

# DIVISION OF NUTRITIONAL SCIENCES

College of Human Ecology | College of Agriculture and Life Sciences

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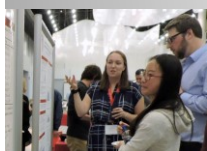




- PREEMINENT FACULTY, HIGH-IMPACT, CUTTING EDGE RESEARCH



- PROGRAM TAILORED TO INDIVIDUAL INTERESTS



- FULL FINANCIAL SUPPORT

# Cornell University

## Ph.D. Program in Nutrition

- OVER 30 NUTRITION FACULTY
- \$15+ MILLION IN RESEARCH ANNUALLY
- EXPERTISE SPANNING DISCIPLINES

INTERDISCIPLINARY TRAINING PREPARES STUDENTS TO  
BE INNOVATIVE AND TRANSFORMATIVE LEADERS IN THE FIELD

*Ph.D. students select one of four concentrations and choose two minor fields of study from among 100 graduate fields. Students select a committee to guide their graduate study and to support academic, research, and career goals.*

## Ph.D. Concentrations

### COMMUNITY

- Nutrition-related issues in communities, nutrition and health inequities, particularly in limited-resource and under-served populations
- Interface of disciplines including public health, psychology, epidemiology, economics, and sociology
- Community-based and translational research, intervention studies, social and behavioral nutrition

### HUMAN

- Role of nutritional status in health and function
- Interface of disciplines including physiology, biochemistry, metabolism, and psychology
- Integrate knowledge from molecular nutrition to understand mechanisms connecting food intake to human health
- Translational research on nutritional approaches to prevent and treat disease

### INTERNATIONAL

- Causes, impacts, and solutions to malnutrition in global settings
- Interface of disciplines including molecular biology, immunology, pathobiology, epidemiology, population health, economics, engineering, technology, and data sciences
- Nutrition and health outcomes in low- and middle-income country settings with fieldwork opportunities in Southeast Asia, South America, Africa, & elsewhere

### MOLECULAR

- Basic biological processes in nutrition and metabolism to understand role of nutrition in health and disease
- Interface of disciplines including molecular biology, genetics, biochemistry, developmental biology, reproductive biology
- Model systems and cell culture including the latest 'omics, mass spec, and other lab methods



Bryan Gannon/Cornell University

**BE A NEXT-GENERATION LEADER,  
PROBLEM SOLVER, AND INFLUENCER**

Cornell Nutrition Ph.D. graduates hold leadership positions in a variety of sectors, including academia, government, food and nutrition agencies, NGOs, and industry. Our alumnae are educators and researchers at leading institutions around the globe.



# Life at Cornell and in Ithaca

ITHACA RANKED BEST COLLEGE TOWN IN AMERICA FOR  
THIRD YEAR IN A ROW IN *LIVABILITY*'S 2019 RANKING

- *Join an active, diverse, and intellectually and socially engaging community*
- *Be part of a highly collaborative research environment*
- *Socialize with peers through the Nutrition Graduate Student Organization (NGSO), TGIF (Tell Grads it's Friday), and over 200 events at the grad center*
- *Enjoy a positive work-life balance with a thriving music, arts, and social scene; unique and varied restaurants; parks, waterfalls, and green spaces*

## OTHER ACADEMIC AND RESEARCH RESOURCES

Cornell University is a world-class setting for your graduate work, with outstanding resources to support your research and your intellectual life. Distinguished invited speakers provide an opportunity to meet leaders in the field. Research facilities such as the Human Metabolic Research Unit, Cornell Statistical Consulting Unit, and the Cornell Biotechnology Research Center provide access to cutting edge methods, facilities and expertise.

**APPLY**

By December 10,  
2020

[Gradschool.cornell.edu/admissions](https://gradschool.cornell.edu/admissions)



Ph.D. students receive an annual 12-month stipend, and tuition and health insurance are covered

In addition to support from faculty research grants, students successfully compete for research support from federal, international and other external fellowships, and Cornell research awards



## LEARN MORE ABOUT THE PH.D. IN NUTRITION AT CORNELL

- [dnsgrad@cornell.edu](mailto:dnsgrad@cornell.edu) • [nutrition.cornell.edu](https://nutrition.cornell.edu)
- [human.cornell.edu/dns/academics/graduate/meetourgrads](https://human.cornell.edu/dns/academics/graduate/meetourgrads)

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## Doctoral training in the Graduate Field of Nutrition

### About the Graduate Field of Nutrition

We have four “concentrations” in the Graduate Field of Nutrition: (1) Molecular Nutrition, (2) Human Nutrition, (3) Community Nutrition and (4) International Nutrition. These concentrations refer broadly to the level of analysis at which the research question is investigated; i.e., at the molecular or mechanistic level (Molecular Nutrition), at the whole person or whole animal level (Human Nutrition), at the community level (Community Nutrition), and at the international level (International Nutrition). These concentrations should not, however, be viewed as “silos”; many faculty members align with more than one of these concentrations.

### Curriculum

Training within the Graduate Field of Nutrition is individualized. YOU are able to tailor your coursework to meet your individual interests and goals. The Field of Nutrition has few coursework requirements for students in the Ph.D. Program as described below. In general, your coursework is decided based on discussions with the members of your special committee. During the first year, while you are deciding on your committee chair who serves as your primary research mentor, the Director of Graduate Studies (DGS) serves as your temporary advisor, assisting you as needed in decisions about coursework and answering any questions that you may have about the program and your course of study.

### Special committees

Each graduate student in the Ph.D. program is required to form a special committee. This committee is responsible for guiding your graduate work. The committee advises on coursework, reviews your progress, and generally oversees all aspects of your graduate work. The special committee includes the chair who is your research mentor and will supervise your dissertation research; two faculty members representing your two “minor” subjects or areas of study; and a field-appointed member representing the Field of Nutrition. The minor members represent the minor fields of study and provide expertise to strengthen your dissertation research and/or to provide you with training to support your career goals.

You must select your special committee chair during the first year of the program. Typically, the choice of minors and the selection of additional committee members involves discussions with your chair. The Graduate School requires that your full committee be established by the end of the third semester of study. You may make changes to your committee after it is established; it is important to establish your committee early because the special committee guides your graduate work.

You will need to meet with the DGS when you have most of your committee members identified; in this meeting you will discuss the appointment of a Graduate Field of Nutrition faculty member to serve as your field-appointed member. This faculty member should provide a broad view of the discipline of nutrition, thus this committee member typically has interests that complement the other members of your committee (for example, if you were studying zinc supplementation in population level interventions, your field member might be a molecular nutrition faculty member studying animal models of zinc nutrition). Typically, students come up with two or three faculty members in the Field of Nutrition who are mutually acceptable to the student and the DGS, and then the DGS appoints one of them to serve in this capacity.



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## Minor fields of study

Ph.D. students in the Graduate Field of Nutrition choose two minor fields of study for their degree. Current students have selected minors in over 30 different graduate fields ranging from education to soil science to biophysics. The most commonly chosen minors are Epidemiology, Genetics & Development, Biochemistry and Molecular Biology, Human Development, Pharmacology, Communications, Education, Food Science, Sociology, Economics, and Biostatistics.

## Selecting a mentor during your first year/rotations

The major goal in your first year is to select a primary research mentor, who serves as your special committee chair. Because the nature of research varies among our concentrations, this process differs by concentration. A subset of first-year students who are interested in working with **human** or **molecular** nutrition faculty with wet laboratory-based research programs will participate in “laboratory rotations.” Students participating in rotations will spend three periods of 4-8 weeks each (depending on the nature of the project) working on projects in laboratories of interest. This allows incoming students to maximize their potential of finding the best fit for a “laboratory home” and to develop skills in a variety of laboratory techniques. For other concentrations that do not require rotations, you can learn about and compare different research groups by attending the research meetings of different professors, and by talking with the potential mentors and their current students. In all four concentrations, the special committee chair must be selected by the end of the first academic year.

Your selection of a research mentor should be based on the research topic as well as on the mentoring style of the faculty member thus keeping in mind the mentoring style that is most likely to support your success as a student. Another tip provided by current students is that what you study for your dissertation is unlikely to be what you study throughout your career. It is a good idea to keep in mind the type of training that you would like to prioritize for your doctoral training, understanding that all careers are built over time and the Ph.D. training is an important and key driver of your future.

## Required courses

- All incoming graduate students are required to take NS 7030 Seminar in Nutritional Sciences (attendance only, you do not present a seminar your first semester). Ph.D. students attend four additional semesters of NS 7030, and make three presentations (total 5 attendances and 3 presentations). Doctoral students have the option of replacing one presentation and one semester of attendance in NS 7030 with the successful completion of NS 7040, the Division of Nutritional Sciences’ grant writing course. NS 7040 also serves as an opportunity to develop a proposal, which typically contributes to important preparation for the A exam.
- Many of our graduate students elect to take macronutrients (NS6320), micronutrients (NS6310), and a biometry series (BTRY 2010 and 6020) also in their first year.
- You may sign up for dissertation research credits any semester (NS 9990 Ph.D. Thesis). The number of credits is variable.

## Examination for Admission to Ph.D. Candidacy (A exam)

To qualify as a Ph.D. candidate, each graduate student must pass what is called an A exam. The Graduate School requires that the A exam be completed by the end of the student’s 6<sup>th</sup> semester. Passing the A exam means the graduate faculty believes that you are ready to proceed with the degree program.





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## Dissertation defense (B exam)

The B Exam is an oral defense of your Ph.D. dissertation. The B exam consists of a public research presentation and then an oral defense with your special committee members.

More detailed information on [A and B exams](#) is available from the Graduate School.



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## Financial Support

Ph.D. students admitted into the Graduate Field of Nutrition are guaranteed financial support from the Division of Nutritional Sciences (DNS) for 4.5 years (nine academic year semesters and four summers) on the condition that they maintain good academic standing, have a DNS faculty member serve as their Special Committee chair, and meet expectations in conducting their teaching and research responsibilities. The support consists of a twelve-month stipend, full academic year tuition, and coverage for the individual health insurance plan. Financial support may be in the form of teaching assistantships, graduate research assistantship, Cornell and DNS fellowships, external fellowships, traineeships, or other Cornell funding and may vary each semester. All graduate students in the Graduate Field of Nutrition are expected to serve as a teaching assistant for at least one semester.

*“The university is committed to an equitable, supportive, and professional environment for graduate education. Assistantships help students develop academic rigor and creativity, independent judgment, intellectual honesty, and the ability to communicate their knowledge, while providing financial support.”*

*-Cornell University Graduate Student Assistantships Policy*

Teaching assistants (TA) are appointed to support teaching of a course and may assist in teaching a section, leading discussions and/or laboratory sections, and preparing and grading exams, among other responsibilities. Because students funded through assistantships are expected to make progress towards their research degrees, assistantship hours for TA appointments are limited to 15 to 20 hours per week, averaging no more than 15 hours per week. Cornell is committed to helping students have a successful teaching experience and provides many exceptional [teaching resources](#), [workshops](#), and [training programs](#).

When appointed on a graduate research assistantship (GRA), students focus on thesis or other degree-related research of a type that is required from all candidates for the degree. Because a student devotes considerable time to dissertation research, the time spent on research connected with the project is expected to be significant. GRAs are typically supported by grants obtained by their chair. Fellowships obtained by a student's chair or by the student also support students in pursuing their graduate studies and research. More information regarding assistantships can be found in Cornell's [Graduate Student Assistantships policy](#).

## Additional Funding Opportunities

Cornell University also provides additional competitive funding opportunities to support graduate students. You can explore [Cornell and external fellowships](#) for new and continuing graduate students [here](#). The Graduate Field of Nutrition nominates incoming students for [Cornell and Diversity fellowships](#).

Our students also successfully compete for a variety of Cornell-funded research awards, such as those from the Office of [Engagement Initiatives](#), the [Genomics Scholars Program](#), [Atkinson Center](#), and the [Society for the Humanities](#), to name a few. Students are also highly successful in receiving national and international research fellowships.



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## Research Services, Facilities, and Interest Groups

As a Ph.D. student in the Graduate Field of Nutrition at Cornell you will be working with faculty who are pre-eminent scientists and leaders in their fields. You will also be a member of a world-class research institution, with access to cutting-edge expertise, equipment and instruments, services, and facilities from Cornell's and the Division of Nutritional Sciences' centers, institutes, and shared equipment resources, and the faculty and students who use them. There are also a host of interest groups that further catalyze interactions, knowledge sharing, and collaborations including the following examples.

### Services and facilities

- [Cornell Institute of Biotechnology](#), an umbrella for several campus-wide shared facilities including:
  - [Bioinformatics facility](#): cloud computing and data storage
  - [Flow Cytometry Facility](#): cell sorting and analysis
  - [Genomics Facility](#): Sanger and “next-generation” sequencing and sample prep/QC
  - [Imaging Facility](#): confocal microscopy, high-resolution X-ray Computed Tomography, high-resolution ultrasound, laser capture microdissection
  - [Proteomics and Metabolomics Facility](#): targeted and non-targeted metabolomics, proteomics, user-operated HPLC and HPLC-MS
- [Human Metabolic Research Unit \(HMRU\)](#): infrastructure for investigators in the Division of Nutritional Sciences who conduct research involving human participants
- [Stem Cell and Transgenic Facility](#): design and production of transgenic mouse models
- [Animal Telemetry/Surgery Core](#): resource for assistance with mouse surgical procedures
- [Transcriptional Regulation & Expression Facility](#): provides end-to-end genomics profiling services including RNAseq, small RNA sequencing, and ATACseq
- [Cornell Statistical Consulting Unit](#): provides statistical expertise to the entire Cornell community through [consulting](#), instruction ([workshops](#), [training](#), [instructional materials](#)), and [contract](#) services

### Interest groups

- [Center for Vertebrate Genomics \(VERGE\)](#): enhancement of research and education in vertebrate genetics and functional genomics at Cornell
- [Cornell Stem Cell Program](#): part of NYStem program fostering cross-disciplinary collaborations among laboratories studying stem cells
- [Comparative Cancer Biology Program](#): facilitates comprehensive interdisciplinary training and rigorous hypothesis-driven research in comparative cancer biology
- [Cornell Center for Immunology](#): builds synergistic collaborations to enhance research capacity and scientific discovery in immunologic sciences
- [Cornell Neurotech Collaboration](#): developing technologies and powerful new tools needed to reveal the inner workings of the brain, with a particular focus on how individual brain cells and complex neural circuits interact at the speed of thought
- [Microbiome Supergroup](#): typically meets once a month
- [Cornell Center for Health Equity](#): university-wide initiative bridging Cornell's New York City and Ithaca campuses





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- [Cornell Center for Social Sciences](#): accelerates, enhances, and amplifies social science research at Cornell

## Shared Division equipment (as of December, 2020)

- **Sable Systems Promethion Metabolic Screening System** (16 individual units) used to quantify mouse movement, food/water intake, metabolism, and substrate (carbohydrate and lipid) utilization.
- **LightCycler 480 II Real-Time PCR (qPCR)** is required for performing quantitative real-time PCR.
- **BioRad MyCycler Thermal Cycler** gradient-enabled thermal cycler used for conducting PCR.
- **NanoDrop 200C UV-Vis Spectrophotometer** is required to precisely measure nucleic acids (DNA and RNA) and protein concentrations. This is a critical step for many downstream molecular biology applications such as PCR, molecular cloning, ELISA, western blotting, and others.
- **BeckmanCoulter Optima L-90K Ultracentrifuge** is utilized for separation of subcellular fractions by high-speed centrifugation.
- **EMD Millipore Simplicity Ultrapure Water System** distills and deionizes water. Ions in water often interfere with biochemical assays.
- **Sorvall RC-5C Plus Centrifuge** is used for phase separation by centrifugation (fundamental for RNA, DNA, and protein extraction protocols).
- **Beckman Coulter Scintillation Counter** is used for measuring radiolabeled tracers for cell growth and DNA synthesis assays.
- **Tecan Spectrafluor Plus Microplate Reader** is used for conducting biochemical, enzymatic and ELISA assays for measurement of reactive oxygen species, apoptosis, and other enzymatic activities in cells/tissues. These assays could be colorimetric, fluorescent or luminescent. This plate reader capable of performing all three types of measurements.
- **Agilent Seahorse XFe24 Analyzer** measures the rate of change of dissolved oxygen and pH in the media immediately surrounding living cells cultured in multi-well plates.
- **Nexcelom Celigo Imaging Cytometer** for high throughput brightfield and fluorescent cell imaging of either live or fixed cells cultured in multi-well plates.
- **Protein Simple FluorChem E System** detects chemiluminescence from Western Blots over a 5-log dynamic range using a high-resolution charge couple device (CCD) sensor.
- **Shimadzu TQ8030 GC/MS-MS** is a triple-quadrupole gas chromatograph/mass spectrometer capable of fragmenting analyzed masses for improved signal-to-noise and sensitivity in stable isotope tracer experiments and metabolomics measurements.



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## Things to do in Ithaca

Ithaca is a city located at the tip of Cayuga Lake in the Finger Lakes region of central New York. Ithaca is known for its abundance of parks, gorges, waterfalls, trails, and other beautiful and functional outdoor spaces and the many recreational and social activities they support. Performance arts, sports, festivals, wine tastings, and family friendly events are just a few of the rich and varied activities that our students enjoy. Dining options abound and Ithaca after hours provides a variety of nighttime entertainment, music, and social gatherings.

Check out the hundreds of [attractions](#) and things to do in Ithaca including the farmer's market, museums, restaurants, galleries, performing arts centers, wineries, festivals, fruit picking, parks, and more!

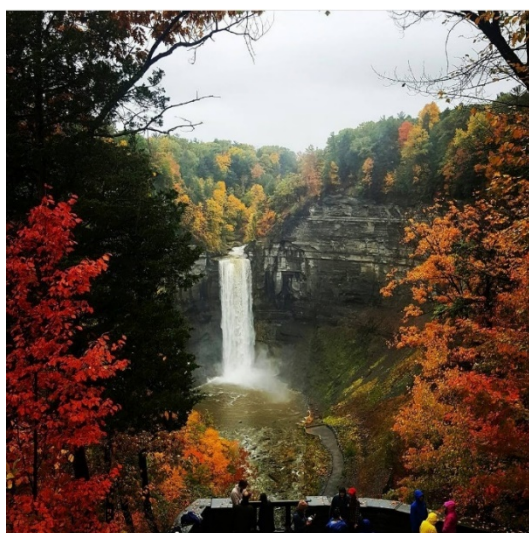
## Travel Information

[Travel to Ithaca](#) by air, choosing among four regional airports; bus with multiple daily travel options, or car. Take an excursion to or visit research colleagues in New York City on Cornell's Campus to Campus ([C2C](#)) bus when the pandemic allows services to resume.

Students can ride for free on some days/times, and may purchase an unlimited ride pass for others for [the Tompkins Area Consolidated Transit \(TCAT\)](#) buses.

## Cornell Resources for Graduate Students

- [Cornell Graduate School](#)
- [Mann Library Resources](#)
- [Center for Teaching Innovation Graduate Student Resources and Training](#)
- [Student Disability Services](#)
- [Mental Health Resources](#)



Contact us at [dnsgrad@cornell.edu](mailto:dnsgrad@cornell.edu)

[Barbara J. Strupp, Ph.D.](#)

Director of Graduate Studies

[DoraLee Knuppenburg](#)

Graduate Field Assistant





## Nutrition Graduate Student Organization

The NGSO promotes interaction among master's and doctoral students in Cornell's graduate programs in Nutrition

- Community and camaraderie
- Social events and programs
- Leadership
- Professional development
- Advocacy

As a Cornell Nutrition graduate student you will join a group of exceptionally talented peers who are passionate about making a positive difference in the field of nutrition and in human health around the world

You will also be part of a diverse and collegial community where students are supported and inspired by their colleagues

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[@nutritiongso](#) [meetourgradstudents](#)

