

PhD in Food and Hospitality Systems

Degree Requirements

- Minimum of 72 hours of graduate level coursework beyond the Bachelor's degree.
- 15 hours must be at the 8000-level or above, exclusive of readings, research, problems and independent study hours.
- Maximum of 30 hours of post-baccalaureate graduate credits (exclusive of readings, research, problems and independent study hours) from a regionally accredited university may be transferred in.

While a basic goal of the Ph.D. program is to provide students with highly specialized research skills and knowledge in a particular subdivision of Food and Hospitality Systems, the faculty believe that it is important for Ph.D. students to understand the breadth of the discipline as well.

There are three tracks in the Food and Hospitality Systems (FHS) Ph.D. program: **Food Science, Hospitality Management and Agricultural Systems Technology**. Courses required for all three tracks and those required for each track, respectively, are listed below.

Note: Tracks do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.

Required Courses for Food Science, Hospitality and Agricultural Systems Technology Tracks:

Statistics		6-9
STAT 7110	Statistical Software and Data Analysis	3
or STAT 7150	Applied Categorical Data Analysis	
or STAT 7210	Applied Nonparametric Methods	
or STAT 7310	Sampling Techniques	
or STAT 7410	Biostatistics and Clinical Trials	
or STAT 7510	Applied Statistical Models I	
or STAT 7530	Analysis of Variance	
or STAT 7540	Experimental Design	
or STAT 7560	Applied Multivariate Data Analysis	
Ethics		1-2
PLNT_SCI 8010	Professionalism and Ethics	2
or BIO_SC 8060	Ethical Conduct of Research	
or V_PPIO 8641	Introduction to Research Ethics	
or MPP 8415	Responsible Conduct of Research thru Engagement, Enactment and Empowerment NIH and other Federal Age	
or PSYCH 8910	Responsible Conduct of Research	
Career Development		1-4
AG_ED_LD 8350	College Teaching of Agriculture, Food and Natural Resources	1-4
or GRAD 9010	Preparing Future Faculty I	
or GRAD 9020	Preparing Future Faculty II	
or GRAD 9050	Preparing Future Professionals for Post-Graduate Studies Careers	
or GRAD 9072	Science Policy and Public Engagement	
or GRAD 9082	Science Policy and Public Engagement	
or GRAD 9304	Instructional and Communication Strategies for Effective College Teaching	

Food Science Track Required Courses: 15-19

Chemistry and Analysis		3-4
F_S 7310	Food Chemistry and Analysis	3-4
or F_S 7311	Investigation of Food Properties	
or F_S 7315	Food Chemistry and Analysis Laboratory	

Engineering/Processing		3-4
F_S 7160	Food Process Engineering	3
or F_S 7330	Principles of Food Processing	

Microbiology		3-5
F_S 7370	Food Microbiology	3
F_S 7375	Food Microbiology Laboratory	2

Quality Assurance		3
F_S 7360	Food Quality Assurance	3

Commodity Groups		3
F_S 7331	Technology of Dairy Products and Ingredients	3
or F_S 7344	Processing Muscle Foods	
or F_S 7440	Principles of Winemaking and Wine Chemical Analysis	

Hospitality Management Track Required Courses: 15

HSP_MGMT 7100	Hospitality Human Resources Management	3
HSP_MGMT 7110	Hospitality and Tourism Marketing	3
HSP_MGMT 7180	Strategic Management in the Hospitality Industry	3
HSP_MGMT 7200	Destination Management	3
HSP_MGMT 7400	Hospitality Finance Management	3
F_S 7941	Internship in Food Science (Minimum of two internships, 150 field hours each; first internship operational-based, second internship managerial-based)	2

Agricultural Systems Technology Track Required Courses: 15

AG_S_TCH 7020	Agricultural Safety and Health	3
AG_S_TCH 7220	Material Handling and Conditioning	3
AG_S_TCH 7320	Agricultural Equipment and Machinery	4
AG_S_TCH 7390	Optimization and Management of Food and Agriculture Systems	3
AG_S_TCH 7420	Surface Water Management	3

Plan of Study

The plan of study, completed under the guidance of a FHS Doctoral Degree Program Committee, consists of a list of formal courses and research or problems hours. The signed D2 form listing the committee-approved courses in the student's plan of study must be turned in to the FHS Graduate Program Coordinator no later than the end of the student's third semester for submission to the Graduate School. See a Sample Plan of Study at this link: <https://gradschool.missouri.edu/wp-content/uploads/2018/03/d2.pdf>

Minimum Requirements

Hours beyond the baccalaureate degree	72
Graduate level courses (excluding Problems, Research or Independent Study)	15

F_S 9087	Seminar in Food Science (Must be taken in FHS; 2 cr. required; maximum of 4 cr.)	1
----------	--	---

F_S 9090	Research in Foods Science	6
----------	---------------------------	---

Dissertation Requirements

Doctoral Degree Program Committee

A FHS Doctoral Degree Program Committee must be identified by the end of the student's second semester. This committee must include at least four MU graduate faculty members, three of whom must be from the FHS Graduate Program, including the advisor chair. The advisor chair and at least one other committee member must also be members of MU Doctoral Faculty. At least one committee member must be a graduate faculty member from MU but outside the chosen track in the FHS Graduate Program.

Qualifying Exam

To fulfill the Ph.D. Qualifying Exam, a proposal of the Ph.D. dissertation research or a critique and expansion of an assigned research article, must be presented to and approved by the student's Doctoral Degree Program Committee before the start of the student's third semester.

The D1 form must be submitted to the FHS Graduate Program Coordinator for submission to the Graduate School by the same time to indicate the results of this Qualifying Exam, along with the proposal or critique. The student's Doctoral Degree Program Committee shall determine the course of action for students who do not pass the Qualifying Exam. Students are allowed one attempt to remediate a failing result of the Qualifying Exam.

Research

Students are expected to begin their research once their proposal has been approved by the FHS Doctoral Degree Program Committee at their Qualifying Exam. Students are required to conduct periodic committee meetings to update the Doctoral Degree Program Committee on his/her research progress throughout their Ph.D. program. Significant modifications of the research following initial approval of the proposed Ph.D. research during the Qualifying Exam must be approved by the student's Doctoral Degree Program Committee. Upon completion of the research, a dissertation based on original research must be reviewed and approved by the student's Doctoral Degree Program Committee. All Ph.D. candidates are required to prepare at least one manuscript, judged acceptable by the major advisor and at least one additional member of the student's Doctoral Degree Program Committee, for submission to a refereed journal, prior to the final dissertation defense. A copy of the manuscript must be submitted to the FHS Graduate Program Coordinator at the same time as when scheduling the Defense.

Comprehensive Examination Process

Exit Seminar

Immediately before the defense of the dissertation, the student must present a formal dissertation exit seminar on his/her Ph.D. research. The seminar is open to the general university audience. The FHS Graduate Program Coordinator will announce the seminar dates to appropriate colleagues within and outside the program at least two weeks prior to the seminar date. The dissertation defense must take place when MU is officially in session and the candidate must be enrolled at MU at the time.

Final Examination

After the seminar has been presented, a final defense oral examination will be conducted by the FHS Doctoral Degree Program Committee. The candidate should be prepared to defend his/her research and to discuss

any related areas. Together with the dissertation, at least one published manuscript or a manuscript for publication submission based on the student's Ph.D. research must be submitted to the Doctoral Program Committee for review and to the FHS Graduate Program Coordinator at least two weeks before the final exam.

A report of the examination (D4 form), carrying the signatures of all members of the committee, must be turned in to the FHS Graduate Program Coordinator for submission to the MU Graduate School before the deadline preceding the anticipated date of graduation. For the dissertation to be considered successfully defended, the student's Doctoral Degree Program Committee must vote to pass the student on the defense with no more than one dissenting or abstaining vote.

A final copy of the dissertation must be submitted to the MU Graduate School electronically. A bound hard copy must be submitted to the FHS Graduate Program.

Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the Ph.D. in Food and Hospitality Systems Graduate Program (<https://gradschool.missouri.edu/degreecategory/food-and-hospitality-systems/>) and the minimum requirements of the Graduate School (<https://gradschool.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you *must* refer to the degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.