College of Agriculture

Milling Science and Management

Overview

A career in milling may not be the most obvious career choice in the world, but it is a career that offers outstanding opportunities. Milling is a stable, basic industry and demand for its products — flour and grain — remains constant. Kansas State University offers the only bachelor’s degree in milling in the U.S. That means K-State is a major supplier of graduates entering the industry. After graduation, you’ll see college friends on the job and at industry meetings.

Professional options

Salaries for milling science graduates are consistently among the highest for college graduates. In addition, some milling graduates climb the career ladder quickly. It’s not unusual for students to be in charge of their own mill within just a few years, and some will become officials in major companies within 10 to 15 years.

Careers

Personal interest and personality are the keys to determining what kind of jobs milling graduates select. Graduates may choose positions in production areas, while others may enter fields such as research and development, and quality control. Positions in milling equipment manufacturing range from engineering and research to sales.

Some career options:
- Plant manager
- Production engineer
- Technical sales
- Head miller
- Commodity trader
- Quality control manager
- Milling operations manager

Employers

- Milling companies
- Food companies
- Grain companies
- Government agencies
- Equipment manufacturers
- Spice and specialty mills

Job experience

Students gain valuable experience during internships starting as early as their sophomore year. These experiences often lead to jobs after graduation. Students may also take the opportunity to work in the milling industry for the summer to earn funds to help pay for their next year in college.

Academics

Degree options

Students majoring in milling science and management select one of two areas: operations or chemistry. This allows them to prepare for the portion of the industry in which they are most interested. Milling science is not for students pursuing an easy education. Both degree tracks require a significant amount of science and mathematics.

Faculty

One of the Department of Grain Science and Industry’s greatest strengths is its faculty members. Most have industry experience. The department’s faculty members are genuinely committed to teaching and serving as great advisors. They make it a point to get to know their students, and there is a strong emphasis on individual attention.

Transferring

Students interested in transferring into milling science should contact Hulya Dogan at 785-532-2628 or dogan@k-state.edu to learn about basic courses that readily transfer to K-State.

Facilities

Facilities available within the Department of Grain Science and Industry include a small pilot bakery, as well as the Hal Ross Flour Mill, located at the department’s Kimball Avenue complex. All students majoring in milling have an opportunity to work in the flour mill and gain hands-on knowledge of the process.

Facilities also include numerous milling laboratories with mill equipment from around the world. Students take courses utilizing the department’s grain-grading laboratory, cereal chemistry laboratories and physical dough-testing laboratories.

Activities

Activities in the Department of Grain Science and Industry add to the K-State experience, allowing students to develop leadership skills, create friendships and explore news ideas.

Clubs

The Milling Science Club provides an opportunity to join others with similar interests for professional and social activities. Club activities include milling flour and making baking mixes to raise money for club activities.

Top students are tapped to become members of Alpha Mu, the grain science honorary.

Financial assistance

The department of grain science and industry awards about $200,000 in scholarships annually to students majoring in milling, feed and bakery science.

Scholarships are awarded based on academic achievement and financial need along with donor specifications.

Suggested coursework

Milling 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 - Chemistry I (4)
  - CHM 230 - Chemistry II (4)
  - 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 325 - Introduction to Statistics (3)

Communications (11 credit hr)

- ENGL 100 - Expository Writing I (3)
- ENGL 200 - Expository Writing II (3)
- COMM 105 - Public Speaking IA (2)
- Communication elective (3)

Business and Economics (12 credit hr)

- ECON 110 - Principles of Microeconomics (3)
- AGEC 120 - Agric Economics and Agribusiness (3)
- ECON 210 - Principles of Macroeconomics (3)
- ACCTG 231 - Accounting for Business Opr (3)
Management elective (3)
**MSM Core Requirements (33 credit hr)**
- GRSC 100 - Freshman Orientation in Grain Sci (1)
- GRSC 150 - Principles of Milling (2)
- GRSC 151 - Principles of Milling Laboratory (1)
- GRSC 210 - CAD Flow Sheets for Grain Processes (3)
- GRSC 310 - Materials Handling (3)
- GRSC 500 - Milling Science I (2)
- GRSC 501 - Milling Science I Laboratory (2)
- GRSC 502 - Milling Science II (2)
- GRSC 503 - Milling Science II Laboratory (2)
- GRSC 591 - Internship in Grain Science (1)
- GRSC 602 - Cereal Science (3)
- GRSC 625 - Flour and Dough Testing (3)
- GRSC 635 - Baking Science I (2)
- GRSC 636 - Baking Science I Laboratory (2)
- GRSC 651 - Food and Feed Product Protection (4)

**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 (2)
- CHM 550 - Organic Chemistry II (3)
- FDSCI 727 - Chemical Methods of Food Analysis (2)

**Specialization Electives (6-7)**
Choose one:
- GRSC 555 - Cereal Food Plant Design (3)
- GRSC 556 - Pneumatic Conveying of Dry Solids (2)
- GRSC 580 - Advanced Flow Sheets (2)
- GRSC 584 - Milling Processing Technology Mgmt (3)
- Free Elective (3 credit hr)

**Social Sciences and Humanities (6 credit hr)**

**Total credit hours required for graduation: 129**

**Operations Option**
**Natural Sciences (29 credit hr)**
- BIOL 198 - Principles of Biology (4)
- BIOL 455 - General Microbiology (4)
- CHM 210 - Chemistry I (4)
- CHM 230 - Chemistry II (4)
- BIOCH 265 - Introductory Organic and Biochemistry (5)
- PHYS 113 - General Physics I (4)
- PHYS 114 - General Physics II (4)

**Quantitative Studies (7 credit hr)**
- MATH 220 - Analytic Geometry and Calculus I (4)
- STAT 325 - Introduction to Statistics (3)

**Communications (11 credit hr)**
- ENGL 100 - Expository Writing I (3)
- ENGL 200 - Expository Writing II (3)
- COMM 105 - Public Speaking IA (3)

**Business and Economics (12 credit hours)**
- ACCTG 231 - Accounting for Business Operations (3)
- ECON 110 - Principles of Macroeconomics (3)
- AGEC 120 - Agricultural Economics/Agribusiness (3)
- or ECON 120 - Principles of Microeconomics (3)

**MSM Science Core Requirements (33 credit hr)**
- GRSC 100 - Freshman Orientation in Grain Science (1)
- GRSC 150 - Principles of Milling (2)
- GRSC 151 - Principles of Milling Laboratory (1)
- GRSC 210 - CAD Flow Sheets for Grain Processes (3)
- GRSC 310 - Materials Handling (3)
- GRSC 500 - Milling Science I (2)
- GRSC 501 - Milling Science I Laboratory (2)
- GRSC 502 - Milling Science II (2)
- GRSC 503 - Milling Science II Laboratory (2)
- GRSC 591 - Internship in Grain Science (1)
- GRSC 602 - Cereal Science (3)
- GRSC 625 - Flour and Dough Testing (3)
- GRSC 635 - Baking Science I (2)
- GRSC 636 - Baking Science I Laboratory (2)
- GRSC 651 - Food and Feed Product Protection (4)

**Operations Option Requirements (25 credit hr)**
- AGRON 340 - Grain Grading (2)
- GRSC 405 - Grain Analysis Techniques (2)
- GRSC 540 - Process Calculations in Food Systems (3)
- GRSC 555 - Cereal Food Plant Design (3)
- GRSC 556 - Pneumatic Conveying of Dry Solids (2)
- GRSC 560 - Electricity/Industrial Power Distribution (3)
- GRSC 580 - Advanced Flow Sheets (2)
- GRSC 584 - Milling Processing Technology Mgmt (3)
- Free Elective (5 credit hr)

**Total credit hours required for graduation: 129**

For more information about milling science and management, contact:
Department of Grain Science and Industry
Kansas State University
201 Shellenberger 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

Notice of nondiscrimination
Kansas State University prohibits discrimination on the basis of race, color, ethnic origin, sex (including sexual harassment and sexual violence), sexual orientation, gender identity, religion, age, ancestry, disability, genetic information, military status, or veteran status, in the University’s programs and activities as required by applicable laws and regulations. The person designated with responsibility for coordination of compliance efforts and receipt of inquiries concerning nondiscrimination policies is the University’s Title IX Coordinator: the Director of the Office of Institutional Equity, equity@k-state.edu, 103 Edwards Hall, Kansas State University, Manhattan, Kansas 66506, (785) 532-6277. The campus ADA Coordinator is the Director of Employee Relations, charlottl@k-state.edu, who may be reached at 105 Edwards Hall, Kansas State University, Manhattan, Kansas 66506, (785) 532-6277.

Post-Graduation Statistics
k-state.edu/postgrad-stats
ksdegreestats.org

2017