FOOD SCIENCE, M.S.

The graduate program in the Department of Food Science ranks among the best of its kind in the United States. Strong faculty research groups exist in food chemistry, food engineering, food microbiology, and food safety. The master’s track in these areas combine an array of in-depth courses with the use of advanced research methods for studying food properties: chemical, physical, physiological, and bioactive characteristics; material properties; microbial control and safety; sensory quality; procedures for the processing, storage, and preservation of foods.

Research areas in which the department has special expertise include: chemical attributes of proteins, enzymes, lipids, flavors, bioactive components, and pigments; processes for crystallizing, separating, freezing, and drying; food safety (detection, control, and mechanistic action of pathogenic microorganisms, and undesirable chemicals in food); process optimization and validation of critical processing limits. Commodity foci include: dairy products, confectionery products, fruits and vegetables, muscle foods, and fermented products.

The department occupies Babcock Hall, a building with excellent facilities for instruction and research. Availability of appropriate instruments, equipment, and pilot-plant facilities enables research on the above topics to be conducted in a manner that has impact worldwide.

About 40–50 students from many countries are currently pursuing both the M.S. and Ph.D. degrees in the areas mentioned above. This includes some graduate students working in programs associated with the Food Research Institute and closely allied departments.

Individuals obtaining advanced degrees in food science will find employment opportunities in academic instruction and research, government research or regulatory programs, and industrial research, development, or quality assurance. Historically, the department’s placement record for graduating students has been very good.

ADMISSIONS

GRADUATE SCHOOL ADMISSIONS

Graduate admissions is a two-step process between academic degree programs and the Graduate School. Applicants must meet requirements of both the program(s) and the Graduate School. Once you have researched the graduate program(s) you are interested in, apply online (https://grad.wisc.edu/admissions).

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Deadline</td>
<td>January 15</td>
</tr>
<tr>
<td>Spring Deadline</td>
<td>September 1</td>
</tr>
<tr>
<td>Summer Deadline</td>
<td>The program does not admit in the summer.</td>
</tr>
<tr>
<td>GRE (Graduate Record Examinations)</td>
<td>Required.</td>
</tr>
<tr>
<td>English Proficiency Test</td>
<td>Every applicant whose native language is not English or whose undergraduate instruction was not in English must provide an English proficiency test score and meet the Graduate School minimum requirements (<a href="https://grad.wisc.edu/apply/requirements/#english-proficiency">https://grad.wisc.edu/apply/requirements/#english-proficiency</a>).</td>
</tr>
</tbody>
</table>

| Other Test(s) (e.g., GMAT, MCAT) | n/a                                         |
| Letters of Recommendation Required | 3                                           |

Students who are admitted to the program must meet the Graduate School minimum requirements (https://grad.wisc.edu/admissions/requirements), including completion of a bachelor’s degree which typically consists of a satisfactory undergraduate education in fields such as food science, dairy science, chemistry, most biological sciences (e.g., biochemistry, microbiology, nutrition), and engineering (especially chemical and agricultural). To enter the program, students must have taken at least one course in biochemistry and one course in organic chemistry.

APPLICATION DEADLINES:

Fall semester—January 15 (prior to the fall semester)
Spring semester—September 1 (prior to the spring semester)

The minimum test scores required to be eligible to be “admissible” to the Food Science graduate program are the following:

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRE</td>
<td>Verbal: 148; Quantitative: 148; Analytical Writing: 3.5</td>
</tr>
<tr>
<td>English Proficiency Test</td>
<td>TOEFL: 92; IELTS: 7.0</td>
</tr>
</tbody>
</table>

Admissibility does NOT equal admission. Admissibility means applicants have met the minimum requirements to be eligible for admission. Applicants recommended for admission generally have higher test scores that are competitive with the top 50% of GRE scores among individuals intent on pursuing graduate studies in life sciences in the U.S. (median scores of V 151, Q 151, AW: 3.5). Recommendation for admission is determined solely by the supervising lab faculty member. Final admission is determined by the Graduate School.

Recommendation for admission is made by an individual food science or affiliated faculty member (https://foodsci.wisc.edu/faculty.php) usually based on the review of the following:

• applicant’s online application (https://grad.wisc.edu/admissions/process)
• academic record (scanned PDF academic transcripts)
• official test scores (sent directly from the testing agency (code: 1846)) of Graduate Record Exams (GRE) (https://www.ets.org) and English proficiency test (non-native English speaking applicants (https://grad.wisc.edu/admissions/requirements) only)
• recommendation letters (three)
• personal statement (reasons for graduate study) up to two pages double-spaced
• CV or resume
• applicant’s particular research interest(s) as indicated in supplemental application
• available funding/space in their research lab
After the application is submitted, applicants should contact faculty (https://foodsci.wisc.edu/faculty.php) members directly (via email) to discuss research opportunities in their labs.

Students interested in applying for the food science program should look closely at the website (http://www.foodsci.wisc.edu/grad_apply.php) for specific information about the admissions process.

### FUNDING

**GRADUATE SCHOOL RESOURCES**

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (https://grad.wisc.edu/funding) is available from the Graduate School. Be sure to check with your program for individual policies and processes related to funding.

**PROGRAM RESOURCES**

We recommend that your application be complete by the application deadlines in order to be considered for funding. Financial assistance is sometimes available to qualified individuals in the form of research assistantships, teaching assistantships, or fellowships. Fellowships are granted to students meeting specific criteria and with outstanding academic records. Research assistantships are awarded by individual professors through funds available to their research programs. Funding is awarded on a competitive basis and renewed annually pending the student's satisfactory progress. (Teaching assistant positions in food science are available only to students who have already been enrolled for at least two semesters.)

Please be advised that you do not need to make a separate application for financial support as your admission application will also serve as an application for assistantships and fellowships.

Prospective students are encouraged to search and apply for external funding sources (scholarships and fellowships) on their own. (If faculty do not have funding or lab space available, they often do not accept new students into their labs.) Additionally, prospective students are encouraged to apply for graduate assistantship (teaching, research, or project) positions in other UW–Madison departments to potentially defray the costs of their studies. See Graduate School Funding pages (https://grad.wisc.edu/studentfunding/steps) for more information.

### REQUIREMENTS

**MINIMUM GRADUATE SCHOOL REQUIREMENTS**

Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/policiesandrequirementtext), in addition to the program requirements listed below.

**MAJOR REQUIREMENTS**

#### MODE OF INSTRUCTION

<table>
<thead>
<tr>
<th>Face to Face</th>
<th>Evening/Weekend</th>
<th>Online</th>
<th>Hybrid</th>
<th>Accelerated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

**CURRICULAR REQUIREMENTS**

<table>
<thead>
<tr>
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<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Credit Requirement</td>
<td>30 credits</td>
</tr>
<tr>
<td>Minimum Residence Credit Requirement</td>
<td>16 credits</td>
</tr>
<tr>
<td>Minimum Graduate Coursework Requirement</td>
<td>Half of degree coursework (15 credits out of 30 total credits) must be completed graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university’s Course Guide (<a href="https://registrar.wisc.edu/course-guide/">https://registrar.wisc.edu/course-guide/</a>).</td>
</tr>
<tr>
<td>Overall Graduate GPA Requirement</td>
<td>3.00 GPA required.</td>
</tr>
<tr>
<td>Other Grade Requirements</td>
<td>The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of incomplete (I) are considered to be unsatisfactory if they are not removed during the next enrolled semester.</td>
</tr>
</tbody>
</table>

**Assessments and Examinations**

Students are required to have a graduate program advisory committee (GPAC) meeting once each year to monitor progress toward their degree.

- The presentation for the graded FOOD SCI 900 Seminar Advanced must be given a semester before or in the semester of the defense.
- Master’s students are required to defend their thesis after they have cleared their record of all Incomplete and Progress grades (other than research and thesis) and deposit the final thesis to the Memorial Library.

**Language Requirements**

Food Science does not have a foreign language requirement.
REQUIRED COURSES

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOOD SCI 410</td>
<td>Food Chemistry</td>
<td></td>
</tr>
<tr>
<td>FOOD SCI 432</td>
<td>Principles of Food Preservation</td>
<td></td>
</tr>
<tr>
<td>FOOD SCI/MICROBIO 325</td>
<td>Food Microbiology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 credits of FOOD SCI (600, 610-679, 700-899) or closely related courses (Any graduate level)</td>
<td></td>
</tr>
</tbody>
</table>

Degree Requirements

Food Science Core Courses

Students are expected to have taken one course each in organic chemistry and biochemistry. If they enter the program without these courses, students are required to take them before graduating.

Statistics
Students must take a course in statistics if they have not done so prior to entering the program. Typically students will take:

- STAT/F&W ECOL/HORT 571 Statistical Methods for Bioscience I
- or
- STAT/F&W ECOL/HORT 572 Statistical Methods for Bioscience II

Graduate Seminar
Students must enroll in this course every semester they are in the program:

- FOOD SCI 900 Seminar Advanced

Students may take courses with the graduate-level attribute (G50%) in Food Science and related disciplines to meet the 30-credit minimum requirement.

- If students have taken similar "Food Science Core" courses prior to entering the program, these courses may be waived.
- The semester students present their research, this course is graded. Otherwise, students take it as Satisfactory/Unsatisfactory.

POLICIES

GRADUATE SCHOOL POLICIES

The Graduate School's Academic Policies and Procedures (https://grad.wisc.edu/acadpolicy) provide essential information regarding general university policies. Program authority to set degree policies beyond the minimum required by the Graduate School lies with the degree program faculty. Policies set by the academic degree program can be found below.

MAJOR-SPECIFIC POLICIES

GRADUATE PROGRAM HANDBOOK

A Graduate Program Handbook containing all of the program's policies and requirements is forthcoming from the program.

PRIOR COURSEWORK

Graduate Work from Other Institutions

Prior graduate-level coursework from other institutions may not count toward minimum credit requirements for the major, but may satisfy specific food science course requirements.

UW–Madison Undergraduate

Prior coursework as a UW–Madison undergraduate student may not count toward minimum credit requirements for the major, but may satisfy specific food science course requirements.

UW–Madison University Special

Prior coursework taken as a University Special student may not count toward minimum credit requirements for the major, but may satisfy specific food science course requirements.

PROBATION

Candidates not making satisfactory progress will be placed on probation. If this probationary status is not resolved by the end of the semester in which it is initiated, the candidate may be dismissed by their faculty advisor.

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. Students can be suspended from the Graduate School if they do not have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis. An advisor is a faculty member or affiliate faculty member from the major department responsible for providing advice about the student's coursework, supervising the student's research, and acting as a mentor to the student through the student's graduate career.

The student's graduate program advisory committee (GPAC) also is involved in advising of the student in various stages of their studies to monitor and ensure they are making satisfactory progress toward a degree. The M.S. GPAC should consist of at least 3 members as detailed in the Food Science Graduate Student Handbook.

CREDITS PER TERM ALLOWED

15 credits

TIME CONSTRAINTS

It is expected that students will complete all degree requirements in two to three years.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.
OTHER
Students are admitted by faculty in the department through direct admission. Faculty also determine who will receive funding which is dependent upon available funds from grants.

PROFESSIONAL DEVELOPMENT

GRADUATE SCHOOL RESOURCES
Take advantage of the Graduate School's professional development resources (https://grad.wisc.edu/pd) to build skills, thrive academically, and launch your career.

LEARNING OUTCOMES

1. Understands, articulates, critiques and elaborates core paradigms in Food Science.
2. Recognizes that life-long learning is critical for continued personal and professional development.
3. Complies with principles of ethical and professional conduct.
4. Sources and assembles evidence to address questions or identify gaps in knowledge in the field of food science.
5. Evaluates and synthesizes information to address technical challenges.
6. Selects research methods and practices appropriate to discovery activities.
7. Creates knowledge that contributes to the field of food science.
8. Clearly and effectively communicates technical information in oral and written formats.
9. Works effectively within a team.

PEOPLE

Faculty:
Professors: Damodaran, Etzel, Hartel, Ingham, Lucey, Parkin, Rankin (chair)
Assistant Professors: Bolling, Huynh, Ikeda, van Pijkeren