DAIRY SCIENCE (DY SCI)

DY SCI 1 — COOPERATIVE EDUCATION/CO-OP IN DAIRY SCIENCE
1 credit.

Full-time off-campus work experience which combines classroom theory with practical knowledge of operations to provide students with a background upon which to base a professional career. Students receive credit only for the term in which they are actively enrolled and working. The same work experience may not count towards credit in Dairy Sci 399. Enroll Info: So st, and consent of supervising instructor and academic advisor. Requisites: None Repeatable for Credit: No Last Taught: Fall 2018

DY SCI/AN SCI 101 — INTRODUCTION TO ANIMAL SCIENCES
4 credits.

Anatomy physiology, nutrition, genetics, reproduction, marketing, meats and management of dairy and beef cattle, swine, sheep, poultry and horses; lectures, laboratories and discussion. Field trips. Enroll Info: None Requisites: None Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req Level - Elementary L&S Credit - Counts as Liberal Arts and Science credit in L&S Repeatable for Credit: No Last Taught: Fall 2020

DY SCI 205 — DAIRY CATTLE IMPROVEMENT PROGRAMS
2 credits.

Dairy cattle evaluation and selection, including: linear type appraisal, dairy cattle judging, mating programs, breed comparisons, cattle marketing, and national genetic improvement programs. Enroll Info: None Requisites: DY SCI/AN SCI 101 Repeatable for Credit: No Last Taught: Spring 2019

DY SCI 233 — DAIRY HERD MANAGEMENT I
3 credits.

Overview of practical dairy herd management with components of reproduction, nutrition, milk quality, raising dairy replacements, facilities and records. Laboratories emphasize practical applications, analyses of alternatives and decision making. Includes farm visits and analysis. Enroll Info: None Requisites: DY SCI/AN SCI 101 Repeatable for Credit: No Last Taught: Fall 2020

DY SCI 234 — DAIRY HERD MANAGEMENT II
3 credits.

The second of a two course sequence designed as an overview of practical dairy herd management with components of animal welfare and handling, health, calf and heifer rearing, facilities and production economics. Laboratories emphasize practical applications, investigation of alternatives and decision making. Includes farm visits and a hands-on transition cow project for analysis. Enroll Info: Dairy Science/Animal Science 101 or consent of instructor, successful completion of Dairy Science 233 Requisites: None Repeatable for Credit: No Last Taught: Spring 2020

DY SCI 272 — PRE-CAPSTONE SEMINAR
1 credit.

In this course, students develop individualized four-year course plans, learn about internships and job opportunities, and discuss leadership development opportunities. Students learn about, and prepare for, active and independent learning from juniors and seniors who have successfully completed independent learning projects including internships, senior seminars and other “capstone” experiences. Intended for prospective or declared Dairy Science majors in their first year or who have not completed DY SCI 399 - Internship Enroll Info: None Requisites: None Repeatable for Credit: No Last Taught: Spring 2020

DY SCI 289 — HONORS INDEPENDENT STUDY
1-2 credits.

Enroll Info: Enrolled in the CALS Honors Prgm Sophomore or Junior standing. INTER-AG 288 Requisites: Consent of instructor Course Designation: Honors - Honors Only Courses (H) Repeatable for Credit: Yes, unlimited number of completions Last Taught: Spring 1998

DY SCI 299 — INDEPENDENT STUDY
1-3 credits.

Enroll Info: Open to Freshmen, Sophomore or Junior standing written consent of instructor Requisites: Consent of instructor Repeatable for Credit: Yes, unlimited number of completions Last Taught: Fall 2020
**DY SCI 305 — LACTATION PHYSIOLOGY**
3 credits.

The course focuses on lactation physiology across mammalian species. Structure and function of mammary glands; hormonal control of mammary development and lactation; cellular mechanisms of milk synthesis; the chemistry of milk synthesis; mastitis and other abnormalities of mammary functions. This course has a laboratory component. Enroll Info: None

**Requisites:** (ZOOLOGY/BIOLOGY 101 or ZOOLOGY/BIOLOGY/BOTANY 151 and ZOOLOGY/BIOLOGY/BOTANY 152) and (BMOLCHEM 314 or BIOCHEM 501 or concurrent enrollment)

**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** No

**Last Taught:** Fall 2020

**DY SCI/AN SCI/NUTR SCI 311 — COMPARATIVE ANIMAL NUTRITION**
3 credits.

Nutrients and their source, assimilation, function and requirement. Enroll Info: None

**Requisites:** Must have completed BMOLCHEM 314 Intro to Human Biochemistry or CHEM 341 Intro Organic Chemistry or CHEM 343 Intro Organic Chemistry or BIOCHEM 501 Intro Biochemistry

**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S

**Repeatable for Credit:** No

**Last Taught:** Spring 2020

**DY SCI/AN SCI 313 — ANIMAL FEEDS AND DIET FORMULATION**
1 credit.

Designed as a companion course for Dairy Science 311 (comparative animal nutrition) with emphasis on quantitative and practical aspects of animal feeds and diet formulation. Enroll Info: MATH 112, Dy Sci/AN SCI/DY SCI 101, or consent of instructor; concurrent registration in Dy Sci/An Sci/NUTR SCI/AN SCI/DY SCI 311 recommended

**Requisites:** DY SCI/AN SCI 101

**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S

**Repeatable for Credit:** No

**Last Taught:** Fall 2019

**DY SCI/AN SCI 320 — ANIMAL HEALTH AND DISEASE MANAGEMENT**
3 credits.

Principal causes and identification of animal diseases, common diseases of farm animals, zoonoses and public health, disease prevention and management including biosecurity measures and host immune responses. Enroll Info: ZOOLOGY/BIOLOGY 101/102, BIOLOGY/BOTANY/ZOOLOGY 152, Biocore or cons inst

**Requisites:** None

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** No

**Last Taught:** Spring 2016

**DY SCI/AN SCI 361 — INTRODUCTION TO ANIMAL AND VETERINARY GENETICS**
2 credits.

The molecular basis for inheritance of monogenic and polygenic traits related to animal disease and production. An introduction to the principles of improving animal health and performance by selection and mating systems in companion animals, horses, livestock, and poultry. Enroll Info: Genetics 160 or 466 or con reg course in statistics

**Requisites:** None

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** No

**Last Taught:** Spring 2016

**DY SCI/AN SCI 362 — VETERINARY GENETICS**
2 credits.

The genetic basis for predisposition to disease or resistance to disease in livestock and companion animal species. Genetic defects, their discovery, diagnosis and treatment. Enroll Info: Dy Sci/AN SCI/DY SCI 361; or Genetics 160 or 466 Zool/Bot 152

**Requisites:** None

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** No

**Last Taught:** Spring 2020

**DY SCI/AN SCI 363 — PRINCIPLES OF ANIMAL BREEDING**
2 credits.

Application of the principles of quantitative genetics to the improvement of livestock and poultry; breeding value estimation and selection techniques; effects of inbreeding and hybrid vigor; crossbreeding systems. Enroll Info: Dy Sci/AN SCI/DY SCI 361

**Requisites:** None

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** No

**Last Taught:** Spring 2020
DY SCI/AN SCI 370 — LIVESTOCK PRODUCTION AND HEALTH IN AGRICULTURAL DEVELOPMENT
3 credits.

Physical, biological and social nature of animal agriculture systems and their improvement in developing countries; analysis of the state of livestock research and development in the developing countries and the world role of U.S. animal agriculture. Enroll Info: An Sci/DY SCI/AN SCI 101 or cons inst
Requisites: None
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Sustain - Sustainability
Repeatable for Credit: No
Last Taught: Fall 2020

DY SCI/AGROECOL/AGRONOMY 371 — MANAGED GRAZING FIELD STUDY
1-2 credits.

For those interested in developing a comprehensive understanding of the principles, practices, and conservation potential of managed grazing systems, and how these farming systems may contribute to the sustainability and diverse tapestry of Wisconsin's working landscape. Visit managed grazing systems of successful grazing-based farmers (grazers) across southern/central counties in Wisconsin, and/or research sites at UW's Arlington and/or Lancaster Research Stations and/or the Discovery Farms Program. An opportunity to discuss at length with farm managers and researchers the practices in place at each farm and research site. Includes introduction to UWEX pasture forage/nutrient management planning and budgeting software. Enroll Info: None
Requisites: Consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Sustain - Sustainability
Repeatable for Credit: No
Last Taught: Fall 2017

DY SCI/AN SCI 373 — ANIMAL PHYSIOLOGY
3 credits.

Students will develop an understanding of physiological processes that regulate the body, learn the anatomy and function of different physiological systems, describe interactions between organ systems, study regulation of an organ system from the molecular to whole animal level, and identify differences between species in the same systems. Enroll Info: None
Requisites: ZOOLOGY/BIOLOGY 101 or (BOTANY/BIOLOGY/ZOOLOGY 151 and BOTANY/BIOLOGY/ZOOLOGY 152)
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Summer 2020

DY SCI 379 — COORDINATIVE INTERNSHIP/COOPERATIVE EDUCATION
1-8 credits.

Enroll Info: So, Jr or Sr st cons supervising inst, advisor, and internship coordinator
Requisites: Consent of instructor
Course Designation: Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S Workplace - Workplace Experience Course
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2020

DY SCI 400 — STUDY ABROAD IN DAIRY SCIENCE
1-6 credits.

Provides an area equivalency for courses taken on Madison Study Abroad Programs that do not equate to existing UW courses. Enroll Info: Current enrollment in a UW-Madison study abroad program
Requisites: None
Repeatable for Credit: Yes, unlimited number of completions

DY SCI/AN SCI 414 — RUMINANT NUTRITION & METABOLISM
3 credits.

Ruminant Nutrition integrates nutritional and biochemical concepts to understand digestive and metabolic processes in dairy and beef cattle, which are then quantitatively represented to predict and manipulate production and health outcomes. Enroll Info: None
Requisites: NUTR SCI/AN SCI/DY SCI 311 and (BIOCHEM 301 or 501)
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2020

DY SCI/AN SCI 434 — REPRODUCTIVE PHYSIOLOGY
3 credits.

Principles of reproductive physiology, improvement of fertility, and artificial insemination. Enroll Info: Jr st, An Sci/DY SCI/AN SCI 101, or Zool 101 102; Zool 151 152 recommended
Requisites: None
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2020

DY SCI 375 — SPECIAL TOPICS
1-4 credits.

Enroll Info: None
Requisites: None
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2020
DY SCI/AGR/AG 471 — FOOD PRODUCTION SYSTEMS AND SUSTAINABILITY
3 credits.

Delves into aspects of natural sciences (biology and agricultural sciences) and social sciences underpinning the assessment of food production systems as related to a variety of outcomes including but not restricted to human and environmental health, air and water quality, greenhouse gases emission, land use, economic opportunity, social justice, as well as mitigation and adaptation to climate change, locally, regionally, domestically, across continents, and globally. Enroll Info: None

Requisites: (Graduate/professional standing) or junior standing and satisfied Quantitative Reasoning (QR) B requirement

Course Designation: Breadth: Either Biological Science or Social Science Level: Advanced

L&S Credit: Counts as Liberal Arts and Science credit in L&S Grad 50%: Counts toward 50% graduate coursework requirement

Sustain: Sustainability

Repeatable for Credit: No

Last Taught: Spring 2020

DY SCI/AN SCI/FOOD SCI/SOIL SCI 472 — ANIMAL AGRICULTURE AND GLOBAL SUSTAINABLE DEVELOPMENT
1 credit.

Examines issues related to global agriculture and healthy sustainable development. Using a regional approach and focusing on crops and livestock case studies, students will learn the interdependence between US agriculture and agriculture in emerging economies. Some topics covered include population and food, immigration, the environment; crop and livestock agriculture; global trade; sustainability; food security, the role of women in agriculture, and the role of dairy products in a healthy diet. Enroll Info: None

Requisites: None

Course Designation: Sustain: Sustainability

Repeatable for Credit: No

Last Taught: Spring 2020

DY SCI/AN SCI/FOOD SCI/SOIL SCI 473 — INTERNATIONAL FIELD STUDY IN ANIMAL AGRICULTURE AND SUSTAINABLE DEVELOPMENT
2 credits.

Examines issues related to global agriculture and healthy sustainable development. Using a regional approach and focusing on crops and livestock case studies, students will learn the interdependence between US agriculture and agriculture in emerging economies. Some topics covered include population and food, immigration, the environment; crop and livestock agriculture; global trade; sustainability; and the role of women in agriculture and the role of dairy products in a healthy diet. Enroll Info: None

Requisites: None

Course Designation: Sustain: Sustainability

Repeatable for Credit: No

Last Taught: Fall 2020

DY SCI 534 — REPRODUCTIVE MANAGEMENT OF DAIRY CATTLE
3 credits.

This course is designed to provide students with the technical knowledge and practical skills to design and execute an effective reproductive management program for dairy cattle. Each week students will participate in lectures and discussions of the key reproductive physiology and practical research results that underlie reproductive management programs. Students will also participate in hands-on laboratories twice per week in which they will learn, practice, and demonstrate practical reproductive management techniques including: Semen handling, artificial insemination, and ultrasound of ovaries and uterus. Enroll Info: None

Requisites: DY SCI/AN SCI 434

Course Designation: Grad 50%: Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2020

DY SCI 535 — DAIRY FARM MANAGEMENT PRACTICUM
3 credits.

Principles of nutrition, breeding, reproduction, and management at the farm level are integrated. Students will develop skills in decision making, information gathering, problem solving, and interpersonal communication through fieldtrips to working commercial dairy operations. Enroll Info: DY SCI 233, 434, 361

Requisites: Must have completed or be enrolled in Dairy Science 433 Dairy Herd Management, Dairy Science 434 Reproductive Physiology and Dairy Science 361 Introduction to Animal and Veterinary Genetics.

Course Designation: Grad 50%: Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2020

DY SCI 681 — SENIOR HONORS THESIS
2-4 credits.

Enroll Info: Honors candidacy

Requisites: Consent of instructor

Course Designation: Honors: Honors Only Courses (H)

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2020

DY SCI 682 — SENIOR HONORS THESIS
2-4 credits.

Continuation of 681. Enroll Info: Honors program candidacy DY SCI 681

Requisites: Consent of instructor

Course Designation: Honors: Honors Only Courses (H)

Repeatable for Credit: No

Last Taught: Spring 2009

DY SCI 699 — SPECIAL PROBLEMS
1-3 credits.

Enroll Info: Sr st cons inst

Requisites: Consent of instructor

Course Designation: Level: Advanced

L&S Credit: Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2020
DY SCI 799 — PRACTICUM IN DAIRY SCIENCE TEACHING  
1-3 credits. 

Instructional orientation to teaching at the higher education level in the agricultural and life sciences, direct teaching experience under faculty supervision, experience in testing and evaluation of students, and the analysis of teaching performance. Enroll Info: None 
Requisites: Consent of instructor 
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement 
Repeatable for Credit: No 
Last Taught: Spring 2020

DY SCI/AN SCI 824 — RUMINANT NUTRITIONAL PHYSIOLOGY I  
4 credits. 

Focuses on rumen microbiology, metabolite modeling, as well as protein and VFA nutrition and metabolism. Students should have undergraduate coursework in ruminant nutrition, biochemistry, and microbiology as background. Enroll Info: None 
Requisites: Graduate/professional standing 
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement 
Repeatable for Credit: No 
Last Taught: Fall 2017

DY SCI/AN SCI 825 — RUMINANT NUTRITIONAL PHYSIOLOGY II  
4 credits. 

Focuses on calf and heifer nutrition, regulation of dry matter intake, plant and forage chemistry, vitamins, lipids, and starch. Students should have undergraduate coursework in ruminant nutrition, biochemistry, and microbiology as background. Enroll Info: None 
Requisites: Graduate/professional standing 
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement 
Repeatable for Credit: No 
Last Taught: Fall 2020

DY SCI 875 — SPECIAL TOPICS  
1-4 credits. 

Enroll Info: None 
Requisites: Graduate/professional standing 
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement 
Repeatable for Credit: Yes, unlimited number of completions 
Last Taught: Fall 2020

DY SCI 900 — SEMINAR  
1 credit. 

Comprehensive reviews of research aimed at broadening understanding of dairy science. Enroll Info: Dairy Science 690 
Requisites: Graduate/professional standing 
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement 
Repeatable for Credit: Yes, unlimited number of completions 
Last Taught: Fall 2020

DY SCI/AN SCI 931 — SEMINAR IN ANIMAL NUTRITION  
1 credit. 

Discussion of literature that has a bearing on animal nutrition. Students are to survey the literature and present a seminar. Enroll Info: None 
Requisites: Graduate/professional standing 
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement 
Repeatable for Credit: Yes, unlimited number of completions 
Last Taught: Spring 2019

DY SCI/AN SCI/GENETICS 951 — SEMINAR IN ANIMAL BREEDING  
0-1 credits. 

Enroll Info: None 
Requisites: Graduate/professional standing 
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement 
Repeatable for Credit: No 
Last Taught: Spring 2020

DY SCI 990 — RESEARCH  
1-12 credits. 

Enroll Info: None 
Requisites: Consent of instructor 
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement 
Repeatable for Credit: Yes, unlimited number of completions 
Last Taught: Fall 2020