

# NUTRITIONAL SCIENCES (PH.D.)

<https://colsa.unh.edu/agriculture-nutrition-food-systems/program/phd/nutritional-sciences>

## Description

The Ph.D. in Nutritional Sciences trains students to gain advanced knowledge and develop research expertise in such areas as nutritional epidemiology, gut microbiome-host interactions, nutritional assessment, behavioral nutrition, and community nutrition as it pertains to chronic disease risk (e.g., cardiovascular disease, obesity, cognitive function) and food access, dietary patterns, and policy.

## Requirements

### Degree Requirements

Doctor of Philosophy (Ph.D.) graduate students work with their advisor and Doctoral Guidance Committee to plan a program of study including the required core courses, competencies, and develop a research proposal. To complete the degree, students must complete a research proposal, pass a qualifying exam, conduct dissertation research, and complete and defend a dissertation.

**Guidance and Dissertation Committees:** During the first semester, the student and advisor jointly select members of a guidance committee. A nomination form must be sent to the graduate school to officially appoint the committee membership. The Guidance Committee consists of 3-5 members and is responsible for approving the proposal and oversees the qualifying examination. Once the student has advanced to candidacy, the Doctoral Dissertation Committee is formed. The Dissertation Committee is responsible for administering the dissertation exam.

**Dissertation Proposal and Defense:** All Ph.D. students are required to develop a formally approved research proposal typically by the end of the third semester and no later than the fourth semester. Proposals are approved by the dissertation committee and the major advisor. In addition to the written proposal, students are expected to present a proposal defense presentation. This proposal should consist of the following:

1. Comprehensive review of the literature related to the student's research topic.
2. Statement of need/justification.
3. Research goal with a list of research objectives with stated hypotheses that address the major research questions.
4. Plan of work describing the experimental approaches or methods to be used in answering the thesis questions.
5. Expected outcomes and potential pitfalls for each objective.
6. Timeline for completion of the work.
7. Preliminary research where appropriate.

**Candidacy:** Following approval of the research proposal and completion of coursework, doctoral students should advance to candidacy. Candidacy is reached after passing a formal qualifying examination that assesses both broad basic knowledge of the student's field, and topics central to the research project. The purpose of the exam is to measure of

the student's likelihood of successfully completing a doctoral program. The qualifying exam comprises written and oral components.

1. **Written exam:** Student choose three areas of specialization in consultation with their Doctoral Guidance Committee. The advisor solicits questions from Committee members and administers the exam. Once completed, Committee members evaluate the responses. The student is expected to demonstrate competence in each of the chosen areas, reflected in clear, concise, well-organized synthetic essays, or written materials in grant format. The exam may be "closed book" or "open book" at the discretion of the advisor.
2. **Oral exam:** An oral exam is conducted by the Doctoral Guidance Committee and chaired by the advisor. The student should demonstrate mastery of fundamental concepts in the designated areas of specialization, drawing upon a broad spectrum of information to answer theoretical and practical questions. There may be focus on any area that was deemed weak in the written exam.

When the student has passed both parts of the qualifying exam, the advisor will inform the Graduate School and recommend that the student be advanced to candidacy in the Ph.D. degree program.

**Dissertation and Oral Defense:** All students must complete a dissertation reporting original research. After completion of the research, the candidate must provide a copy of the dissertation to the Doctoral Dissertation committee at least two weeks prior to the final oral examination. The final thesis defense consists of two parts: an oral presentation of the research in a public seminar, and an oral defense of the dissertation conducted by the Doctoral Dissertation Committee. Final approval of the dissertation will be determined by a majority vote of the committee.

**Number of Credits Required:** There is no specific credit requirement for the Ph.D., though students must take the required core courses and fulfill the competences outlined below. Up to 8 credits of graduate credit from another institution may be transferred, provided the credits were not counted toward another degree, and the course grade was a B or higher. Petitions requesting transfer credit must be supported by the advisor and graduate committee and approved by the UNH Graduate School.

### 1. Core Course Requirements:

Code	Title	Credits
ANFS 901	Introduction to Agriculture, Nutrition, and Food Systems Graduate Studies <sup>1</sup>	1
ANFS 997	Agriculture, Nutrition, and Food Systems Seminar <sup>2</sup>	1
ANFS 999	Doctoral Dissertation Research <sup>3</sup>	0
NUTR 960 & NUTR 961	Research Methods in Nutritional Science I and Research Methods in Nutritional Science II <sup>4</sup>	8
NUTR Electives <sup>5</sup>		

<sup>1</sup> To be taken at the earliest opportunity, typically in the initial fall semester of the graduate program.

<sup>2</sup> All students are required to register and participate in this course for a minimum of 3 credits.

<sup>3</sup> All students are required to register and participate at least twice, and must be taken after candidacy.

<sup>4</sup> Providing students foundational and practical application related to science communication and experimental design analysis, most students will complete during their first year of studies.

<sup>5</sup> In consultation with their guidance committee, students are required to complete a minimum of 8 additional graduate NUTR credits.

**2. Competency Requirements:** Students will design a program of study in close consultation with their guidance committee, including their academic courses and scientific research project.

**3. Electives:** Each student, in consultation with their graduate committee, will define one or more areas of informal specialization, and will take additional courses appropriate for their area(s) of specialization.

**4. Additional Information:**

- All students in the Nutritional Sciences Ph.D. Program are expected to present their research in ANFS departmental seminar at least three times (including the defense seminar). Students are also encouraged to present at professional conferences and acquire teaching and/or mentoring experience.

**Annual Evaluation:** The annual evaluation of graduate students ensures that students receive the mentorship they deserve and are making progress toward completion of their degrees. The annual evaluation of graduate students consists of a collaborative effort between faculty adviser and student to:

- Complete a self-assessment;
- Present a professional quality CV suitable for awards, job applications, and internships;
- Produce a narrative of service or other activities not captured on a CV;
- Develop annual goals.

- Deliver nutrition research findings to multiple scientific audiences (i.e. research conference, academic journal)
- Incorporate critical feedback in their research and academic work

## Professionalism

- Conduct research in an ethical manner
- Demonstrate collaboration and leadership skills
- Master concepts of equity, diversity, and inclusion in different settings (e.g. healthcare, education, community health)

## Student Learning Outcomes

### Program Learning Outcomes Nutrition knowledge-related

- Demonstrate knowledge and understanding in key content areas of nutritional sciences and public health nutrition issues

### Research design and analysis

- Identify the strengths and weaknesses of study designs utilized in nutrition-related research
- Independently conduct nutrition-related data analyses
- Interpret the results and scientific literature to inform dietary recommendations, public policy, or chronic disease intervention

### Scientific method

- Demonstrate the ability to independently design and defend an original, hypothesis-driven project to advance the field of nutritional sciences.

### Critical thinking

- Integrate scientific evidence and critically evaluate research findings in specific fields related to nutritional sciences.

### Communication skills

- Disseminate evidence-based information on nutritional sciences and public health