 Trade & Agricultural Health (2 credits)
DMP 888 Globalization, Cooperation, and Food Trade (1 credit)
EDACE 832 Interpersonal and Intrapersonal Dynamics (3 credits)
EDACE 834 Leading Adults in a Globalized and Diverse World (3 credits)
EDACE 835 Developing Teams & Leaders (3 credits)
EDACE 836 Group Dynamics (3 credits)
EDACE 886 Seminars in Adult Education (1-18)

3 credits selected from the following courses (or equivalent courses, as approved by the student's supervisory committee):

AAI 858 Capstone Experience I (1 credit)
AAI 859 Capstone Experience II (2 credits)

The first 12 credits may be completed in any order. AAI 858 Capstone Experience I, which involves establishing the parameters for AAI 859 Capstone Experience II, should be taken prior to AAI 859 Capstone Experience II and requires the approval of the Program Coordinator. Capstone Experience II must be the last course in the sequence, and requires the approval of the Program Coordinator.

The courses with AAI prefixes are new courses developed by the School of Applied and Interdisciplinary Studies, K-State Olathe.

Course Descriptions:

AAI 795. Topics in Applied and Interdisciplinary Studies (1-3 credits)
Selected topics in applied and interdisciplinary studies.

AAI 801. Interdisciplinary Process (3 credits)
The overall goal of this course is for students to develop an understanding of and practice in design thinking as both a framework that allows interdisciplinary and cross-function teams to work together and as a process to generate imaginative and creative solutions to complex challenges and problems.

AAI 840. Regulatory Aspects of Drug and Vaccine Development in the Animal Health Industry (2 credits)
This course explores the topic of regulations associated with animal health product development and manufacturing. Topics for discussion will include an overview of the regulatory affairs process in the U.S. and other countries, drug and vaccine classifications and the approval process, GCP/GLP guidelines, drug and vaccine efficacy and safety testing, human and environmental safety issues, and future challenges and current industry needs.

AAI 858. Capstone Experience I (1 credit)
This course provides students the opportunity to synthesize and integrate knowledge in its application to professional practice. It is designed for students who intend to work in an applied professional setting where they are expected to critically apply existing knowledge and methods to solve problems. Students will complete a project on a topic of interest, in consultation with the instructor.

AAI 859. Capstone Experience II (2 credits)

This course provides students the opportunity to synthesize and integrate knowledge in its application to professional practice. It is designed for students who intend to work in an applied professional setting where they are expected to critically apply existing knowledge and methods to solve problems. Students will produce written reports and oral presentations on their project of focus.

AAI 870. Seminar in Applied and Interdisciplinary Studies (1-6 credits)
Student presentations and discussion of current topics and recent findings in applied and interdisciplinary studies.

AAI 880. Problems in Applied and Interdisciplinary Studies (1-6 credits)
Opportunity for advanced independent study of a specific problem or technique in applied and interdisciplinary studies. Topics selected jointly by student and instructor.

AAI 895. Advanced Topics in Applied and Interdisciplinary Studies (1-6 credits)
Focus on advanced topics in applied and interdisciplinary studies.

COT 703. Project Management for Professionals (3 credits)
This course focuses on applied project management methodology, tools, and techniques. Topics include career aspects of project management; business factors affecting the project; project organization, planning, execution, and communications; the project life cycle; risk analysis; and best practices in project management.

COT 704. Managerial Finances, Metrics, and Analytics (3 credits)
Provides an overview of an organization's financial statements, with an emphasis on the interaction between people in management positions and those statements, as well as an examination of the business investment decision-making process; Explores the use of metrics and analytics to measure and improve managerial performance.

COT 706. Informatics and Technology Management (3 credits)
Provides theoretical and practical experience in using information technology to support organizational decision-making processes; Provides tools in areas such as statistics, research methods, data mining, and information technology to develop solutions tailored to business problems

DMP 815. Multidisciplinary Thought and Presentation (3 credits)
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 816. Trade and Agricultural Health (2 credits)
This course considers the multilateral trading system as it relates to food safety, food security, animal health, plant health, and international cooperation. The course content will be of value to students interested in food safety and security, epidemiology, public health, agriculture, food science, security studies, political science, agricultural economics, veterinary medicine, and international relations.

DMP 888. Globalization, Cooperation, & the Food Trade (1 credit)
This course will include 15 45-minute lectures and/or reading assignments. They will be assessed through online quizzes and one essay project.

EDACE 832. Interpersonal and Intrapersonal Dynamics (3 credits)
This course explores various psychological and sociological factors that impact leadership. Through examining topics like verbal and nonverbal communication, active listening, learning and presentation styles, emotional intelligence, conflict, and motivation, students gain a deeper understanding of how these factors affect their personal leadership styles and impact adults they are leading.

EDACE 834. Leading Adults in a Globalized and Diverse World (3 credits)
This course provides an introduction to the foundations of adult leadership in the context of managing a culturally diverse workforce. Concepts of globalization as well as cross-cultural and international environments as they relate to adult leadership are emphasized through theory to practice projects and research.

EDACE 835. Developing Teams and Leaders (3 credits)
This course will examine how teams and leaders can be developed using theories from psychology, sociology, and learning principles. Through this course, students will be able to analyze when it is appropriate to use these tools, their strengths, weaknesses and limitations. To complement the course readings, students will be asked to share their professional experiences with team and leader development.

EDACE 836. Group Dynamics (3 credits)
This course focuses on group and team behavior and processes. Various factors that impact group behavior, processes, and effectiveness will be examined and participants will learn skills needed to more effectively manage and facilitate groups and teams of adults to achieve organizational objectives, accomplish tasks, and fulfill individual members' needs.

EDACE 886. Seminars in Adult Education (1-18 credits)
These seminars will consider research and professional development on the special interests of the students in the several fields of education represented.

III. Statement of How the Courses Are Associated with the Certificate

The courses chosen are consistent with the professional skills component of the requirements of the Professional Science Master's. These skills are commonly cited by employers as being crucial to employee success. Local needs assessments were done, consistent with the Johnson County Education Research Triangle (JCERT) mandate for the K-State Olathe campus to provide graduate programming that addresses regional demand. The educational programming market demand report for K-State Olathe, which surveyed Johnson County firms representing 59,567 employees, showed a high demand for specific professional skills that will form part of the PSM degree and this certificate program. The results were then used as a basis in selecting which courses to include.

The knowledge and skills summarized in the graph below were those identified by more than 100 respondents as their first choice for professional development needs. The need for professional skills has since been reaffirmed by the Urban Water Institute focus group meeting at the K-State Olathe Campus (March 3, 2015) and at the joint JCERT and K-State Olathe Joint Board meeting at the K-State Olathe Campus (March 26, 2015).

Source: Vincent Amanor-Boadu and K. Renee Stoneman, Educational and Professional Development Needs in the Animal Health Corridor K-State Manhattan, 2010

Courses were chosen to meet the market demand for professional skills, as follows:

Leadership & Management	AAI 858	Capstone Experience I
	AAI 859	Capstone Experience II
	COT 703	Project Management for Professionals
	COT 704	Managerial Finances, Metrics, and Analytics
	EDACE 832	Interpersonal and Intrapersonal Communications
	EDACE 835	Developing Teams & Leaders
	EDACE 836	Group Dynamics
	EDACE 886	Leading Adults in a Globalized and Diverse World
Communication	DMP 815	Multidisciplinary Thought and Presentation
	EDACE 832	Interpersonal and Intrapersonal Communications
IT	COT 706	Informatics and Technology Management
Public Policy	AAI 840	Regulatory Aspects of Drug/Vaccine Development in Animal Health
	DMP 816	Trade & Agricultural Health
	DMP 888	Globalization, Cooperation, and Food Trade
Finance & Economics	COT 704	Managerial Finances, Metrics, and Analytics
Creativity	AAI 801	Interdisciplinary Process

IV. Statement of Need

The need for this program has been documented through multiple market demand studies over the past 5 years, conducted by both K-State experts and independent consultants. Market demand information was quantified through surveys of more than 100 employers across 6 economic sectors in the Kansas City area. Additionally, K-State Olathe faculty and staff have collected qualitative input through focused discussions with regional employers and employees over the last 3 years and strategic planning sessions with the K-State Olathe advisory board over the last 2 years. The market survey by Vincent Amanor-Boadu and K. Renee Stoneman of Kansas State University obtained information on 449 respondents' preferences for academic credentials, with preferences ranging from continuing education credit through graduate certificates to degrees. They found that 62 percent of respondents would be interested in some form of a continuing education credit, 57 percent in a certificate, and 54 percent in a degree.

According to the data compiled by the Austin Peters Group, Inc., based on estimates provided by firms primarily located in Johnson County, KS and representing 59,567 employees (20% of the workforce in Johnson County, KS), there may be more than 200 working professionals, annually, who would be interested in pursuing *Professional Science* credentials. The Graduate Certificate will allow those and others to obtain a Graduate Certificate as part of the Professional Science Master (PSM) or as a stand-alone option. The Austin Peters Group, Inc. in coordination with the Kansas Department of Labor and the Missouri Department of Labor found that occupational areas where a PSM and related skills would be highly valued are projected to grow for at least 10 years.

The Brooking's Institute 2014 report states that *"Greater Kansas City has a skilled workforce, but is not educating and retaining enough workers to meet future demand."*. It also states *"The region has not produced enough highly educated or STEM-qualified workers to keep pace with employers' demand, and its ability to attract talent from elsewhere has diminished."* No program exists in the region similar to K-State Olathe's proposed Graduate Certificate in Professional Skills for Stem Practitioners.

V. Description of the Certificate Program Administration

The proposed Graduate Certificate in Professional Skills for STEM Practitioners will be administered under the auspices of the K-State Olathe campus, School of Applied and Interdisciplinary Studies. Dr. Janice Barrow, the Associate Dean for Academic Affairs and Executive Education, will serve as Program Director, assist students in successful completion of the program, and also serve as the primary program administrator and contact for the certificate program. Additional administrative support will be provided by the Olathe-based Academic Affairs unit to include a Director of Student Services who is also responsible for recruitment and career placement; a Program Manager responsible for the day-to-day efficiency of academic operations; a Program Assistant responsible for student life activities; and Student Help Desk IT support. Additional academic support services for the program will be provided by staff located at K-State Olathe. These services include for prospective student inquiries, admissions advising and other support already available for the 8 graduate degree programs currently offered for students at the K-State Olathe campus. The K-State Graduate School and Libraries, as well as faculty and staff from 6 colleges and 9 departments, already provide support to the K-State Olathe campus through various modalities.

VI. Estimated Budget

Instruction will be provided by existing full-time K-State faculty who are already fully supported by the University, with the potential to add qualified faculty and instructors if the demand warrants. All expenses are expected to be covered by: 1) utilizing unused capacity in existing courses, 2) revenue from tuition, and 3) JCERT funds. No additional resources will be required.

VII. Names of Faculty Leading and Contributing to the Certificate Program

Initial program faculty support is to be provided by K-State faculty from the Olathe, Manhattan and Salina campuses. The program also has the benefit of industry/expert practitioners in the form of a 12-member External Advisory Board. There will be new faculty hires to accommodate program growth, as appropriate, through the School for Applied and Interdisciplinary Studies.

Attached is the support agreement signed by the President, Provost, all the Deans and Department Heads of the academic units offering courses as part of the curriculum, and by the Program Director. Also attached is the letter of support from the 12 member External Advisory Board that will assist with clarifying program objectives, identifying expected learning and professional development outcomes, and ensuring that regional workforce needs will be met.

Core Instructional Faculty

Elizabeth Boyle, PhD, Professor and Extension Specialist, Animal Sciences and Industry (Tenured)
Teresa Douthit, PhD, Associate Professor, Animal Sciences and Industry (Tenured)
Kelly Getty, PhD, Associate Professor, Animal Sciences and Industry (Tenured)
Sara Gragg, PhD, Assistant Professor, Animal Sciences and Industry (Tenure Track) (Olathe Based)
Curtis Kastner, PhD, Professor and Director Food Science Institute (Tenured)
Justin Kastner, PhD, Associate Professor, Diagnostic Medicine/Pathobiology (Tenured)
Robert Larson, PhD, Professor, Diagnostic Medicine/Pathobiology (Tenured)
Edgar E. and M. Elizabeth Coleman Chair for Food Animal Production Medicine
Executive Director, Veterinary Medical Continuing Education
Annelise Nguyen, PhD, Associate Professor, Diagnostic Medicine/Pathobiology (Tenured)
Eleni Pliakoni, PhD, Assistant Professor, Horticulture, Forestry and Recreation Resources (Tenure Track) (Olathe Based)
C.B. Rajashekar, PhD, Professor, Horticulture, Forestry and Recreation Resources (Tenured)
Karen Schmidt, PhD, Professor, Animal Sciences and Industry (Tenured)
Candice Shoemaker, PhD, Department Head and Professor, Horticulture, Forestry and Recreation

Resources (Tenured)

Supplemental Faculty
Paige Adams, PhD, DVM, Research Assistant Professor, K-State Olathe (Non-Tenure Track) (Olathe Based)
Deborah Briggs, PhD, Adjunct Faculty, Diagnostic Medicine Pathobiology (Non-Tenure Track)
Executive Director, Global Alliance for Rabies Control
Kathy Brockway, MS, Professor, College of Technology and Aviation (Tenured)
Raju Dandu, PhD, Professor, College of Technology and Aviation (Tenured)
Judy Favor, PhD, Assistant Professor, Educational Leadership (Non-Tenure Track) (Olathe Based)
Trisha Moore, PhD, Assistant Professor, Biological and Agricultural Engineering (Tenure Track)
Abbey Nutsch, PhD, Assistant Professor, Animal Sciences and Industry (Non-Tenure Track)
Mark Sorell, MS, Part-time Instructor, Graduate Faculty Associate, K-State Olathe (Non-Tenure Track) (Olathe Based)
Marianne Swaney-Stueve, PhD, Research Assistant Professor, Human Nutrition (Non-Tenure Track) (Olathe Based)
Andi Witczak, MFA, Research Assistant Professor, K-State Olathe (Non-Tenure Track) (Olathe Based)
Susan Yelich Binieki, PhD, Assistant Professor, Educational Leadership (Tenure Track)
Jeff Zacharakis, EdD, Associate Professor, Educational Leadership (Tenured)

Among the 12 core faculty members, six are professors, four are associate professors, and two are assistant professors. Ten are tenured, and two are tenure-track but not yet tenured. All 12 have terminal degrees.

Among the 12 supplemental faculty members, two are professors, one is an associate professor, four are assistant professors, three are research assistant professors, and two are part time/adjunct faculty. Three are tenured, two are tenure-track, and seven are non-tenure track. Ten have terminal degrees.

All courses that form part of the Graduate Certificate are also part of the faculty members' in load teaching requirements.

No graduate assistants will be required.

VIII. Program Coordinators

Dr. Janice Barrow
Associate Dean for Academic Affairs and
Executive Education/ Associate Professor
Phone: 913-307-7342
Email: jbarrow@k-state.edu

Dana Reinert
Program Manager, Academic Affairs
Phone: 913-307-7340
Email: danamary@k-state.edu

CURRICULUM OUTLINE
NEW DEGREE PROPOSALS
Kansas Board of Regents

I. Identify the new degree:

Graduate Certificate in Professional Skills for STEM Practitioners

II. Provide courses required for each student in the major:

	Course Name & Number	Credits
Core	AAI 858. Capstone Experience I	1
	AAI 859. Capstone Experience II	2
Electives	*12 credits of electives selected from the following courses (or equivalent courses as approved by the student's supervisory committee):*	
	AAI 795. Topics in Applied and Interdisciplinary Studies	1-3
	AAI 801. Interdisciplinary Process	3
	AAI 840. Regulatory Aspects of Drug/Vaccine Development in Animal Health	2
	AAI 870. Seminar in Applied and Interdisciplinary Studies	1-6
	AAI 880. Problems in Applied and Interdisciplinary Studies	1-6
	AAI 895. Advanced Topics in Applied and Interdisciplinary Studies	1-6
	COT 703. Project Management for Professionals	3
	COT 704. Managerial Finances, Metrics, and Analytics	3
	COT 706. Informatics and Technology Management	3
	DMP 815. Multidisciplinary Thought and Presentation	3
	DMP 816. Trade and Agricultural Health	2
	DMP 888. Globalization, Cooperation, & the Food Trade	1
	EDACE 832. Interpersonal and Intrapersonal Dynamics	3
	EDACE 834. Leading Adults in a Globalized and Diverse World	3
	EDACE 835. Developing Teams and Leaders	3
	EDACE 836. Group Dynamics	3
	EDACE 886. Seminars in Adult Education	1-18
Research	N/A	
Practica	N/A	
	Total credits required	15

IMPLEMENTATION YEAR FY 2017

Fiscal Summary for Proposed Academic Programs

Institution: Kansas State University Proposed Program: Graduate Certificate in Professional Skills for STEM Practitioners

Part I. Anticipated Enrollment	Implementation Year		Year 2		Year 3	
	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time
A. Full-time, Part-time Headcount:	2	8	2	8	2	8
B. Total SCH taken by all students in program	150		150		150	

Part II. Program Cost Projection			
A. In implementation year one, list all identifiable General Use costs to the academic unit(s) and how they will be funded. In subsequent years, please include only the additional amount budgeted.			
	Implementation Year	Year 2	Year 3
Base Budget Salaries	$0	$0	$0
OOE	$1,000	$1,000	$1,000
Total	$1,000	$1,000	$1,000

Indicate source and amount of funds if other than internal reallocation:
1) Internal reallocation made possible by excess capacity in existing courses, 2) revenue from tuition, and 3) JCERT funds

This budget assumes the following for Part I:
Full-time students and part-time students will be able to complete the program (15 credits) during one academic year.

This budget assumes the following for Part II:
The instruction will be provided by existing K-State faculty who are already fully supported by the University.
The "Other Expenses" include materials and supplies for courses, marketing materials, and travel.
Marketing will be managed by the K-State Olathe marketing team and K-State Division of Communications & Marketing.

KANSAS STATE UNIVERSITY | Olathe

School of Applied and Interdisciplinary Studies

Professional Science Master in Applied Science and Technology
Graduate Certificate in Professional Interdisciplinary Sciences, and
Graduate Certificate in Professional Skills for STEM Practitioners

Agreement of Support

The Professional Science Master in Applied Science and Technology, the Graduate Certificate in Professional Interdisciplinary Sciences, and the Graduate Certificate in Professional Skills for STEM Practitioners (referred to as "Programs"), are proposed interdisciplinary programs to be offered through the School of Applied and Interdisciplinary Studies at the K-State Olathe Campus.

This agreement of support is entered into between K-State Olathe Innovation Campus, Inc., through its School of Applied and Interdisciplinary Studies, and Kansas State University, through its colleges and departments indicated with the signatures below. This agreement of supports is required as part of the interdisciplinary graduate program approval process.

The courses for the Programs will be accessible from the Olathe campus and utilize courses offered at the Olathe campus or online from multiple departments and other academic units across Kansas State University.

Goals and expected benefits include:

1. K-State compliance with the JCERT mandate for K-State Olathe to provide education programs and meet enrollment goals for the campus.
2. Utilize unused capacity in existing courses, facilities and infrastructure.
3. Leverage the Olathe location and funding opportunity for consulting, collaboration and growth, consistent with the K-State 2025 Visionary Plan

The School of Applied Science and Interdisciplinary Studies, will:

1. Manage the Programs and ensure the Programs meet all K-State Graduate School and Kansas Board of Regents requirements for graduate programs.
2. Ensure that policies and procedures are implemented for the Programs' development, assessment, and quality assurance.
3. Provide input, via the Olathe CEO, or designee, to the Manhattan-based or Salina-based colleges/departments relevant to the teaching effectiveness and performance of the Manhattan-based or Salina-based faculty providing courses as part of the Olathe Programs. This input may be used to determine assignment of faculty to teach courses as part of the Olathe Programs and considered in applicable evaluation processes.
4. Provide remuneration and support to participating Manhattan-based or Salina-based colleges/departments in the form of tuition distribution as follows:

   Tuition: Olathe tuition consists of resident graduate tuition and a campus fee. The tuition is set at the same level as resident graduate tuition on the Manhattan campus.

   Online courses: Any courses taught on-line as part of the Olathe Programs will be billed at tuition rates as determined through Global Campus practices.

   Face-to-face: Two basic scenarios will exist for face-to-face courses in Olathe. Courses will either be taught by Olathe-based faculty, who shall be funded by Olathe, or will be taught by Manhattan-based or Salina-based faculty, who shall be funded by the Manhattan or Salina colleges/departments. If taught by Olathe-based faculty, the Olathe campus will retain all of the tuition that students pay for the course (except for the college fee returned to the colleges). If the course is taught by Manhattan-based or Salina-based faculty, Olathe will reimburse the colleges $200 per student credit hour for face-to-face courses. The $200 per student credit hour reimbursement will be increased commensurate with tuition increases in the future.

Colleges/departments expenses and faculty support: The Manhattan-based or Salina-based colleges/departments shall be responsible for Manhattan-based or Salina-based faculty travel and other support costs based upon their own policies and practices. Olathe will provide office and support space, classrooms and laboratories, IT infrastructure and support, custodial, security, and other campus support at Olathe for the faculty teaching at Olathe.

The Manhattan-based or Salina-based participating colleges/departments, whose signatures appears below, in collaboration with the School of Applied Science and Interdisciplinary Studies, are in support of the proposed Programs and are committed to their success, and will:

1. Ensure the consistent, predictable availability of graduate courses from their departments, which are part of the Olathe Programs, as listed in the curriculum attached as Appendix "A".
2. Consistent with faculty availability, expertise and interest: (i) encourage faculty to serve as Graduate Supervisory Committee members for the Programs; and (ii) encourage faculty to participate in the academic components of the Capstone Experience Courses.
3. Assure expeditious resolution of any curricular issues related to the Programs brought forward by the Programs' Director.

To the extent there are any irreconcilable differences in carrying out the terms of this Agreement or in the delivery of the Programs, the Provost and Senior Vice President of Kansas State University shall have authority to provide and direct implementation of the final decision on behalf of all parties.

Signatures:

Kirk Schultz, President, Kansas State University/Chair, KOIC Board	9-10-15 Date
April Mason, Provost and Senior Vice President, Kansas State University	10 Sept 15 Date
Ralph Richardson, Interim Dean/CEO, Kansas State University-Olathe	14 Sept 2015 Date
Carol Shanklin, Dean, Graduate School	9-14-15 Date
Janice Barrow, Associate Dean/Programs Director, Kansas State University-Olathe	9-10-2015 Date
Sue Maes, Dean, Global Campus	9-14-15 Date
Verna Fitzsimmons, CEO/Dean, Kansas State University-Salina	9-14-15 Date
John Floros, Dean, College of Agriculture	9-14-15 Date
Peter Dorhout, Dean, College of Arts and Science	14 Sept 2015 Date
Debbie Mercer, Dean, College of Education	9.14.15 Date
Darren Dawson, Dean, College of Engineering	9/14/15 Date
John Buckwalter, Dean, College of Human Ecology	9-14-15 Date
Tammy Beckham, Dean, College of Veterinary Medicine,	9-14-15 Date
Ken Odde, Dept. Head, Animal Science and Industry	9-11-15 Date
Joe Harner, Dept. Head, Biological & Agricultural Engineering	09/15/15 Date

School of Applied and Interdisciplinary Studies

Professional Science Master in Applied Science and Technology
Graduate Certificate in Professional Interdisciplinary Sciences, and
Graduate Certificate in Professional Skills for STEM Practitioners

Agreement of Support

Signatures continued:

M.M. Chengappa, Dept. Head, Diagnostic Medicine/Pathobiology — Date 9/14/15

David Thompson, Dept. Head, Educational Leadership — Date 9/12/15

Candice Shoemaker, Dept. Head, Horticulture, Forestry, and Recreation Resources — Date 9-11-15

Mark Haub, Dept. Head, Human Nutrition — Date 9/15/15

Weixing Song, Interim Dept. Head, Statistics — Date 9/11/2015

Appendix A

Agreement of Support

Professional Science Master in Applied Science and Technology
Graduate Certificate in Professional Interdisciplinary Sciences, and
Graduate Certificate in Professional Skills for STEM Practitioners

Curriculum Courses

STEM					
Course Number	**Course Title (credits)**	**Format**	**Frequency**	**Instructor**	**Base for Instructor**
ASI 671	Meat Selection and Utilization (2 credits)	Online	Fall	Curtis Kastner	Manhattan
ASI 675	Monograstric Nutrition (1 credit)	Online	Fall	Teresa Douthit	Manhattan
ASI 678	Equine Nutrition (1 credit)	Online	Fall, odd years	Teresa Douthit	Manhattan
ASI 776	Meat Industry Technology (3 credits)	Online	Fall, Spring, Summer	Kelly Getty	Manhattan
BAE 815	Graduate Seminar in Agricultural Engineering (1 credit)	F2F Olathe	Fall, Spring	Trisha Moore / Rotates	Olathe/Manhattan
BAE 820	Topics in Agricultural Engineering (1-6 credits)	F2F Olathe	Fall, Spring	Mei He / Rotates	Olathe
DMP 710	Introduction to One Health (2 credits)	F2F Olathe, Online	Fall	Paige Adams	Olathe
DMP 754	Introduction to Epidemiology (3 credits)	Online	Fall	Bob Larson	Manhattan
DMP 802	Introduction to Environmental Health (3 credits)	Online	Spring	Annelise Nguyuen	Manhattan
DMP 815	Multidisciplinary Thought and Presentation (3 credits)	F2F Olathe	Fall, Spring	Kastner / Nutsch	Manhattan
DMP 844	Global Health Issues (3 credits)	Online	Spring	Debbie Briggs	Manhattan
DMP 870	Pathobiology Seminar MS (1 credit)	F2F Olathe	Fall, Spring, Summer	Paige Adams	Manhattan
DMP 880	Problems in Pathobiology MS (1-3 credits)	F2F Olathe	Fall, Spring, Summer	Variable	Manhattan
DMP 888	Globalization, Cooperation, & the Food Trade (1 credit)	Online	Fall, Spring	Justin Kastner	Manhattan
DMP 895	Topics in Pathobiology MS (1-3 credits)	F2F Olathe, Online	Fall, Spring, Summer	Variable	Manhattan
FDSCI 600	Food Microbiology (2 credits)	F2F Olathe, Online	Fall	Sara Gragg / Rotates	Olathe
FDSCI 601	Food Microbiology Lab (2 credits)	F2F Olathe, Online	Fall	Sara Gragg / Rotates	Olathe
FDSCI 630	Food Science Problems (0-6 credits)	F2F Olathe, Online	Fall, Spring, Summer	Sara Gragg	Olathe
FDSCI 690	Principles of HACCP (2 credits)	Online	Fall	Elizabeth Boyle	Manhattan
FDSCI 695	Quality Assurance of Food Products (3 credits)	Online	Fall	Karen Schmidt	Manhattan
FDSCI 961	Graduate Problem in Food Science (1-6 credits)	F2F Olathe, Online	Fall, Spring, Summer	Sara Gragg	Olathe
HN 841	Consumer Research - Fundamentals (1 credit)	F2F Olathe	Fall	Marianne Swaney-Stueve	Olathe
HN 843	Consumer Research - Qualitative (1 credit)	F2F Olathe	Fall	Marianne Swaney-Stueve	Olathe
HN 848	Consumer Research - Quantitative (1 credit)	F2F Olathe	Fall	Marianne Swaney-Stueve	Olathe
HORT 725	Postharvest Technology and Physiology of Horticultural Crops (3 credits)	F2F Olathe	Fall, even years	Pliakoni	Olathe
HORT 780	Health-Promoting Phytochemicals and Physiology of Fruits and Vegetables (2 credits)	F2F Olathe	Spring	Rajashekar	Manhattan
HORT 790	Sustainable Agriculture (2 credits)	F2F Olathe	Fall, odd years	Janke and Pliakoni	Manhattan
HORT 791	Urban Agriculture (2 credits)	F2F Olathe	Fall	Janke and Pliakoni	Manhattan
HORT 793	Farm to Fork Food Safety (2 credits)	F2F Olathe	Fall, even years	Gragg and Pliakoni	Olathe
HORT 794	Urban Food Systems (2 credits)	F2F Olathe	Spring, even years	Pliakoni and Shoemaker	Olathe
HORT 795	Urban Agriculture Study Tour (1 credit)	F2F Olathe	Fall, Spring, Summer	Pliakoni	Olathe
STAT 701	Fundamental Methods of Biostatistics (3 credits)	F2F Olathe	Fall, Spring, Summer	Mark Sorell	Olathe
STAT 703	Introduction to Statistical Methods for the Sciences (3 credits)	F2F Olathe	Fall, Spring, Summer	Mark Sorell	Olathe
STAT 705	Regression and Analysis of Variance (3 credits)	F2F Olathe	Fall, Spring, Summer	Mark Sorell	Olathe
Professional					
Course Number	**Course Title (credits)**	**Format**	**Frequency**	**Instructor**	**Base for Instructor**
AAI 801	Interdisciplinary Process (3 credits)	F2F Olathe	Fall, Spring	Andi Witczak	Olathe
AAI 840	Reg. Aspects of Drug and Vacc Dev. in Animal Health (2 credits)	Hybrid	Fall	Paige Adams/Mike Apley	Olathe
COT 703	Project Management for Professionals (3 credits)	Online	Fall	Raju Dandu	Salina
COT 704	Managerial Finances, Metrics, and Analytics (3 credits)	Online	Spring	Kathy Brockway	Salina
COT 706	Informatics and Technology Management (3 credits)	Online	Spring	Raju Dandu	Salina
DMP 815	Multidisciplinary Thought and Presentation (3 credits)	F2F Olathe	Fall, Spring	Kastner / Nutsch	Manhattan
DMP 816	Trade & Agricultural Health (2 credits)	Online	Spring	Justin Kastner	Manhattan
DMP 888	Globalization, Cooperation, and Food Trade (1 credit)	Online	Fall, Spring	Justin Kastner	Manhattan
EDACE 832	Interpersonal and Intrapersonal Communications (3 credits)	F2F Olathe, Online	Spring, Summer	Judy Favor	Olathe
EDACE 834	Leading Adults in a Globalized and Diverse World (3 credits)	F2F Olathe, Online	Fall	Susan Yelich Binieki	Manhattan
EDACE 835	Developing Teams & Leaders (3 credits)	F2F Olathe, Online	Spring	Jeff Zacharakia	Manhattan
EDACE 836	Group Dynamics (3 credits)	F2F Olathe, Online	Spring, Summer	Judy Favor	Olathe
EDACE 886	Seminars in Adult Education (1-6 credits)	F2F Olathe, Online	On demand	Rotates	Olathe
Students may also choose from the following K-State Olathe based courses					
AAI 795	Topics in Applied and Interdisciplinary Studies (1-3 credits)				
AAI 870	Seminar in Applied and Interdisciplinary Studies (1-6 credits)				
AAI 880	Problems in Applied and Interdisciplinary Studies (1-6 credits)				
AAI 895	Advanced Topics in Applied and Interdisciplinary Studies (1-6 credits)				
AAI 899	Research in Applied and Interdisciplinary Studies (1-6 credits)				
Capstone					
Course Number	**Course Title (credits)**	**Format**	**Frequency**	**Instructor**	**Base for Instructor**
AAI 858	Capstone Experience I (1 credits)	F2F, Online, Hybrid	On demand	Janice Barrow	Olathe
AAI 859	Capstone Experience II (2 credits)	F2F, Online, Hybrid	On demand	Janice Barrow	Olathe

Note: Courses may be added or deleted in response to demand and stakeholder needs.

Graduate School

Graduate Certificate in Professional Skills for STEM Practitioners

School of Applied and Interdisciplinary Studies, K-State Olathe
Assessment of Student Learning Plan

A. College, Department, and Date

College: School of Applied and Interdisciplinary Studies
Department: School of Applied and Interdisciplinary Studies
Date: August 24, 2015

B. Contact Person(s) for the Assessment Plan

Dr. Janice M. Barrow,
Associate Dean for Academic Affairs and Executive Education
Associate Professor, School of Applied and Interdisciplinary Studies, KSO
Email: Jbarrow@ksu.edu

C. Name of Proposed Degree Program

Graduate Certificate in Professional Skills for STEM Practitioners

D. Assessment of Student Learning Three-Year Plan

Consistent with the Graduate Handbook, Chapter 4: Graduate Certificate Programs, in "the preferred model, students are enrolled in both a graduate degree program (master's or doctoral) and a graduate certificate program … Some certificate programs are linked to specific graduate degree programs, such that they provide an interdisciplinary experience …" In this case the graduate certificate is part of a master's degree program, the Professional Science Master in Applied Science and Technology (PSM). The certificate also provides an interdisciplinary experience with the unique student learning outcomes, as guided.

1. Student Learning Outcome(s)

a. **Student learning outcomes for the program.**

Upon successful completion of the Graduate Certificate in Professional Skills for STEM Practitioners, the students will be able to:

1. Understand the basics of the management of a project or program.
2. Demonstrate appropriate oral and written communication skills in a professional environment.
3. Synthesize professional skills in order to accurately implement innovative solutions.

b. **Indicate at least three outcomes on the above list that will be assessed by the first mid-cycle review.**

Each and every student learning outcome is equally important; therefore, all the student learning outcomes will be assessed by the first mid-cycle review.

Please see Appendix A for the Alignment Matrix

2. Assessment Strategies

How will each of the learning outcomes be assessed?

a. Direct Measures

Student Learning outcome	**Direct Measure**
1. Understand the basics of the management of a project or program.	1) Rubric used for Capstone Experience Proposal in the required AAI 858 in the Capstone Experience I course*
2. Demonstrate appropriate oral and written communication skills in a professional environment.	1) Rubric used for the Written Poster Presentation in the required AAI 859 Capstone Experience II course* 2) Rubric used for the Oral Presentation in the required AAI 859 Capstone Experience II course*
3. Synthesize professional skills in order to accurately implement innovative solutions.	1) Rubric used to assess the planned solution in the proposal of the required AAI 858 in the Capstone Experience 1 course*

*****The rubrics have been included in Appendix B.

b. **Indirect Measures**

Completion Assessments

a. Student Self-Assessment of the Student Learning Objectives students
b. Survey of capstone experience/internship supervisors for external feedback
c. Program Assessment

Post Completion Assessment

Survey of alumni

c. Number of students included in the assessment

All students completing the certificate will be included in the assessment process. Using a scale of 4.0 the acceptable average is 3.0 with 2.0 considered passing. Results will be compiled for the academic year and then reported by the total group and by disaggregated groups, as appropriate. For a relatively small number of students, as determined by the degree committee, only narrative summaries will be reported.

d. **Timetable**

Direct Measures: Data from each of the measures will be compiled at the conclusion of each semester in an aggregate format, by the Program Coordinator.

Indirect Measures: The completion surveys will be sent immediately upon the completion of the program, and complied in an aggregate format, for all the students and capstone experience supervisors, in an academic year. The post completion survey will be sent to the graduates/ alumni one year after completion of the program, during the summer.

3. Results and Review of Student Learning Outcomes and Assessment Strategies

a. Describe the process the faculty will follow to review the results of assessment data.

The Program Coordinator is responsible for compiling the assessment data which will be reported and reviewed at regularly scheduled degree committee meetings held at the end of each semester. All graduate certificate faculty committee members will review the data and make recommendations for program and assessment revisions with input from the degree program's External Advisory Board. The SLO will be deemed as achieved if the average rate is at least 3.0 in a 4.0 system, assessed by the certificate faculty committee.

b. Describe any other program improvement procedures that will be followed (e.g. formative assessments of delivery method, corporate or employer surveys).

The certificate program will also be assessed using the PSM degree assessment infrastructure and tools. Post completion data will be used for longitudinal comparisons, to highlight current trends, to track career progressions, and to assess whether the goals of the Graduate Certificate in Professional Interdisciplinary Sciences are being achieved.

Appendix A
Alignment Matrix for Graduate Program: Graduate Certificate in Professional Skills for STEM Practitioners

SLO/Required Courses/experiences	Professional Courses Elected*	Required Capstone Experience Course: AAI 858	Required Capstone Experience Course: AAI 859
Degree program SLOs			
1. Understand the basics of the management of a STEM project or program		A	
2. Demonstrate appropriate oral and written communication skills in a professional STEM environment.		X	A
3. Synthesize professional skills in order to accurately identify problems and develop innovative solutions.		A	
University SLOs (Graduate Programs)			
Knowledge	X	A	A
Skills			A
Attitudes and Professional Conduct		A	A

- Place an "X" for courses or experiences in which students have the opportunity to learn the outcome (coursework, other program requirements).
- Place an "A" for courses or experiences in which student performance is used for program level assessment of the outcome. (assignments in courses, evaluation of final thesis, report, dissertation)

*Professional elective course selections are listed on the next page

Elective Professional Courses for Alignment Matrix

Professional	
Course Number	**Course Title (credits)**
AAI 840	Reg. Aspects of Drug and Vacc Dev. in Animal Health (2 credits)
COT 703	Project Management for Professionals (3 credits)
COT 704	Managerial Finances, Metrics, and Analytics (3 credits)
COT 706	Informatics and Technology Management (3 credits)
DMP 815	Multidisciplinary Thought and Presentation
DMP 816	Trade & Agricultural Health (2 credits)
DMP 888	Globalization, Cooperation, and Food Trade (1 credit)
EDACE 832	Interpersonal and Intrapersonal Communications (3 credits)
EDACE 834	Leading Adults in a Globalized and Diverse World (3 credits)
EDACE 835	Developing Teams & Leaders (3 credits)
EDACE 836	Group Dynamics (3 credits)
EDACE 886	Seminars in Adult Education (1-6 credits)
Students may also choose from the following K-State Olathe based courses	
AAI 795	Topics in Applied and Interdisciplinary Studies (1-3 credits)
AAI 870	Seminar in Applied and Interdisciplinary Studies (1-6 credits)
AAI 880	Problems in Applied and Interdisciplinary Studies (1-6 credits)
AAI 895	Advanced Topics in Applied and Interdisciplinary Studies (1-6 credits)
AAI 899	Research in Applied and Interdisciplinary Studies (1-6 credits)

Appendix B: Rubrics and Surveys

Graduate Certificate in Professional Skills for STEM Practitioners

Assessment of: Understand the basics of the management of a project or program (SLO1) Written Communication (SLO 2) and Develop Solution (SLO 3)

Rubric used for the Written Proposal in the required AAI 858 Capstone Experience I course

	Capstone 4	**Milestones** 3	 2	**Benchmark**** 1
Define Problem (SLO1)	Demonstrates the ability to construct a clear and insightful problem statement with evidence of all relevant contextual factors.	Demonstrates the ability to construct a problem statement with evidence of most relevant contextual factors, and problem statement is adequately detailed.	Begins to demonstrate the ability to construct a problem statement with evidence of most relevant contextual factors, but problem statement is superficial	Demonstrates a limited ability in identifying a problem statement or related contextual factors.
Identify Strategies (SLO1)	Identifies multiple approaches for solving the problem that apply within a specific context.	Identifies multiple approaches for solving the problem, only some of which apply within a specific context.	Identifies only a single approach for solving the problem that does apply within a specific context.	Identifies one or more approaches for solving the problem that do not apply within a specific context.
Propose Solutions/ Hypotheses (SLO 3)	Proposes one or more solutions/ hypotheses that indicate a deep comprehension of the problem. Solution/hypotheses are sensitive to contextual factors as well as all of the following: ethical, logical, and cultural dimensions of the problem.	Proposes one or more solutions/hypotheses that indicate comprehension of the problem. Solutions/hypotheses are sensitive to contextual factors as well as the one of the following: ethical, logical, or cultural dimensions of the problem.	Proposes one solution/ hypothesis that is "off the shelf" rather than individually designed to address the specific contextual factors of the problem.	Proposes a solution/hypothesis that is difficult to evaluate because it is vague or only indirectly addresses the problem statement.
Organization (SLO 2)	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is clearly and consistently observable and is skillful and makes the content of the presentation cohesive.	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is clearly and consistently observable within the presentation.	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is intermittently observable within the presentation.	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is not observable within the presentation.
Sources and Evidence (SLO 2)	Demonstrates skillful use of high- quality, credible, relevant sources to develop ideas that are appropriate for the disciplines and genre of the writing	Demonstrates consistent use of credible, relevant sources to support ideas that are situated within the discipline and genre of the writing.	Demonstrates an attempt to use credible and/or relevant sources to support ideas that are appropriate for the discipline and genre of the writing.	Demonstrates an attempt to use sources to support ideas in the writing.

**No points for performance below benchmark level.

Graduate Certificate in Professional Skills for STEM Practitioners
Direct Assessment Rubric: Oral Communication (SLO 2)
Rubric used for the Oral Presentation in the required AAI 859 Capstone Experience II course

	Capstone 4	**Milestones** 3	 2	**Benchmark**** 1
Organization (SLO 2)	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is clearly and consistently observable and is skillful and makes the content of the presentation cohesive.	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is clearly and consistently observable within the presentation.	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is intermittently observable within the presentation.	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is not observable within the presentation.
Language (SLO 2)	Language choices are imaginative, memorable, and compelling, and enhance the effectiveness of the presentation. Language in presentation is appropriate to audience.	Language choices are thoughtful and generally support the effectiveness of the presentation. Language in presentation is appropriate to audience.	Language choices are mundane and commonplace and partially support the effectiveness of the presentation. Language inpresentation is appropriate to audience	Language choices are unclear and minimally support the effectiveness of the presentation. Language in presentation is not appropriate to audience
Delivery (SLO 2)	Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation compelling, and speaker appears polished and confident.	Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation interesting, and speaker appears comfortable.	Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation understandable, and speaker appears tentative.	Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) detract from the understandability of the presentation, and speaker appears uncomfortable.
Central Message (SLO 2)	Central message is compelling (precisely stated, appropriately repeated, memorable, and strongly supported.)	Central message is clear and consistent with the supporting material.	Central message is basically understandable but is not often repeated and is not memorable.	Central message can be deduced, but is not explicitly stated in the presentation.

**No points for performance below benchmark level.

Graduate Certificate in Professional Skills for STEM Practitioners
Student SLO Self-Assessment

Please rate your learning related to the four Student Learning Outcomes and provide comments below.

Student Learning Outcomes (SLO)	Ratings Low		High
1. I understand the basics of the management of a project or program.	1	2	3
Why do you rate yourself at this level?			
2. My oral and written communication skills as used in a professional environment, have improved as a result of this program	1	2	3
Why do you rate yourself at this level?			
3. I am able to synthesize professional skills in order to accurately implement innovative solutions.	1	2	3
Why do you rate yourself at this level?			
Describe how you may approach work demands differently, as a result of this program			

Capstone Experience Supervisor Feedback Survey

Please use the following system to evaluate the student.

1 = Definitely Not 2 = No 3 = Somewhat 4 = Yes 5 = Definitely Yes

1. Did the student have sufficient knowledge and skills to do the projects/assignments given him/her?

DN	**N**	**S**	**Y**	**DY**
1	2	3	4	5

2. Did the student master the objectives established for the Capstone Experience project? Please explain.

DN	**N**	**S**	**Y**	**DY**
1	2	3	4	5

3. Do you consider this Capstone Experience project mutually beneficial to the student and the agency?

DN	**N**	**S**	**Y**	**DY**
1	2	3	4	5

4. What do you consider to be the weaknesses of the student?

5. What do you consider to be the outstanding characteristics of the student?

Program Completion Questions

1. Please rate the following dimensions on a scale of Excellent to Poor
   - The intellectual quality of the faculty
   - The intellectual quality of my fellow graduate/professional students
   - The relationship between faculty and graduate/professional students
   - Program's ability to integrate recent developments in my field
   - Program space and facilities
   - Overall quality of graduate level teaching by faculty
   - Amount of financial support
   - Quality of academic advising and guidance
   - Helpfulness of staff members in my department or program
   - Assistance in finding employment
   - The opportunity to interact across disciplines
   - Academic standards in my program
   - Overall program quality

2. To what extent do you agree or disagree with each of the following statements?
   - Students in my program are treated with respect by faculty.
   - Faculty members are willing to work with me.
   - Rapport between faculty and students in my program is good.
   - My own relationships and interaction with faculty are good.
   - There are tensions among faculty that affect students.
   - Financial support for students in my program is distributed fairly.
   - Students in my program are collegial.
   - My relationships and interaction with other students in my program are good.
   - Overall, the climate of my program is positive.
   - Program activities foster a sense of intellectual community.
   - Program content supports my research/professional goals.
   - Program structure encourages student collaboration or teamwork.
   - Program structure provides opportunities to take coursework outside my own department.
   - Program structure provides opportunities to engage in interdisciplinary work.
   - Amount of coursework seems appropriate to the degree.

3. Please indicate the importance to you, and the extent to which you feel your abilities in the following areas were enhanced, during your program. *(This would be set up with a slide, so they could respond to which degree they were important (1-10) and then do what degree the abilities were enhanced in the program).*

Problem Solving	Written Communication Skills
Oral Communications Skills	Interdisciplinarity

4. If you could change one thing about your experience as a graduate/professional student at this university to make it more successful or fulfilling. what would it be?

5. Which aspect of your graduate/professional program pleased you the most?

6. Were there aspects of your graduate/professional program that you found problematic?

7. What changes would you recommend for the program in the future?

Graduate Certificate in Professional Skills for STEM Practitioners

Student Outcome/Post Completion Survey

The survey will collect the following core data:

Employment Status
Sector of Employment
Job Title
Primary work activity
Salary range

All things considered, my graduate certificate met my expectations

1 = Definitely Not 2 = No 3 = Somewhat 4 = Yes 5 = Definitely Yes

DN	**N**	**S**	**Y**	**DY**
1	2	3	4	5

Regarding the Student Learning Outcomes:

1. How have you applied the knowledge gained of the management of a project or program?

2. How have you used oral and written communication skills in your professional environment?

3. In what ways have you synthesized professional skills in order to accurately implement innovative solutions?

Signature Sheet to add New Program
Graduate Certificate in Professional Skills for STEM Practitioners

Department: School of Applied and Interdisciplinary Studies

This signature sheet below is to be completed and submitted to Faculty Senate Academic Affairs Committee when proposing to add or discontinue an academic sub plan, plan, or program. Approval should be obtained in the sequence listed below:

Name(s) of Academic Sub plan(s), Plan(s,) or Program(s):

Graduate Certificate in Professional Skills for STEM Practitioners

Signatures	**Approval Date**
_____ *Designated Representative, Department Faculty*	_____
_____ *Department Head*	_____
_____ *Chair, College Course & Curriculum Committee*	_____
_____ *College Dean*	4 September 2015

Only if graduate curriculum

_____ *Chair, Graduate Council Subcommittee*	_____
_____ *Dean, Graduate School*	_____

_____ *Chair, Faculty Senate Academic Affairs*	_____
_____ *President, Faculty Senate*	_____
_____ *Provost/Vice President Academic Affairs*	_____