Food Safety

Program Description

The Food Safety program was founded in 2001 to help meet the increasing need for individuals with food safety expertise in government, business, and academia. The graduate program is interdisciplinary, and NDSU graduate faculty from several colleges participate in advising graduate students. The NDSU Graduate School administers the academic program, while the home department of the adviser handles assistantship and tuition waiver administration. Academic policies are under the governance of the Food Safety graduate program faculty.

Degrees Offered and the Graduate Certificate

Three programs are offered at the graduate level. Research project-based degrees include the Doctor of Philosophy (Ph.D.) and the Master of Science (M.S.). The thesis-based M.S. degree will prepare students for supervisory roles in the food industry, in regulatory agencies, or in public health and is preparatory for students who may wish to advance to Ph.D. programs. Individuals earning a Ph.D. degree will be educated as independent researchers, expanding their potential to become principal investigators of food safety research in various arenas, including business, academia, and government. The non-thesis M.S. is intended for working professionals looking to augment their skills or credentials. Most coursework can be completed online, although the candidate must be present on-campus to present seminar and also the M.S. paper. The Graduate Certificate in Food Protection is aimed at professionals looking to augment their skills, as well as graduate students in other programs wishing to add a credential to their degree programs. All course work for the Certificate is completed online.

For candidates who have been granted a M.S. from a recognized program, the Ph.D. program requires the completion of 35 semester credits of course work with an overall GPA of 3.0 or better, as well as 25 research credits (SAFE 899). Fifteen of these credits must be at the 700-789 level. The Ph.D. program is, by design, highly flexible to allow study in the diverse areas of specialization that are related to food safety. While a number of core courses, including SAFE 601-609, seminar (SAFE 790) and research (SAFE 899) are required, additional course work can be tailored to meet the candidate's interests and area of specialization. This additional course work, however, must contribute to proficiency in an area of food safety.

An advisory committee will be established for each candidate admitted. This committee will consist of the major adviser (committee chair), and two other selected graduate faculty. The student and major adviser will prepare the plan of study, which is subject to the approval of the advisory committee, the Food Safety program director, and the Graduate School dean. The plan of study should be completed by the end of the first semester of enrollment in the program.

Ph.D. candidates are required to pass a preliminary examination at least one semester prior to the defense of the dissertation. Two preliminary exam options are available. The first involves the standard written and oral examinations covering the candidate's course work. The second involves successful preparation and defense of a research grant proposal, under accepted guidelines (e.g. USDA-NIFA, NIH).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>SAFE</td>
<td>Core Courses (required)</td>
<td></td>
</tr>
<tr>
<td>SAFE 601</td>
<td>Food Safety Information &amp; Flow of Food</td>
<td>1</td>
</tr>
<tr>
<td>SAFE 602</td>
<td>Foodborne Hazards</td>
<td>1</td>
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<tr>
<td>SAFE 603</td>
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<td>Costs of Food Safety</td>
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<tr>
<td>SAFE 609</td>
<td>Food Safety Risk Communication &amp; Education</td>
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</tr>
<tr>
<td>SAFE 790</td>
<td>Graduate Seminar</td>
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<tr>
<td>SAFE 899</td>
<td>Doctoral Dissertation</td>
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<tr>
<td>MICR</td>
<td>Course Options</td>
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<tr>
<td>MICR 653</td>
<td>Food Microbiology</td>
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<td>MICR 674</td>
<td>Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>MICR 724</td>
<td>Applied Epidemiology and Biostatistics</td>
<td>3</td>
</tr>
<tr>
<td>MICR 750</td>
<td>Advanced Topics in Epidemiology</td>
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Ph.D. core courses (SAFE 601-609) and seminar (SAFE 790) are required. Additional course work can be tailored to meet the candidate's interests and area of specialization.
Depending upon the candidate’s area of specialization, additional course work may be found in programs such as Agribusiness and Applied Economics (AGEC), Agricultural & Biosystems Engineering (ABEN), Animal Sciences (ANSC), Cereal and Food Sciences (CFS), Chemistry (CHEM), Communication (COMM), Health, Nutrition & Exercise Sciences (HNES), Master of Public Health (MPH), Plant Pathology (PPTH), Plant Sciences (PLSC), and Statistics (STAT).

**Master’s of Science (M.S. thesis option)**

The Master of Science (thesis) is a research degree and can prepare the candidate for future study at the doctoral level. The candidate will perform a novel research project designed to contribute to the body of knowledge in some area pertinent to food safety, prepare a thesis on this research, and defend it in a final oral examination administered by the advisory committee. This program requires a total of 30 semester credits with an overall GPA of 3.0 or better. A minimum of 21 credits of course work, as well as 6-10 research credits must be completed. A minimum of 16 of these credits must be didactic (600-689 or 700-789). SAFE 601-609, seminar (SAFE 790) and research (SAFE 798) are required. Remaining course work can be tailored to meet the candidate’s interests and area of specialization.

An advisory committee will be established for each candidate admitted. This committee will consist of the major adviser (committee chair), and two other selected graduate faculty. Additionally, the Graduate School will appoint an outside member of the committee. The student and major adviser will prepare the plan of study, which is subject to the approval of the advisory committee, the Food Safety program director, and the Graduate School dean. The plan of study should be completed by the end of the first semester of enrollment in the program.

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<td>Plan A - Thesis Option</td>
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<td>Course Options</td>
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<td>SAFE 640</td>
<td>Hazard Analysis Critical Control Point (HACCP) and Food Safety Systems</td>
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<td>SAFE 652</td>
<td>Food Laws and Regulations</td>
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<tr>
<td>SAFE 684</td>
<td>Food Safety Practicum</td>
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<td>SAFE 753</td>
<td>Food Toxicology</td>
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<tr>
<td>Core Courses (required)</td>
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Total Credits 30
### Graduate Certificate in Food Protection Requirements

To be admitted to this program, students must demonstrate that they have a baccalaureate degree in an area pertinent to food safety from an accredited educational institution of recognized standing. To obtain a Graduate Certificate in Food Protection, students must successfully complete the nine (9) semester credits of core curriculum below and earn a grade of B or better in each course. All courses are offered online. Certificate students are assigned an adviser. No assistantships are available for Certificate applicants.

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<td>MICR 797</td>
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<td>SAFE 640</td>
<td>Hazard Analysis Critical Control Point (HACCP) and Food Safety Systems (Course may be offered on-line or on-campus)</td>
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Total Credits 30

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