Food Science and Human Nutrition (AGLS)

The Department of Food Science and Human Nutrition is jointly administered by the College of Agriculture and Life Sciences and the College of Human Sciences. All curricula offered by the department are available to students in either college. These majors include:

- Culinary science
- Dietetics
- Diet and exercise
- Food science
- Nutritional science

Visit the department web site at: www.fshn.hs.iastate.edu .

Undergraduate Study

Culinary Science

Culinary science is an interdisciplinary degree combining a strong food science foundation with acquisition of culinary skills. The program includes chemistry, organic chemistry, biology, microbiology, and biochemistry as well as quantity food production, fine dining management, and food safety and sanitation. Internship experience in the food industry or culinary business is required. Culinary science graduates are qualified to work as managers and specialists in food research, product development, culinary applications, and food marketing and sales.

Dietetics

The Didactic Program in Dietetics (DPD) is accredited by the Accreditation Council for Education in Nutrition and Dietetics, the accrediting agency of the Academy of Nutrition and Dietetics. The dietetics undergraduate curriculum meets the academic requirements as the DPD. Additionally, the curriculum for concurrent Bachelor's and Master's degrees in diet and exercise meets the academic requirements of the DPD. Graduates of the program are eligible to apply for admission to accredited dietetics internships/supervised practice programs. Upon successful completion of the experience program, graduates are eligible to take the national examination administered by the Commission on Dietetic Registration to become a Registered Dietitian (R.D.) and to practice in the field of dietetics. There is a $30 fee for a statement of verification of completion of the DPD. For information about verification statements policies, see the dietetics program website: http://www.fshn.hs.iastate.edu/undergraduate-programs/dietetics/ .

Students interested in pursuing the dietetics program enter the university designated as pre-dietetics students. During spring semester of the second year, interested students apply to the Didactic Program in Dietetics. Admission to the program is based on overall GPA (3.0 or above required), completion of required coursework, completion of application and demonstrated interest in becoming a registered dietitian. Upon admission, students progress toward earning a Bachelor of Science degree in dietetics and receive a Verification Statement upon graduation, which is needed to enter an accredited dietetics internship. The dietetics program includes study in basic sciences, nutrition, and food science with applications to medical dietetics, nutrition counseling and education, and community nutrition. Foodservice management is also an important aspect of the program. Graduates work in clinical settings, consulting, food companies, food services, sports or athletic programs, corporate wellness programs, care facilities for patients from neonatal to geriatric, and community or school health programs.

A program for concurrent Bachelor of Science and Master of Science (BS/MS) degrees in diet and exercise (http://www.fshn.hs.iastate.edu/undergraduate-programs/diet-exercise) is available. The program is jointly administered by the Department of Food Science and Human Nutrition (FS HN), within the College of Agriculture and Life Sciences and College of Human Sciences, and the Department of Kinesiology within the College of Human Sciences. Students interested in this program enroll as pre-diet and exercise students. In the fall of the third year, students apply for admission to the BS/MS program. Students not accepted into the program can continue toward completion of the BS degree in dietetics or kinesiology and health. Coursework has been designed to facilitate a 4-year graduation date for those students not accepted into the program and electing to complete a single undergraduate degree. Students accepted into the program will progress toward completion of BS/MS degrees in diet and exercise.

Food Science

Food science is a discipline in which the principles of biological and physical sciences are used to study the nature of foods, the causes of their deterioration, and the principles underlying the processing and preparation of food. It is the application of science and technology to the provision of a safe, wholesome, and nutritious food supply. Biotechnology and toxicology interrelate with food science in the area of food safety. In the food industry, food scientists work in research and development of products or processes, production supervision, quality control, marketing and sales, test kitchens and recipe development, product promotion and communication. Food scientists also work in government regulatory agencies and academic institutions.

Two options are available in food science: food science and technology and food science and industry. Both options are approved by the Institute of Food Technologists, the national professional organization of food science. Career options include quality control/assurance; production supervision; management and sales; research careers in the food industry, government, or academia; business; journalism; food product formulation and recipe development; food promotion and communication; and consumer services in government and industry. Students who have an interest in graduate study or research are encouraged to select the food science and technology option. Students who wish to combine education in engineering with food science may select additional courses in chemical or agricultural engineering. Double majors are available and may require an additional year.

Students in food science have the opportunity to pursue a Master of Business Administration (http://www.fshn.hs.iastate.edu/undergraduate-programs/food-science) (MBA) concurrently with the Bachelor of Science (BS) degree in food science. The program is designed so students can earn both the BS in food science and MBA in five years, to meet the needs of students who are interested in management careers in the food industry. Students apply for admission to the MBA program in the spring of the third year. The program for concurrent BS in food science/MBA degrees is a rigorous 5-year program, and admission is very selective.

Nutritional Science

Nutritional science offers two options: pre-health professional & research and nutrition & wellness. The pre-health professional & research option can serve as a pre-professional program for medicine, dentistry, veterinary medicine, or for graduate study in nutrition or other biological sciences. Students in the pre-health professional & research option gain a strong basic science education along with human nutrition expertise that enables them to attain the knowledge and skills necessary to work in research laboratories of colleges and universities, government agencies, industries, and foundations. Students in the nutrition & wellness option will learn about the role of nutrition and healthy eating for disease prevention and wellness with an emphasis on nutrition education for the public and community agencies as well as effective program planning and evaluation. Graduates will be prepared for employment opportunities in community and state agencies, nonprofit organizations and health promotion enterprises, or public health and related programs.

Departmental Learning Outcomes

Students graduating with degrees in culinary science, dietetics, diet and exercise, food science, or nutritional science will be able to: 1) demonstrate a high level of technical competence in their chosen field, perform successfully in a graduate program, supervised practice program or entry-level professional position; 2) communicate effectively as professionals; 3) successfully solve complex problems on their own and as members of a team; 4) correctly interpret and critically evaluate research literature as well as data from professional practice; 5) critically evaluate information related to food science and nutrition issues appearing in the popular press; 6) prepare and deliver effective presentations, orally and in writing, of technical information to professionals and to the general public; 7) thoughtfully discuss ethical, social, multicultural, and environmental dimensions of issues facing professionals in their chosen field.

Communication Proficiency is certified by a grade of C or better in 6 credits of coursework in composition (ENGL 150 Critical Thinking and Communication and ENGL 250 Written, Oral, Visual, and Electronic Composition or other communication-intensive courses) and a grade of C or better in 3 credits of coursework in oral communication

Minors - Undergraduate

The department offers coursework for a variety of minors (http://www.fshn.hs.iastate.edu/undergraduate-programs/minors) . Minors available include:

- culinary science
- food safety (interdepartmental minor)
- food science
- nutrition
- food and society

All minors have the following requirements:

- At least 15 credits must be taken, including at least 6 credits taken at Iowa State University in courses numbered 300 or above.
- The minor must include at least 9 credits that are not used to meet any other college or university requirement.
- The same courses may not be applied to two different minors.

Prerequisites: Students must complete prerequisite requirements for courses included in the minor.

Graduate Study

The Food Science and Human Nutrition (FSHN) Department offers coursework for the degrees master of science and doctor of philosophy. Degree options include:

- food science and technology (http://www.fshn.hs.iastate.edu/graduate-program/food-science-technology) (MS and PhD)
- meat science (http://www.ans.iastate.edu/section/meat/?pg=degree) (MS and PhD; co-major in animal science)
- nutritional sciences (http://www.fshn.hs.iastate.edu/graduate-program/nutritional-sciences) (MS and PhD; interdepartmental graduate program)
- family and consumer sciences/dietetics (http://www.fshn.hs.iastate.edu/graduate-program/mfcs-dietetics) (MS only)
- diet and exercise (http://www.hs.iastate.edu/academics/majors-list/diet-and-exercise) (BS/MS)
- nutritional sciences (BS/MS)

Prerequisite to major work is a baccalaureate degree in food science, nutrition, other physical/biological sciences or engineering that is substantially equivalent to those at Iowa State University.

Students taking major work for the degree doctor of philosophy either in food science and technology or in nutritional sciences may choose minors from other fields including anthropology, biorenewable resources and technology, chemistry, biochemistry, economics, education, journalism, microbiology, psychology, physiology, statistics, toxicology, or other related fields.

The interdepartmental graduate program in nutritional sciences, administered through the Graduate College, under the auspices of the Chairs of FSHN and Animal Science, will provide the structure for coordinating and enhancing interdisciplinary nutrition research and graduate education. Graduate students will be able to select from three specializations: animal nutrition, human nutrition, or molecular/biochemical nutrition. The two main departments are FSHN and Animal Science, whereas other departments (such as Kinesiology; Biochemistry, Biophysics, and Molecular Biology; Agronomy; and Statistics) may also be involved.

The department participates in an online Master of Family and Consumer Sciences/Dietetics in conjunction with Colorado State University, Kansas State University, North Dakota State University, Oklahoma State University, South Dakota State University, University of Kansas Medical Center, and University of Nebraska through the Great Plains Interactive Distance Education Alliance. Students who are registered dietitians and are eligible for admission to the FSHN Master's degree program may be admitted.

The department offers work for concurrent B.S. and M.S. degree programs that allow students to obtain both the B.S. and M.S. degrees in 5 years. The programs are available to students majoring in nutritional science or pre-diet and exercise, and students progress toward M.S. degrees in nutritional sciences or diet and exercise, respectively. Students interested in these programs should contact the department for details. Application for admission to the Graduate College should be made during the junior year. Students begin research for the M.S. thesis or creative component during the summer after their junior year and are eligible for research assistantships.

Students graduating with advanced degrees in nutritional sciences and in food science and technology will demonstrate competency in their chosen discipline. Measurable outcomes will include the ability to: 1) design, conduct, and interpret research; 2) apply theoretical information to solve practical problems; 3) prepare and communicate discipline-specific information in written and oral forms to scientific and lay audiences; 4) facilitate learning in the classroom; 5) submit a paper for publication in a peer-reviewed journal; and 6) secure professional-level positions in academia, industry, government, or health care.

Minors - Graduate

The department offers coursework for graduate minors in:

- food science/technology (http://www.fshn.hs.iastate.edu/graduate-program/food-science-technology/#minor-in-food-science-and-technology)
- nutritional sciences (http://www.fshn.hs.iastate.edu/graduate-program/nutritional-sciences/#minor-in-nutritional-sciences)

Food Science and Technology Graduate Minor students must complete the following:

- 9 to 12 credits. Students without a background in food chemistry, food engineering/processing, and/or food microbiology are required to take FSHN 511, 513, and/or 514, respectively, in which case the graduate minor will constitute up to 12 credits.
- 9 credits of graduate level food science coursework as approved by the POS committee.
- Maximum of 3 credits at the 400 level.

Nutritional Sciences Graduate Minor students must complete the following:

- 9 to 12 credits are required. Students who have not taken FSHN 360 or its equivalent (advanced nutrition with a biochemistry perquisite) will need to take FSHN 360, in which case the Nutrition Graduate minor will constitute 12 credits.
- 9 credits of graduate level nutrition courses as approved by the POS Committee.
- NUTRS 501

Certificates - Graduate

Food Safety and Defense (http://www.fshn.hs.iastate.edu/graduate-program/food-safety-defense)

The department offers an online 12-13 credit Graduate Certificate in Food Safety and Defense, in conjunction with the University of Nebraska, Lincoln, Kansas State University and the University of Missouri through the Great Plains Interactive Distance Education Alliance. Students may be admitted if qualified for admission to the food science master's degree program .

Dietetics Internship (http://www.dietetics.iastate.edu)

The Iowa State University Dietetics Internship (DI) began as an AP4 program in 1989. It meets the performance requirements for supervised practice programs for students who have completed the academic requirements of the Academy of Nutrition and Dietetics. The internship is administered through the Department of Food Science and Human Nutrition. Interns are admitted to Iowa State University as graduate students seeking a "Graduate Certificate in Dietetics Internship" which will be indicated on the final transcript. Successful completion of this program will result in the receipt of the DI Verification Statement which establishes eligibility to sit for the national standardized exam administered by the Commission on Dietetic Registration (CDR). Successful completion of the exam results in the Registered Dietitian (RD) credential. There is a nonrefundable application fee of $75.