

# AGRICULTURAL SCIENCES (M.S.)

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

## Description

The Master of Science (M.S.) in Agricultural Sciences graduate program offered by the Department of Agriculture, Nutrition, and Food Systems (ANFS) offers a flexible course of study that provides education and research experience in plant and animal agriculture, aquaculture, food systems, and related fields.

Emphasis is placed on acquiring basic and practical knowledge and research experience in one of the following core emphasis areas:

1. Diverse components of plant and animal agricultural systems including breeding and genetics, nutrition, physiology, environmental interactions, organismal health, agroecology, and pathology. Students may also focus on production systems, including field-based and post-harvest practices.
2. Food systems analysis to address the social, economic, and environmental relationships that shape outcomes in plant and animal agricultural systems. Students work on food and agriculture related questions and challenges ranging from food production, processing, aggregation and distribution, access, consumption, and management of food waste.

The agricultural sciences graduate program prepares students to become highly knowledgeable and competent in professional fields related to agriculture and food, and leaders in collaborative and interdisciplinary efforts to address local, regional, national and/or global issues at the intersection of agriculture, food and the environment.

The M.S. program is thesis-based, with the expectation of providing substantial research experience and the opportunity to publish new knowledge in the field of interest.

## Requirements

Master of Science (M.S.) in Agriculture Sciences students plan a program of study in conjunction with their advisor and Master's Thesis Committee, including required courses and competencies. A minimum of **30 graduate credits**, including 6-10 research credits (ANFS 899 Master's Thesis), are required. A thesis proposal is developed within the first year for approval by the thesis committee. All M.S. students must write a thesis which must be accepted by the advisor(s), committee members, and the Graduate School. The degree is completed when the student has completed the required coursework, presented and passed a thesis defense, and the thesis is approved by the Master's Thesis Committee and accepted by the Graduate School.

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 899	Master's Thesis	6-10
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

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

<sup>2</sup> This 1 credit course may be repeated up to a maximum of 4 credits and should be taken every semester by M.S. students.

**2. Competency Requirements:** In addition to the core required courses, students will be expected to demonstrate competency in areas of experimental design and analysis, and in scientific writing and communication. Students must take at least one course from each competency. The competencies may be fulfilled by courses chosen in consultation with the advisor and committee. Depending on the student, one or both of these competency requirements may have been fulfilled through other course work or professional experience as approved by the committee and ANFS graduate coordinator.

Code	Title	Credits
<b>Communication Competency</b>		
Select at least one course:		
BIOL 902	Writing and Publishing Science	2
NR 905	Grant Writing	2
BIOL 950	Scientific Communication	2
<b>Experimental Design and Analysis Competency</b>		
Select at least one course:		
ANFS 933	Design, Analysis, and Interpretation of Experiments	4
SOC 902	Sociological Methods II: Research Design	4

**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 Requirements:

- All students in the Agricultural Sciences Graduate Programs are expected to present their research in ANFS departmental seminar at least twice (including the thesis defense seminar). Students are also encouraged to present at professional conferences and acquire teaching and/or mentoring experience.
- Written and oral defense of research proposal. Approval form must be on file with department.
- Thesis

## Additional Information:

Additional information can be found in the program graduate handbook, which includes expectations, guidelines, and detailed policies.

**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.

## Student Learning Outcomes

### Program Learning Outcomes

Students graduating with an M.S. in Agricultural sciences will meet objectives in the following areas:

#### Discipline specific knowledge

- Identify and explain discipline specific research methods
- Build knowledge and understanding in key areas of agricultural sciences including food systems, and animal and plant-based agricultural production systems

#### Research design and analysis

- Apply appropriate study design to answer a research question
- Use appropriate statistical methods to analyze and interpret research results

#### Scientific method

- Develop, defend, and execute a research idea to advance knowledge in the student's specific field of study

#### Critical thinking

- Ability to collect and critically evaluate information from the primary research literature to expand knowledge of agricultural and food systems
- Develop skills to critically evaluate and analyze their research data

#### Communication

- Communicate effectively in writing through the development of an argument supported by evidence
- Communicate effectively in oral formats when addressing project-specific research and agriculture and food related issues
- Convey research results in written and oral format to both professionals and the public

#### Professionalism

- Conduct research in an ethical manner
- Deliver professional oral and written communications
- Demonstrate collaboration and leadership skills