DAIRY SCIENCE, M.S.

Two plans are available for graduate work leading to the master of science degree in dairy science. Students who plan to continue for the Ph.D. degree, or who expect to enter fields of work involving research, should take the M.S. degree in research. Students who wish to obtain more specialized training, but are not planning for a research career, may pursue a degree strictly through course work.

The Department of Dairy Science offers one of the most comprehensive dairy science graduate programs in the country. Faculty interests and research funding in dairy science span diverse areas of focus. Fundamental training in basic science fields related to these phases of dairy science is required. Minimum admissions requirements of the Graduate School must be met. Specific degree requirements are available from the department.

Students are offered a challenging research and educational opportunity in well-equipped laboratories with modern instrumentation. Students in dairy cattle nutrition may work in collaboration with laboratories of the U.S. Dairy Forage Research Center as well as those of the dairy science department. Dairy cattle at four locations are maintained by the department for both intensive and extensive experimental work.

Research is directed toward gaining greater understanding of the biology of dairy species with emphasis on dairy cattle, and improving usefulness of these species to society by modifying milk composition, improving animal health, assessing environmental impact, and enhancing economic efficiency. Current research emphases include developing and using molecular markers and genome maps to improve accuracy of selection and speed the rate of genetic improvement; developing and applying statistical methods for estimating genetic merit of individual animals and genetic parameters of populations from performance records; studying digestive and metabolic processes in lactating ruminants to improve production efficiency and health; enhancing utilization of forage nutrients by high-producing cows through modifications of the forage plants, harvesting and storage methods, and supplemental ration ingredients; development of reproduction management programs that optimize facility and profitability of dairy farms; understanding regulation of ovarian function and the regulation of fertility in lactating dairy cows; developing and evaluating milking, feeding, record-keeping, and decision and organizational systems that contribute to profitable dairy enterprises in a changing dairy economy; management factors affecting animal health and well-being.

About one-half of the department graduate students are domestic students, with two-thirds of those students Wisconsin residents, one-third out-of-state students, and one-half of the graduate students are international students. This diversity brings a national and global perspective to research, instruction, extension, and cultural understanding.

FUNDING

Research assistantships are awarded to well-qualified students on a competitive basis. Around 70 percent of M.S. and Ph.D. candidates in dairy science are supported by research assistantships.

MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (http://guide.wisc.edu/graduate/#policiesandrequirementstext) in addition to the requirements of the program.

MASTER’S DEGREES

M.S., with available research, and course tracks

MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university’s Course Guide (http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle). Courses must be agreed upon by the student’s graduate committee members and approved by department certification committee.

PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

A minimum of 16 graduate credits must be taken while a graduate student at UW–Madison.

PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree may count toward the M.S. degree.

PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

Courses taken post-B.S. as a University Special student do not automatically count toward a graduate degree. A maximum of 15 credits may be allowed for courses numbered 300 or above if difference in tuition is paid.

CREDITS PER TERM ALLOWED

15 credits

PROGRAM-SPECIFIC COURSES REQUIRED

No specific courses required.

OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

OTHER GRADE REQUIREMENTS

No other specific grade requirements.
PROBATION POLICY
In compliance with Graduate School policy, listed below, and at discretion of M.S. committee.

If students were admitted on probation and they satisfy the conditions outlined at the time of admission, probationary status will be removed automatically. Once their studies have begun, students are expected to make satisfactory progress toward their degree. Students must be in good academic standing with the Graduate School, their program, and their advisor. The Graduate School regularly reviews the record of any student who received grades of BC, C, D, F, or I in graduate-level courses (300 or above), or grades of U in research and thesis. This review could result in academic probation with a hold on future enrollment, and the student may be suspended from graduate studies.

The Graduate School may also put students on probation for incompletes not cleared within one term. All incomplete grades must be resolved before a degree is granted.

ADVISOR / COMMITTEE
M.S.–course track requirements:
Successful completion of the following items. These must be completed in a timely fashion or the student will not be allowed to continue registration.

• Form an M.S. mentor committee (by end of first semester).
• Meet with M.S. committee to approve plan for coursework and review of literature (by end of second semester)

M.S.–research track requirements:
Successful completion of the following items. These must be completed in a timely fashion or the student will not be allowed to continue registration. Please note that minimum requirements are provided, however successful completion of the M.S. degree also requires making a research contribution to the scientific literature.

• Form an M.S. mentor committee (by end of first semester).
• Meet with the M.S. committee. Approve plan for coursework and immediate research plans (by end of second semester)

ASSESSMENTS AND EXAMINATIONS
M.S.–course track: Complete coursework and review of literature (documentation of completion is required before M.S. defense) and final defense and examination.

M.S.–research track: Complete coursework and M.S. research (documentation of completion is required before M.S. defense) and final defense and examination.

TIME CONSTRAINTS
Form an M.S. mentor committee (by end of first semester).

Meet with M.S. committee to approve plan for coursework and review of literature (by end of second Semester)

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.

LANGUAGE REQUIREMENTS
No language requirements.

ADMISSIONS
Undergraduate majors in biology, biochemistry, or genetics, as well as dairy or animal science, provide excellent background for graduate study in dairy science. Regardless of major, preparation should include biology (molecular, cellular, and population), physiology, chemistry (general and organic), mathematics (through calculus), and physics.

LEARNING OUTCOMES

KNOWLEDGE AND SKILLS
• To gain knowledge of current research in the specific area of animal biology and management that the student is working with during their master’s degree.
• To develop the ability to critique scientific research including evaluation of the theories, research methods, statistical analyses of results, and discussion of results in relation to other studies in the student’s field of interest.
• To understand the primary field of study from a biological and practical context.
• Demonstrates the ability to select and utilize the most appropriate methodologies and practices to test research hypotheses.
• Demonstrates the ability to communicate science in their field both orally and in a written form.

PROFESSIONAL CONDUCT
• Recognizes and fosters ethical and professional conduct.

PEOPLE
Faculty: Professors Weigel (chair), Armentano, Combs, Fricke, Gianola, Ruegg, Shaver, Wattiaux, Wiltbank; Associate Professor Cabrera; Assistant Professors Hernandez, White; Affiliate Professors Cook, Dopfer, Kirkpatrick, Oetzel, Ollivett, Reed, Reinemann