AGRONOMY (AGRONOMY)

AGRONOMY 1 — COOPERATIVE EDUCATION/CO-OP IN AGRONOMY
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. Enroll Info: 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 AGRONOMY 399. Students shall obtain consent of their advisor as well as consent of instructor.

Requisites: Consent of instructor
Repeatable for Credit: Yes, unlimited number of completions

AGRONOMY 100 — PRINCIPLES AND PRACTICES IN CROP PRODUCTION
4 credits.

Plant science applied to the growth, production, management, distribution and utilization of field crops. Enroll Info: None

Requisites: None
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Fall 2018

AGRONOMY/AGROECOL/C&E SOC/ENTOM/ENVIR ST 103 — AGROECOLOGY: AN INTRODUCTION TO THE ECOLOGY OF FOOD AND AGRICULTURE
3 credits.

Agroecology has blossomed across the world in recent decades as not only a science, but also a practice, and a movement. Employ the multiple disciplines and perspectives that Agroecology affords to analyze our agricultural and food systems within a broader context of dynamic social and ecological relationships. Enroll Info: None

Requisites: None
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Fall 2018

AGRONOMY/ENTOM/NUTR SCI 203 — INTRODUCTION TO GLOBAL HEALTH
3 credits.

Introduces students to global health concepts through multidisciplinary speakers dedicated to improving health through their unique training. It targets students with an interest in public health and those who wish to learn how their field impacts their global issues. Enroll Info: None

Requisites: None
Course Designation: Breadth - Social Science
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Fall 2018

AGRONOMY 289 — HONORS INDEPENDENT STUDY
1-2 credits.

Research work under direct guidance of an Agronomy faculty or instructional academic staff member. Enroll Info: Students are responsible for arranging the work and credits with the supervising instructor. Intended for students in the CALS Honors Program.

Requisites: Consent of instructor
Course Designation: Honors - Honors Only Courses (H)
Repeatable for Credit: Yes, unlimited number of completions

AGRONOMY 299 — INDEPENDENT STUDY
1-3 credits.

Research work under direct guidance of a faculty or instructional academic staff member. Enroll Info: Students are responsible for arranging the work and credits with the supervising instructor.

Requisites: Consent of instructor
Repeatable for Credit: Yes, unlimited number of completions

AGRONOMY 300 — CROPPING SYSTEMS
3 credits.

Agronomic cropping systems of the Midwest: environmental impacts, productivity, and profitability. Cropping system diversification and sustainable agriculture. An agroecological approach, the application of ecological concepts and principles for the improvement of cropping systems is emphasized. Enroll Info: None

Requisites: AGRONOMY 100 or graduate/professional standing
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
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: Spring 2018

AGRONOMY 302 — FORAGE MANAGEMENT AND UTILIZATION
3 credits.

Establishment, management, harvesting and utilization of forage crops for use as hay, pasture and silage. Emphasis on cool season perennial grasses and legumes. Enroll Info: None

Requisites: Junior standing and (DY SCI/AN SCI 101, ZOOLOGY/BIOLOGY 101, ZOOLOGY/BIOLOGY/BOTANY 151, AGRONOMY 100, or BIOCORE 381) or graduate/professional standing
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
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 2018
AGRONOMY/HORT/SOIL SCI 326 — PLANT NUTRITION MANAGEMENT
3 credits.
Functions, requirements and uptake of essential plant nutrients; chemical and microbial processes affecting nutrient availability; diagnosis of plant and soil nutrient status; fertilizers and efficient fertilizer use in different tillage systems. Enroll Info: None
Requisites: (CHEM 103, 109, or 115 and SOIL SCI/ENVIR ST/GEOG 230) or SOIL SCI 301, or graduate/professional standing
Course Designation: Breadth - Physical 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: Spring 2018

AGRONOMY/HORT 328 — INTEGRATED WEED MANAGEMENT
4 credits.
Prevalence and persistence of weeds, evaluation of competitive and allelopathic effects, methods and principles of control including proper identification of common weed species. Enroll Info: None
Requisites: (BOTANY/BIOLOGY 130 or AGRONOMY 100) or graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2010

AGRONOMY/HORT 338 — PLANT BREEDING AND BIOTECHNOLOGY
3 credits.
Principles of transferring plant genes by sexual, somatic, and molecular methods and the application of gene transfer in plant breeding and genetic engineering to improve crop plants. Enroll Info: None
Requisites: (BOTANY/BIOLOGY 130, GENETICS 466, 467, or BIOCORE 381) or graduate/professional standing
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: Spring 2018

AGRONOMY/BOTANY/HORT 340 — PLANT CELL CULTURE AND GENETIC ENGINEERING
4 credits.
Theoretical and practical training in plant cell and tissue culture, and plant genetic engineering. Includes overview of current techniques, biosafety and regulatory requirements, and experimental design and analysis used in fundamental and applied research on plants. Valuable hands-on training to those interested in careers in biotechnology. Enroll Info: None
Requisites: (BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY/BOTANY 152, or ZOOLOGY/BIOLOGY 102) and (CHEM 104, 109, or 116) or graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2018

AGRONOMY/A A E/INTER-AG/NUTR SCI 350 — WORLD HUNGER AND MALNUTRITION
3 credits.
Hunger and poverty in developing countries and the United States. Topics include: nutrition and health, population, food production and availability, and income distribution and employment. Enroll Info: None
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
Repeatable for Credit: No
Last Taught: Summer 2018

AGRONOMY/ENTOM/HORT/PL PATH/SOIL SCI 354 — DIAGNOSING AND MONITORING PEST AND NUTRIENT STATUS OF FIELD CROPS
1 credit.
Provides students with information necessary to diagnosis and monitor corn, soybean, alfalfa and wheat for pests (insects, weeds, diseases) and nutrient deficiency symptoms including perspectives from Agronomy, Entomology, Horticulture, Plant Pathology and Soil Science. Proper soil and pest sampling information will be provided as will proper crop staging techniques which are essential for pest and nutrient management. Enroll Info: None
Requisites: None
Repeatable for Credit: No
Last Taught: Spring 2018
AGRONOMY/HORT 360 — GENETICALLY MODIFIED CROPS: SCIENCE, REGULATION & CONTROVERSY
2 credits.

Explores how and why genetically modified (GM) crops are created and their regulation at the federal and state level. Through case studies, students will learn about the impacts of GM crops and critically evaluate arguments both for and against their use. Readings and discussion introduce students to the complex economic, cultural, and political issues surrounding GM crops. Enroll Info: None
Requisites: ZOOLOGY/BIOLOGY 101, BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY/BOTANY 151, BIOCORE 381, GENETICS 466, or GENETICS 467
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 2018

AGRONOMY/BOTANY/SOIL SCI 370 — GRASSLAND ECOCYLOGY
3 credits.

Understand factors driving global, continental, regional, and local distribution of grasslands. Discuss how management affects provision of grassland ecosystem goods and services. Compare and contrast plant community and ecosystem dynamics in native prairie and intensively managed pastures. Enroll Info: None
Requisites: PL PATH/BOTANY 123, BOTANY/BIOLOGY 130, SOIL SCI/ENVIR ST 101, SOILSCI 132, ZOOLOGY/BIOLOGY/BOTANY 151, BIOCORE 381, BOTANY 100, or AGRONOMY 100, or graduate/professional standing
Course Designation: 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 2018

AGRONOMY/AGROECOL/DY SCI 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
Repeatable for Credit: No
Last Taught: Fall 2017

AGRONOMY 375 — SPECIAL TOPICS
1-4 credits.

Special topics on issues relevant to Agronomy. Enroll Info: None
Requisites: None
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2018

AGRONOMY 377 — CROPPING SYSTEMS OF THE TROPICS
3 credits.

Crops and cropping systems of the tropics. The environmental requirements of the major crops, their botany, and how they fit into local farming systems will be emphasized. For students with broad interests in tropical agriculture and food production. Enroll Info: None
Requisites: (BOTANY/BIOLOGY 130 or ZOOLOGY/BIOLOGY/BOTANY 152) or graduate/professional standing
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: Spring 2018

AGRONOMY 399 — COORDINATIVE INTERNSHIP/COOPERATIVE EDUCATION
1-8 credits.

An internship under guidance of a faculty or instructional academic staff member in Agronomy and internship site supervisor. Enroll Info: Students are responsible for arranging the work and credits with the faculty or instructional academic staff member and the internship site supervisor.
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 2018

AGRONOMY 400 — STUDY ABROAD IN AGRONOMY
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

AGRONOMY 500 — SENIOR CAPSTONE EXPERIENCE
2 credits.

A stepping stone between the classroom and society. Emphasizes discussion and activities for enhancing integration of diverse bodies of knowledge, critical thinking, and effective written and oral communication. Enroll Info: None
Requisites: Senior standing only
Repeatable for Credit: No
Last Taught: Spring 2018
AGRONOMY/HORT 501 — PRINCIPLES OF PLANT BREEDING
3 credits.

Principles involved in breeding and maintaining economic crops; factors affecting the choice of breeding methods; alternative approaches through hybridization and selection. Enroll Info: None

Requisites: (GENETICS 466 or 467) and (BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY/BOTANY 151, or BIOCORE 381) or graduate/professional standing

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: Spring 2018

AGRONOMY/HORT 502 — TECHNIQUES OF PLANT BREEDING
1 credit.

Lab and field techniques used in breeding and maintaining economic crops. Enroll Info: None

Requisites: (GENETICS 466 or 467) and (BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY/BOTANY 151, or BIOCORE 381) or graduate/professional standing

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 2017

AGRONOMY/ATM OCN/SOIL SCI 532 — ENVIRONMENTAL BIOPHYSICS
3 credits.

Plant-environment interactions with particular reference to energy exchanges and water relations. Models are used to provide a quantitative synthesis of information from plant physiology, soil physics, and micrometeorology with some consideration of plant-pest interactions. Enroll Info: Students should have completed at least one course in Botany, Agronomy, or Plant Sciences to feel comfortable with the course content.

Requisites: BIOLOGY/BOTANY 130 and (MATH 211, 217, 221 or 275) and (PHYSICS 103, 201, 207, or 247), or graduate/professional standing

Course Designation: Breadth - Physical 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 2018

AGRONOMY/C&E SOC/MED HIST/PHILOS 565 — THE ETHICS OF MODERN BIOTECHNOLOGY
3-4 credits.

Study of ethical issues arising from the application of modern biotechnology to microorganisms, crops, and non-human animals. Readings cover moral theory, technology studies, political philosophy, the science used in biotechnology, and current regulations governing its use. Enroll Info: None

Requisites: Consent of instructor

Course Designation: Breadth - Humanities
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 2018

AGRONOMY/ENTOM/F&W ECOL/M&ENVTOX 632 — ECOTOXICOLOGY: THE CHEMICAL PLAYERS
1 credit.

Introduction to natural and man-made toxins/toxicants, their distribution, transport, and fate in the environment. Enroll Info: None

Requisites: (CHEM 341 or 343) and (BOTANY/BIOLOGY 130 and ZOOLOGY/BIOLOGY 102) and (ZOOLOGY/BIOLOGY/BOTANY 152, or BIOCORE 383); or graduate/professional standing

Repeatable for Credit: No

Last Taught: Fall 2017

AGRONOMY/ENTOM/F&W ECOL/M&ENVTOX 633 — ECOTOXICOLOGY: IMPACTS ON INDIVIDUALS
1 credit.

Addresses absorption, biotransformation, elimination of toxins in a wide variety of taxa (plants, invertebrates, vertebrates). Enroll Info: None

Requisites: M&ENVTOX 632
Repeatable for Credit: No

Last Taught: Fall 2017

AGRONOMY/ENTOM/F&W ECOL/M&ENVTOX 634 — ECOTOXICOLOGY: IMPACTS ON POPULATIONS, COMMUNITIES AND ECOSYSTEMS
1 credit.

Focuses on the impact of toxicants on populations, communities, ecosystems, and includes risk evaluation. Includes lectures, current research presentations, and discussions. Enroll Info: None

Requisites: M&ENVTOX 633 or declared in Molecular and Environmental Toxicology, PhD program

Repeatable for Credit: No

Last Taught: Fall 2017

AGRONOMY 681 — SENIOR HONORS THESIS
2-4 credits.

Individual study for majors completing theses for Agronomy Honors degrees. Enroll Info: None

Requisites: Consent of instructor

Course Designation: Honors - Honors Only Courses (H)
Repeatable for Credit: No

Last Taught: Fall 2018
AGRONOMY 682 — SENIOR HONORS THESIS
2-4 credits.

Individual study for majors completing theses for Honors degrees as arranged with a faculty member. Enroll Info: Requires consent of supervising instructor. Continuation of AGRONOMY 681. Enrolled in CALS Honors Program.
Requisites: Consent of instructor
Course Designation: Honors - Honors Only Courses (H)
Repeatable for Credit: No
Last Taught: Spring 2009

AGRONOMY 699 — SPECIAL PROBLEMS
1-4 credits.

Independent research guided by an Agronomy faculty or instructional academic staff member. Students are responsible for arranging the work and credits with the supervising instructor. Enroll Info: None
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 2018

AGRONOMY/AGROECOL/ENVIR ST 724 — AGROECOSYSTEMS AND GLOBAL CHANGE
3 credits.

Impacts of global change drivers (climate change, atmospheric chemistry, bioenergy, urbanization, policy) on agroecosystems and their associated goods and services; environmental impacts of agricultural land use and feedbacks to climate; modeling approaches; critical review of current scientific literature. Enroll Info: None
Requisites: (ZOOLOGY/BIOLOGY/BOTANY 152 or ZOOLOGY/BOTANY/ENVIR ST 260), (PHYSICS 103 or CHEM 103, 109 or 115), or graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

AGRONOMY 771 — EXPERIMENTAL DESIGNS
1 credit.

Review of methods for controlling error in research experiments; review and in-depth development of factorial treatment designs; theory, analysis, and examples of advanced experimental designs for plant and animal research. Enroll Info: Knowledge of statistics such as FSTAT 571 is strongly encouraged.
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2017

AGRONOMY 772 — APPLICATIONS IN ANOVA
1 credit.

Development of models, programs, inferences, and interpretations of analysis of variance in biological research; mixed vs. random effects models and their development; choosing the correct inference range; variance and covariance analyses; repeated measures; dealing with missing data; SAS programming. Enroll Info: Knowledge of statistics such as FSTAT 571 is strongly encouraged.
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2017

AGRONOMY 799 — PRACTICUM IN AGRONOMY 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: Fall 2018

AGRONOMY/HORT 811 — BIOMETRICAL PROCEDURES IN PLANT BREEDING
3 credits.

Use of statistical methods to facilitate improvements in quantitative traits of cultivated plants. Enroll Info: None
Requisites: (STAT/F&W ECOL/HORT 572, GENETICS 466 or GENETICS 467) or graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2018

AGRONOMY/HORT 812 — SELECTION THEORY FOR QUANTITATIVE TRAITS IN PLANTS
2 credits.

Discuss advanced topics in selection theory and the utilization of molecular markers in selection. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2018
AGRONOMY/HORT 850 — ADVANCED PLANT BREEDING 
3 credits.

Concepts in improvement of major crop species. Historically important breeding methods and new approaches. Lectures and discussion. Enroll Info: HORT/AGRONOMY 338 or 501 or cons inst
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2010

AGRONOMY 875 — SPECIAL TOPICS 
1-4 credits.

Special topics on issues relevant to Agronomy. 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 2018

AGRONOMY 920 — SEMINAR 
1 credit.

Weekly seminar topics in agronomy and horticulture. 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 2017

AGRONOMY/ATM OCN/BOTANY/ENTOM/ENVIR ST/F&W ECOL/GEOG/ZOOLOGY 953 — INTRODUCTION TO ECOLOGY RESEARCH AT UW-MADISON 
1-2 credits.

Introduces new graduate students to the diversity of ecologists across the UW-Madison campus. Includes discussions of key topics in professional development, research presentations by faculty members, and discussions of assigned papers with senior graduate students. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2018

AGRONOMY/GENETICS/HORT 957 — SEMINAR-PLANT BREEDING 
1 credit.

Graduate seminar in Plant Breeding Plant Genetics (PBPG) that requires students to give oral scientific presentations on topics chosen by the instructors and/or the student’s thesis research. This seminar is coordinated by PBPG faculty on a rotating basis. 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 2018

AGRONOMY 990 — RESEARCH 
1-9 credits.

Independent writing and research to complete thesis or dissertation requirements. 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 2018