NUTRITIONAL SCIENCES, PH.D.

Modern nutrition is a multidisciplinary, integrative science, and the Interdepartmental Graduate Program in Nutritional Sciences (IGPNS) has been developed to meet this diversity in approach and objective. Thus, students can focus their training in one of three emphasis groups:

1. Biochemical and Molecular Nutrition
2. Human Nutrition
3. Animal Nutrition

The degrees offered are the Master of Science and the Doctor of Philosophy in Nutritional Sciences.

It is the program’s goal to provide graduate students interested in nutrition with an opportunity to obtain specialized training in a specific research area and also to obtain a general background in the science and practice of nutrition. The program is sufficiently flexible to allow students with a wide variety of undergraduate degrees to meet the background prerequisites. The program draws on the strengths of faculty in a number of the university’s colleges and academic departments to enhance the instructional and research experience.

The training objectives of the IGPNS are to provide students with an understanding of basic nutritional principles as they apply to both humans and animals, to provide them with current knowledge in a specific area of emphasis, to make them aware of the integrative and multidisciplinary nature of nutrition research, and to direct them toward a successful career through the thesis and publications.

Biochemical and Molecular Nutrition. This emphasis group focuses on the application of biochemical and physiological approaches to the understanding of nutrient function and metabolism in systems ranging from the whole animal to the molecular level.

Human Nutrition. This emphasis group takes a comprehensive view of human nutrition with emphasis on the maintenance and promotion of human health. It utilizes diverse research approaches to carry out studies on nutrient requirements, metabolism, and interactions. Research may involve physiological and biochemical studies, animal models and epidemiological, and educational or clinical interventions.

Animal Nutrition. This emphasis group takes a comprehensive view of animal nutrition with a focus on expanding understanding of nutrient utilization. Research activities involve both the performance of domestic animals and general comparative nutrition across animal species. Studies may range from applied animal feeding trials to basic studies on nutrient metabolism or integrated whole-animal metabolism with an emphasis on quantification and regulation.

The graduate faculty have well-developed, competitively funded research programs and have been nationally recognized for their activities. They are active in national and international nutrition activities, and serve on editorial boards, as society officers, and as participants in numerous workshops and on advisory committees.

ADMISSIONS

Please consult the table below for key information about this degree program’s admissions requirements. The program may have more detailed admissions requirements, which can be found below the table or on the program’s website. Graduate admissions is a two-step process between academic programs and the Graduate School. Applicants must meet the minimum requirements (https://grad.wisc.edu/apply/requirements/) of the Graduate School as well as the program(s).

Once you have researched the graduate program(s) you are interested in, apply online (https://grad.wisc.edu/apply/).

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Deadline</td>
<td>January 1</td>
</tr>
<tr>
<td>Spring Deadline</td>
<td>January 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>Not 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>
<tr>
<td>Other Test(s) (e.g., GMAT, MCAT)</td>
<td>n/a</td>
</tr>
<tr>
<td>Letters of Recommendation Required</td>
<td>3</td>
</tr>
</tbody>
</table>

* Students are only directly admitted to begin in the Spring term if they have a mentor pre-arranged. Contact the program with questions.

Candidates for graduate study in nutritional sciences should have a strong background in mathematics, chemistry, biological sciences, medical sciences or social sciences.

Specific prerequisites for the graduate program include the following:

- 2 semesters of General Chemistry
- 2 semesters of Biological Sciences
- 1 semester of Organic Chemistry
- Biochemistry with an Organic Chemistry prerequisite
- 1 semester of Calculus or Statistics
- 1 semester of Physiology

Students who have not completed all the requirements may be admitted, but deficiencies should be made up during the first year of graduate study.

All applicants must have a minimum grade point average of at least 3.0 (on a 4.0 scale) as well as three references and a personal statement. Acceptance requires approval by the Department of Nutritional Sciences and the Graduate School.
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 restrictions related to funding.

PROGRAM RESOURCES
Assistantships and fellowships are available to support students. Information about financial assistance may be obtained from the department office.

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS
Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/#policiesandrequirementstext), in addition to the program requirements listed below.

MAJOR REQUIREMENTS

MODE OF INSTRUCTION

<table>
<thead>
<tr>
<th>Mode of Instruction Definitions</th>
<th>Face to Face</th>
<th>Evening/Weekend</th>
<th>Online</th>
<th>Hybrid</th>
<th>Accelerated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evening/Weekend: These programs are offered in an evening and/or weekend format to accommodate working schedules. Enjoy the advantages of on-campus courses and personal connections, while keeping your day job. For more information about the meeting schedule of a specific program, contact the program.</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Online: These programs are offered primarily online. Many available online programs can be completed almost entirely online with all online programs offering at least 50 percent or more of the program work online. Some online programs have an on-campus component that is often designed to accommodate working schedules. Take advantage of the convenience of online learning while participating in a rich, interactive learning environment. For more information about the online nature of a specific program, contact the program.</td>
<td></td>
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<tr>
<td>Hybrid: These programs have innovative curricula that combine on-campus and online formats. Most hybrid programs are completed on-campus with a partial or completely online semester. For more information about the hybrid schedule of a specific program, contact the program.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Accelerated: These on-campus programs are offered in an accelerated format that allows you to complete your program in a condensed time-frame. Enjoy the advantages of on-campus courses with minimal disruption to your career. For more information about the accelerated nature of a specific program, contact the program.</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

CURRICULAR REQUIREMENTS

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Credit Requirement</td>
<td>51 credits</td>
</tr>
</tbody>
</table>

REQUIRED COURSES

Animal Nutrition Track ¹

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR SCI/ 619</td>
<td>Advanced Nutrition: Intermediary Metabolism of Macronutrients</td>
<td>3</td>
</tr>
<tr>
<td>NUTR SCI/ 625</td>
<td>Advanced Nutrition: Obesity and Diabetes</td>
<td>1</td>
</tr>
<tr>
<td>NUTR SCI 626</td>
<td>Experimental Diet Design</td>
<td>1</td>
</tr>
<tr>
<td>NUTR SCI 627</td>
<td>Advanced Nutrition: Vitamins</td>
<td>1</td>
</tr>
<tr>
<td>NUTR SCI 600</td>
<td>Introductory Seminar in Nutrition</td>
<td>1</td>
</tr>
<tr>
<td>NUTR SCI 931</td>
<td>Seminar-Nutrition</td>
<td>1</td>
</tr>
<tr>
<td>BIOCHEM/ NUTR SCI 901</td>
<td>Seminar-Nutrition and Metabolism (Advanced)</td>
<td></td>
</tr>
<tr>
<td>NUTR SCI 799</td>
<td>Practicum in Nutritional Sciences Teaching (or equivalent experience)</td>
<td>1:3</td>
</tr>
<tr>
<td>STAT/F&amp;W ECOL/ HORT 571</td>
<td>Statistical Methods for Bioscience I</td>
<td>4</td>
</tr>
<tr>
<td>STAT/F&amp;W ECOL/ HORT 572</td>
<td>Statistical Methods for Bioscience II</td>
<td>4</td>
</tr>
</tbody>
</table>
Select a lab course, from the following or equivalent: 2

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMOLCHEM 504</td>
<td>Human Biochemistry Laboratory</td>
<td></td>
</tr>
</tbody>
</table>

Select an animal nutrition course, 400 level or above 2

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR SCI/BIOCHEM 619</td>
<td>Advanced Nutrition: Intermediary Metabolism of Macronutrients</td>
<td>3</td>
</tr>
<tr>
<td>NUTR SCI/BIOCHEM 621</td>
<td>Introduction to Nutritional Epidemiology</td>
<td>1</td>
</tr>
<tr>
<td>NUTR SCI 623</td>
<td>Advanced Nutrition: Minerals</td>
<td>1</td>
</tr>
<tr>
<td>NUTR SCI 625</td>
<td>Advanced Nutrition: Obesity and Diabetes</td>
<td>1</td>
</tr>
<tr>
<td>NUTR SCI/AN SCI 626</td>
<td>Experimental Diet Design</td>
<td>1</td>
</tr>
<tr>
<td>NUTR SCI 627</td>
<td>Advanced Nutrition: Vitamins</td>
<td>1</td>
</tr>
<tr>
<td>NUTR SCI 600</td>
<td>Introductory Seminar in Nutrition</td>
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</tr>
<tr>
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</tr>
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<td>Seminar-Nutrition and Metabolism (Advanced)</td>
<td>1</td>
</tr>
<tr>
<td>NUTR SCI 799</td>
<td>Practicum in Nutritional Sciences Teaching (or equivalent experience)</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Select a quantitative methods course 2

Select an additional coursework in nutrition, BIOCHEM, or related areas 1+

These tracks are internal to the program and represent different pathways a student can follow to earn this degree. Track names do not appear in the Graduate School admissions application, and they will not appear on the transcript.

**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**

**PRIOR COURSEWORK**

Graduate Work from Other Institutions

With approval of the certification committee, students are allowed to count up to 19 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

UW–Madison Undergraduate

With approval of the certification committee, students are allowed to count up to 7 credits from a UW–Madison undergraduate degree, numbered 400 and above, toward the Ph.D. degree, provided the course satisfies a requirement within the student’s core curriculum or IGPNS emphasis group. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

UW–Madison University Special

With program approval, students are allowed to count no more than 15 credits of coursework taken as a UW–Madison Special student, provided the course satisfies a requirement within the student’s core curriculum.
or IGPNS emphasis group. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

PROBATION
The IGPNS requires a cumulative 3.0 GPA for all courses taken in the UW Graduate School. Grades in research (NUTR SCI 991 Research Nutrition) are not included in the calculation of the GPA. A student who does not maintain a 3.0 GPA can continue on probationary status for two semesters at the recommendation of the major professor. If, at that time, the student does not achieve a cumulative 3.0 GPA, they will be dropped from the program.

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. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. 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.

A committee often accomplishes advising for the students in the early stages of their studies.

CREDITS PER TERM ALLOWED
12 credits: fall and spring semesters
2 credits: per eight-week summer session

TIME CONSTRAINTS
Doctoral degree students who have been absent for ten 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.

A candidate for a Doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

A student's program may appeal these time limits through a written request to the Graduate School Office of Academic Services.

GRIEVANCES AND APPEALS
These resources may be helpful in addressing your concerns:

- Bias or Hate Reporting (https://doso.students.wisc.edu/bias-or-hate-reporting/)
- Graduate Assistantship Policies and Procedures (https://hr.wisc.edu/policies/gapp/#grievance-procedure)
- Hostile and Intimidating Behavior Policies and Procedures (https://hr.wisc.edu/hib/)
- Office of the Provost for Faculty and Staff Affairs (https://facstaff.provost.wisc.edu/)
- Dean of Students Office (https://doso.students.wisc.edu/) (for all students to seek grievance assistance and support)
- Employee Assistance (http://www.eao.wisc.edu/) (for personal counseling and workplace consultation around communication and conflict involving graduate assistants and other employees, post-doctoral students, faculty and staff)
- Employee Disability Resource Office (https://employee.disabilities.wisc.edu/) (for qualified employees or applicants with disabilities to have equal employment opportunities)
- Graduate School (https://grad.wisc.edu/) (for informal advice at any level of review and for official appeals of program/departmental or school/college grievance decisions)
- Office of Compliance (https://compliance.wisc.edu/) (for class harassment and discrimination, including sexual harassment and sexual violence)
- Office of Student Conduct and Community Standards (https://conduct.students.wisc.edu/) (for conflicts involving students)
- Ombuds Office for Faculty and Staff (http://www.ombuds.wisc.edu/) (for employed graduate students and post-docs, as well as faculty and staff)
- Title IX (https://compliance.wisc.edu/titleix/) (for concerns about discrimination)

College of Agricultural and Life Sciences: Grievance Policy
In the College of Agricultural and Life Sciences (CALS), any student who feels unfairly treated by a member of the CALS faculty or staff has the right to complain about the treatment and to receive a prompt hearing. Some complaints may arise from misunderstandings or communication breakdowns and be easily resolved; others may require formal action. Complaints may concern any matter of perceived unfairness.

To ensure a prompt and fair hearing of any complaint, and to protect the rights of both the person complaining and the person at whom the complaint is directed, the following procedures are used in the College of Agricultural and Life Sciences. Any student, undergraduate or graduate, may use these procedures, except employees whose complaints are covered under other campus policies.

1. The student should first talk with the person at whom the complaint is directed. Most issues can be settled at this level. Others may be resolved by established departmental procedures.

2. If the student is unsatisfied, and the complaint involves any unit outside CALS, the student should seek the advice of the dean or director of that unit to determine how to proceed.
   a. If the complaint involves an academic department in CALS the student should proceed in accordance with item 3 below.
   b. If the grievance involves a unit in CALS that is not an academic department, the student should proceed in accordance with item 4 below.

3. The student should contact the department’s grievance advisor within 120 calendar days of the alleged unfair treatment. The departmental administrator can provide this person’s name. The grievance advisor will attempt to resolve the problem informally within 10 working days of receiving the complaint, in discussions with the student and the person at whom the complaint is directed.
   a. If informal mediation fails, the student can submit the grievance in writing to the grievance advisor within 10 working days of the date the student is informed of the failure of the mediation
atlas of the grievance advisor. The grievance advisor will provide
a copy to the person at whom the grievance is directed.
b. The grievance advisor will refer the complaint to a department
committee that will obtain a written response from the person at
whom the complaint is directed, providing a copy to the student.
Either party may request a hearing before the committee. The
grievance advisor will provide both parties a written decision
within 20 working days from the date of receipt of the written
complaint.
c. If the grievance involves the department chairperson, the
advisory committee or a member of the grievance committee, these
persons may not participate in the review.
d. If not satisfied with departmental action, either party has 10
working days from the date of notification of the departmental
committee action to file a written appeal to the CALS Equity
and Diversity Committee. A subcommittee of this committee
will make a preliminary judgement as to whether the case
merits further investigation and review. If the subcommittee
unanimously determines that the case does not merit further
investigation and review, its decision is final. If one or more
members of the subcommittee determine that the case does
merit further investigation and review, the subcommittee will
investigate and seek to resolve the dispute through mediation.
If this mediation attempt fails, the subcommittee will bring the
case to the full committee. The committee may seek additional
information from the parties or hold a hearing. The committee
will present a written recommendation to the dean who will provide a
final decision within 20 working days of receipt of the committee
recommendation.

4. If the alleged unfair treatment occurs in a CALS unit that is not
an academic department, the student should, within 120 calendar
days of the alleged incident, take his/her grievance directly to the
Associate Dean of Academic Affairs. The dean will attempt to solve
the problem informally within 10 working days of receiving the
complaint. If this mediation attempt does not succeed the student
may file a written complaint with the dean who will refer it to the
CALS Equity and Diversity Committee. The committee will seek a
written response from the person at whom the complaint is directed, subsequently following other steps delineated in item 3d above.

OTHER
n/a

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. Articulates research problems, potentials, and limits with respect
to theory, knowledge, and practice in nutritional sciences. Specific
knowledge areas of focus include intermediary metabolism, functions
and metabolism of vitamins and minerals, nutrition-related diseases
such as obesity and diabetes, and fundamental principles of
epidemiology and nutrition policy.

2. Formulates ideas, concepts, designs, and/or techniques beyond the
current boundaries of knowledge in nutritional sciences.

3. Creates original research and scholarship that makes a substantive
contribution to nutritional sciences.

4. Demonstrates breadth of knowledge of nutritional sciences.

5. Advances contributions of the field of nutritional sciences to society.

6. Communicates complex ideas in a clear and understandable manner
through written and oral presentations.

7. Fosters and practices ethical and professional conduct.

PEOPLE

FACULTY

MEMBERS OF THE INTERDEPARTMENTAL
GRADUATE PROGRAM IN NUTRITIONAL
SCIENCES WITHIN THE DEPARTMENT

Eide, Dave (Department Chair), Professor of Nutritional Sciences; Ph.D.,
1987. Nutritional genomics and molecular responses to changes in
nutrient status

Eisenstein, Richard, Professor of Nutritional Sciences; Ph.D., 1985. Iron
metabolism; posttranscriptional control of proteins required for the
uptake, storage, and use of iron

Fan, Jing, Assistant Professor of Nutritional Sciences, Ph.D., 2014.
Cancer metabolism; metabolic regulation in dynamic mammalian
systems

Groblewski, Guy, Professor of Nutritional Sciences, Ph.D., 1991.
Intracellular signal transduction and membrane/protein trafficking in
gastrointestinal epithelial cells

Kuchina, Adam, Assistant Professor of Nutritional Sciences; Ph.D., 2017;
Muscle and Protein Metabolism; Understanding how disease affects
muscle and protein metabolism and muscle assessment techniques

Lai, Huichuan, Professor of Nutritional Sciences; Ph.D., R.D., 1994.
Epidemiological studies linking nutrition and disease outcomes in
pediatric populations

Ney, Denise, Professor of Nutritional Sciences; Ph.D., 1986. Nutritional
management of phenylketonuria and gastrointestinal physiology

Ntambi, James, Steenbock Professor of Nutritional Sciences (also
Biochemistry); Ph.D., 1985. Mechanisms of fat cell differentiation;
regulation of gene expression by dietary and hormonal factors

Olson, Beth, Associate Professor. Ph.D. – Nutrition, University of
California at Davis. Breastfeeding support and improving infant feeding
practices

Parks, Brian, Assistant Professor of Nutritional Sciences, Ph.D., 2008.
Systems genetics, Gene-diet interactions, and molecular mechanisms of
obesity and diabetes

Schoeller, Dale, Faculty Emeritus; Ph.D., Biochemical & Molecular
Nutrition;
Human Nutrition; Energy metabolism and human obesity, body
composition, and stable isotope techniques for macronutrient
metabolism
MEMBERS OF THE INTERDEPARTMENTAL GRADUATE PROGRAM IN NUTRITIONAL SCIENCES FROM OUTSIDE THE DEPARTMENT:

[Names and affiliations of external members are listed here.]

Reed, Jess, Professor of Animal Sciences; Ph.D. 1983. Flavonoids and other phytochemicals in animal and human health and nutrition

Reeder, Scott, Professor. MD. Ph.D. Abdominal adiposity, liver fat, liver iron overload and other features of diffuse liver disease, quantification of perfusion in liver tumors, hemodynamics of portal hypertension, and the use of new contrast agents in liver and biliary diseases

Schaefer, Daniel, Professor of Animal Sciences; Ph.D., 1979. Growth of beef cattle in grazing and feedlot systems

Simon, Philipp, Professor of Horticulture; Ph.D., 1977. Biochemical genetics and breeding of carrots, alliums, and cucumber; genetic improvement of vegetable culinary and nutritional value

Trentham-Dietz, Amy, Professor of Cancer Epidemiology. Ph.D. 1997. Modifiable lifestyle factors including obesity, physical activity, and environmental factors to better understand breast cancer etiology and reveal avenues for prevention

Westmark, Cara, Assistant Professor of Neurology. Ph.D. Alzheimer’s disease and fragile X syndrome focuses on the synaptic function of amyloid beta protein precursor (APP) and amyloid-beta

White, Heather, Assistant Professor of Dairy Science; Ph.D. 2010. Nutritional Physiology – Focus on hepatic carbon flux specifically during the coordinated responses to the transition to lactation, nutrition, and stress in dairy cattle and during onset and progression of NAFLD and NASH in humans

SUPPORT STAFF
Graduate Coordinator: Katie Butzen MS.Ed., kbutzen@wisc.edu