

DOCTOR OF PHILOSOPHY IN FOOD SCIENCE AND NUTRITION

The Doctor of Philosophy in Food Science and Nutrition is awarded in recognition of mastery in food science and nutrition and upon demonstration of an ability to make substantial creative contributions to knowledge in food safety, food science, and nutrition. The recipients of the doctoral degree will be capable of continuing independent efforts toward advancement of scientific knowledge in the food-related business.

Admission Requirements

An applicant to the doctoral program must hold a master of science degree in microbiology; chemistry; biology; food science; nutrition; chemical, agricultural, food, or environmental engineering; or a related field. The applicant should meet all entrance requirements of the university's Graduate College, plus minimum cumulative undergraduate and graduate GPAs of 3.0 on a 4.0 scale; a GRE score of at least 304 (combined quantitative and verbal); and a TOEFL score of at least 80/515 (internet/paper-based) for international applicants. Please note that meeting the minimum GPA and test score requirements does not guarantee admission to the program.

Curriculum

The requirements for the Doctor of Philosophy in Food Science and Nutrition consist of a program of 72 credit hours approved by the faculty adviser, passing the Ph.D. qualifying and comprehensive examinations, and the completion of a research dissertation supervised by a faculty member and approved by a dissertation committee. The required 72 credit hours consist of 29 credit hours of core courses, 17 credit hours of elective courses, 24 credit hours of FDSN 691, and two credit hours of FDSN 695. The one credit hour FDSN 695 course is offered during every spring and fall semester. Students who have already completed a master of science degree in food science from Illinois Institute of Technology or other universities should consult with the faculty adviser as to how many credit hours may be transferred from their previous degree.

| Code | Title | Credit Hours |
|---|---|--------------|
| Core Courses | | (29) |
| FDSN 502/402 | Development, Delivery, and Dissemination | 3 |
| FDSN 505 | Food Microbiology | 3 |
| FDSN 506 | Food Microbiology Laboratory | 3 |
| FDSN 507 | Food Analysis | 3 |
| FDSN 521 | Food Process Engineering | 3 |
| FDSN 524 | Fundamentals of Food Science | 3 |
| FDSN 531 | HACCP Planning and Implementation | 3 |
| FDSN 610 | Advanced Topics in Food Microbiology | 2 |
| FDSN 620 | Advanced Topics in Food Chemistry | 2 |
| FDSN 630 | Advanced Topics in Nutrition | 2 |
| FDSN 640 | Advanced Topics in Food Process Engineering | 2 |
| Seminar Requirement | | (2) |
| FDSN 695 | Food Science and Nutrition Research Seminar (taken twice) | 2 |
| Elective Courses | | (17) |
| Select 17 credit hours from the following: ¹ | | 17 |
| BIOL 503 | Virology | 3 |
| BIOL 512 | Advanced Biochemistry | 3 |
| BIOL 514 | Toxicology | 3 |
| BIOL 544 | Molecular Biology of Cells | 3 |
| BIOL 562 | Current Topics in Functional Genomics | 3 |
| CHE 560 | Statistical Quality and Process Control | 3 |
| CHE 577 | Bioprocess Engineering | 3 |
| CHEM 500 | Advanced Analytical Chemistry | 3 |
| FDSN 501 | Advanced Nutritional Biochemistry | 3 |
| FDSN 504 | Food Biotechnology | 3 |
| FDSN 508 | Food Product Development | 3 |
| FDSN 511 | Food Law and Regulations | 3 |

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|---------------------------|-----------------------------------|-------------|
| FDSN 522 | Advanced Food Process Engineering | 3 |
| FDSN 523 | Food Engineering Process Delivery | 3 |
| FDSN 526 | Engineering Principles of Food | 3 |
| FDSN 541 | Principles of Food Packaging | 3 |
| FDSN 594 | Special Projects | 1-6 |
| FDSN 597 | Special Problems | 1-6 |
| Ph.D. Research | | (24) |
| FDSN 691 | Research and Thesis | 24 |
| Total Credit Hours | | 72 |

¹ Other courses may be used to fulfill the elective requirement pending adviser approval.

Ph.D. Written Qualifying Examination

Students must pass a written qualifying examination within three semesters after they are admitted to the Ph.D. program. The exam is diagnostic in nature and the results of the exam will determine the student's potential for success in the FdSN Ph.D. program and recommendations for a future program of study. The examination will cover four core areas in the discipline of food science and nutrition: food microbiology, food chemistry, food engineering, and nutrition.

Comprehensive Examination

The comprehensive examination is oral and will include a written exam based on the student's performance on the qualifying exam. The exam questions will be formulated by the members of the Ph.D. examining committee. The examination will also include an oral presentation and discussion by the student of a journal article previously selected by the examining committee. The exam must be conducted within a year following the completion of the qualifying exam. The student must request the appointment of an examination committee using Form G301. The examination committee may consist of four members and must include at least three full-time faculty members from the Department of Food Science and Nutrition and one full-time faculty member from another department in the university. Other committee members from inside or outside of the university may be chosen. The student should consult with his or her research adviser concerning the makeup of the committee. The Ph.D. examination committee, which may be the same as the Ph.D. thesis committee, should be suggested by the adviser and approved by the chairperson at least six weeks prior to the examination. The major portion of the research should not be started until the comprehensive examination is passed and the dissertation proposal is approved by the committee.

Dissertation and Oral Defense

Each student must present an oral defense of his or her Ph.D. dissertation work. The Ph.D. dissertation committee is appointed in the same way as the comprehensive exam committee. FdSN doctoral research can begin after admission to the Ph.D. program. All research must be conducted under the supervision of a full-time FdSN faculty member. The preliminary dissertation draft must meet the approval of all members of the examination committee. The oral examination is given as an open research seminar followed by a closed oral defense of the dissertation with only the Ph.D. dissertation committee. The final dissertation and oral defense must meet the approval of the examination committee and a majority of favorable votes are required to pass the Ph.D. dissertation defense. The committee has the authority to determine whether or not to grant a reexamination.