College of Agriculture

Bakery Science and Management

Overview
When you think of baking, you probably think of bread, cakes or other foods fresh from the oven. But baking science also offers you a profession. For more than 4,000 years, people have made their living as bakers. Bakeries have traditionally provided basic foods to help feed the world, and that tradition continues today.

Today's bakeries are often high-tech businesses involving complex equipment, formulations, organization and products. The industry has evolved to include allied companies that provide products ranging from bakery ingredients and flavors to mixes and equipment.

Professional options
The number of positions available for graduates is greater than the supply. It is not unusual for students to have multiple job offers before graduation. Average starting salaries after graduation are nearly 50 percent higher than the university average.

Careers
- Product development specialist
- Technical sales representative
- Production management
- Quality assurance
- Ingredient/equipment sales
- Labeling and regulatory technician
- Retail/wholesale ownership

Employers
- Baking and globally integrated food companies
- Research and new product development venues
- Restaurant commissaries
- Equipment manufacturers
- Retail operations
- Ingredient sales or distribution

Job experience
Internships and summer jobs are available to students each year. They give students a firsthand look at the baking industry while providing them practical experiences that often lead to job offers even before graduation.

Academics

Degree options
The exact sequence of courses is flexible and reflects the personality and interests of the student. Bakery science offers students two options: production management or cereal chemistry.

Students selecting the production management option will take classes to prepare them for jobs in sales, product development or production management. Those choosing the cereal chemistry option learn about quality control or research and development.

Minor
The Department of Grain Science and Industry offers a minor in cereal chemistry. This minor can be combined with any K-State major and can be easily achieved when taking classes required for your major.

A minor from the Department of Grain Science and Industry will take you one step closer to understanding the needs of the specialized agriculture industry.

Faculty
The bakery and grain science faculty includes individuals who are outstanding teachers with industry experience and who contribute to cereal and baking research.

Advising
Because a select number of students major in bakery science, your advisor will know you by name. Advisors will work with you to determine your strengths and weaknesses and help select courses to build your future career.

Transferring
Students interested in transferring into feed science should contact Hulya Dogan at 785-532-2628 or dogan@k-state.edu.

Facilities
Facilities available to the Department of Grain Science and Industry include a pilot bakery, several baking laboratories, a physical dough-testing laboratory, an extrusion research center, a commercial flour mill, commercial feed manufacturing plant, cereal chemistry laboratories, grain grading laboratories and grain storage research facilities.

Activities
Activities in the Department of Grain Science and Industry add experiences to your time at K-State that develop leadership, create friendships and help you explore new ideas. The Bakery Science Club helps students sharpen their skills while gaining hands-on experience. Every Tuesday the club produces fresh-baked products for sale the following day during the club's weekly sales hours.

Learn more at the club's website: k-state.edu/bakeclub.

Financial assistance
The K-State bakery science and management program was created in 1963 at the request of bakers' organizations. The industry continues to actively support our program. Due to the generous support of the baking and allied industries, many bakery science students receive scholarships.
Suggested coursework
Baking Science and Management (B.S.)

Chemistry Option
Natural Sciences (26 credit hr)
BIOL 198 - Principles of Biology (4)
BIOL 455 - General Microbiology (4)
CHM 210 - Analytical Chemistry and Calculus II (4)
CHM 300 - Material Handling (1)
PHYS 213 - Engineering Physics I (5)
PHYS 214 - Engineering Physics II (5)

Quantitative Studies (11 credit hr)
MATH 220 - Analytic Geometry and Calculus I (4)
MATH 221 - Analytic Geometry and Calculus II (4)
STAT 225 - Introduction to Statistics (3)

Communications (11 credit hr)
ENGL 100 - Expository Writing I (3)
ENGL 200 - Expository Writing II (3)
COMM 105 - Public Speaking I (2)
Communication elective (3)

Business and Economics (9 credit hr)
ECON 110 - Principles of Macroeconomics (3)
ACCTG 231 - Accounting for Business Operations (3)
Management elective (3)

Bakery Science Core Requirements (38 credit hr)
FDSCI 600 - Food Microbiology (2)
FDSCI 601 - Food Microbiology Lab (2)
FNDD 132 - Basic Nutrition (3)
GRSC 100 - Freshman Orientation in Grain Science (1)
GRSC 101 - Introduction to Grain Science and Industry (3)
GRSC 150 - Principles of Milling (2)
GRSC 151 - Principles of Milling Laboratory (1)
GRSC 310 - Materials Handling (3)
GRSC 391 - Internship in Grain Science (1)
GRSC 600 - Practicum in Bakery Technology I (1)
or GRSC 601 - Practicum in Bakery Technology II (1)
GRSC 602 - Cereal Science (3)
GRSC 625 - Flour and Dough Testing (3)
GRSC 635 - Baking Science (2)
GRSC 636 - Baking Science I Laboratory (2)
GRSC 637 - Baking Science II (3)
GRSC 638 - Baking Science II Laboratory (1)
GRSC 651 - Food and Feed Product Protection (4)
GRSC 670 - Bakery Layout (1)

Cereal Chemistry Option Requirements (27 credit hr)
BIOCH 521 - General Biochemistry (3)
BIOCH 522 - General Biochemistry Laboratory (3)
CHM 500 - General Physical Chemistry (3)
CHM 501 - Organic Chemistry I (3)
CHM 522 - Organic Chemistry Laboratory (3)
CHM 550 - Organic Chemistry II (3)
FDSCI 501 - Food Chemistry (3)
FDSCI 727 - Chemical Methods of Food Analysis (2)
Specialization Electives (6)
Free Elective (3 credit hr)
Social Sciences and Humanities (3 credit hr)

Total credit hours required for graduation: 128

Production Management Option
Natural Sciences (29 credit hr)
CHM 210 - Chemistry I (4)
CHM 230 - Chemistry II (4)
BIOT 207 - Introductory Organic and Biochemistry (5)
or CHM 350/551 - Organic Chemistry & Lab (5)
BIOL 198 - Principles of Biology (4)
BIOL 455 - General Microbiology (4)
PHYS 113 - General Physics I (4)
PHYS 114 - General Physics II (4)

Quantitative Studies (6 credit hr)
MATH 205 - General Calculus and Linear Algebra (3)
STAT 325 - Introduction to Statistics (3)

Communications (12 credit hours)
ENGL 100 - Expository Writing I (3)
ENGL 200 - Expository Writing II (3)
COMM 106 - Public Speaking I (3)
Communication elective (3)

Business and Economics (21 credit hours)
ECON 110 - Principles of Macroeconomics (3)
MKTG 400 - Introduction to Marketing (3)

Business Electives (12 credit hr):
ACCTG 231 - Accounting for Business Operations (3)
ACCTG 331 - Intermediate Accounting Processes (3)
AGEC 500 - Production Economics (3)
AGEC 515 - Food and Agribusiness Marketing (3)
FIN 450 - Principles of Finance (3)
GRSC 535 - Management Appl in Grain Proc Industries (3)
IMSE 501 - Industrial Management (3)
MANGT 420 - Management Concepts (3)
MANGT 530 - Industrial and Labor Relations (3)
MANGT 531 - Human Resources Management (3)
MKTG 400 - Introduction to Marketing (3)
MKTG 542 - Fundamentals of Professional Selling (3)

Bakery Science Core Requirements (38 credit hr)
FDSCI 600 - Food Microbiology (2)
FDSCI 601 - Food Microbiology Lab (2)
FNDD 132 - Basic Nutrition (3)
GRSC 100 - Freshman Orientation in Grain Science (1)
GRSC 101 - Introduction to Grain Science and Industry (3)
GRSC 150 - Principles of Milling (2)
GRSC 151 - Principles of Milling Laboratory (1)
or GRSC 601 - Practicum in Bakery Technology II (1)
GRSC 602 - Cereal Science (3)
GRSC 625 - Flour and Dough Testing (3)
GRSC 635 - Baking Science (2)
GRSC 636 - Baking Science I Laboratory (2)
GRSC 637 - Baking Science II (3)
GRSC 638 - Baking Science II Laboratory (1)
GRSC 651 - Food and Feed Product Protection (4)
GRSC 670 - Bakery Layout (1)

Cereal Chemistry Option Requirements (27 credit hr)
BIOCH 521 - General Biochemistry (3)
BIOCH 522 - General Biochemistry Laboratory (3)
CHM 500 - General Physical Chemistry (3)
CHM 531 - Organic Chemistry I (3)
CHM 532 - Organic Chemistry Laboratory (3)
CHM 550 - Organic Chemistry II (3)
FDSCI 501 - Food Chemistry (3)
FDSCI 727 - Chemical Methods of Food Analysis (2)
Specialization Electives (6)
Free Elective (3 credit hr)
Social Sciences and Humanities (3 credit hr)

Total credit hours required for graduation: 128

Production Management Option Requirements (16 credit hr)
FDSCI 305 - Fundamentals of Food Processing (3)
GRSC 405 - Grain Analysis Techniques (2)
GRSC 540 - Process Calculations in Food Systems (3)
Specialization Electives (8)
Free Electives (3 credit hr)
Social Sciences and Humanities (3 credit hr)
Total credit hours required for graduation: 128

For more information about bakery science, contact:
Department of Grain Science and Industry
Kansas State University
201 Shellengerber Hall
1301 Mid-Campus Drive North
Manhattan, KS 66506-2201
785-532-6161
grains@k-state.edu
grains.k-state.edu

For more information about Kansas State University, contact:
Office of Admissions
Kansas State University
119 Anderson Hall
919 Mid-Campus Drive North
Manhattan, KS 66506-0102
1-800-432-8270 (toll free) or 785-532-6250
k-state@k-state.edu
k-state.edu/admissions

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Post-Graduation Statistics
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k-state@k-state.edu
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2017