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. 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.

Requisites: So st, and consent of supervising instructor and academic advisor.

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.

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 2017

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. This course will challenge students to 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.

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 2017

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.

Requisites: None

Course Designation: Breadth - Social Science
Level - Elementary
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Fall 2017

AGRONOMY 289 — HONORS INDEPENDENT STUDY
1-2 credits.

Inter-Ag 288

Requisites: Enrolled in the CALS Honors Program Sophomore or Junior standing.

Course Designation: Honors - Honors Only Courses (H)

Repeatable for Credit: Yes, unlimited number of completions

AGRONOMY 299 — INDEPENDENT STUDY
1-3 credits.

Requisites: Open to Freshmen or Sophomore or Junior standing written 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.

Requisites: AGRONOMY 100 or cons inst

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

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.

Requisites: Jr st Agron 100 or cons inst

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

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.

Requisites: Soil Sci 230 or 301 and one of the following: Bot 100 or 130; HORT 120 or 122; Agron 100

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
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.
Requisites: Agron 100 or intro crse in botany or cons inst
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

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.
Requisites: BOTANY/BIOLOGY 130 or Genetics 160 or Biocore 301 or cons inst
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

AGRONOMY/BOTANY/HORT 339 — PLANT BIOTECHNOLOGY: PRINCIPLES AND TECHNIQUES I
4 credits.
Theoretical and practical training in plant biotechnology including molecular biology, protein biochemistry and basic bioinformatic techniques used in fundamental and applied research on plants. Valuable hands-on training to those interested in careers in biotechnology.
Requisites: Bot/Zoo 152 or equiv CHEM 104 or equiv
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 2017

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.
Requisites: BOTANY/BIOLOGY 130 or Botany/Zoology/BIOLOGY/BOTANY/ZOOLOGY 152 or ZOOLOGY/BIOLOGY 102, and Chemistry 104, 109, or 116
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

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.
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

AGRONOMY/ENTOM/HORT/PL PATH/SOIL SCI 354 — DIAGNOSING AND MONITORING PEST AND NUTRIENT STATUS OF FIELD CROPS
1 credit.
This course is designed to provide 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.
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.
Requisites: BIOLOGY/BOTANY/BIOLOGY 130, BIOLOGY/BOTANY/ZOOLOGY/BOTANY/BIOLOGY/BOTANY 151, BIOCORE 381, BOTANY/GENETICS/ZOOLOGY 160, BOTANY/GENETICS/ZOOLOGY 466, or BIOLOGY/ZOOLOGY/BIOLOGY 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
AGRONOMY/BOTANY/SOIL SCI 370 — GRASSLAND ECOLOGY
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.
Requisites: Intro crse in Agronomy, Botany, or Soil Sci; or Bot/Zoo/Biol 151-152; or Biocore 301 or 333
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 2017

AGRONOMY/AGROECOL/DY SCI 371 — MANAGED GRAZING FIELD STUDY
1-2 credits.
This is a course for students who are 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. Students will 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. Students will have the opportunity to discuss at length with farm managers and researchers the practices in place at each farm and research site. Readings will be assigned and discussed. Students will be introduced to CALS/UWEX pasture forage/nutrient management planning and budgeting software. A course fee (expected to be approx. $75-$100/student) will be assessed to cover transportation between field sites and farmer-grazier cooperator honoraria.
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.
Requisites: None
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 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.
Requisites: Intro crse in botany or cons inst
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

AGRONOMY 399 — COORDINATIVE INTERNSHIP/COOPERATIVE EDUCATION
1-8 credits.
Requisites: Cons suprvsg inst, advisor, intrshp progm coordinator
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

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.
Requisites: Sr st; AGRONOMY 399, 699, or cons inst
Repeatable for Credit: No

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.
Requisites: Intro crse in genetics, 1 yr biol
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

AGRONOMY/HORT 502 — TECHNIQUES OF PLANT BREEDING
1 credit.
Lab and field techniques used in breeding and maintaining economic crops.
Requisites: An intro crse in genetics 1 yr of biology
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

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.
Requisites: Intro crse in genetics, 1 yr biol
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

AGRONOMY/HORT 502 — TECHNIQUES OF PLANT BREEDING
1 credit.
Lab and field techniques used in breeding and maintaining economic crops.
Requisites: An intro crse in genetics 1 yr of biology
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 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.

**Requisites:** Intro calc, PHYSICS 103, BOTANY/BIOLOGY 130 comp programing; or cons inst

**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 2016

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.

**Requisites:** Junior standing

**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:** Spring 2017

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. Includes lectures, current research presentations, and discussions.

**Requisites:** 2 sem intro biol 1 sem organic chem, or cons inst

**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.

**Requisites:** MEnvTox 633, or MEnvTox 625, 626 631, or cons inst

**Repeatable for Credit:** No

**Last Taught:** Fall 2017

AGRONOMY 681 — SENIOR HONORS THESIS

2-4 credits.

Continuation of 681.

**Requisites:** Hon prog candidacy

**Course Designation:** Honors - Honors Only Courses (H)

**Repeatable for Credit:** No

AGRONOMY 682 — SENIOR HONORS THESIS

2-4 credits.

Continuation of 681.

**Requisites:** Honors program candidacy AGRONOMY 681

**Course Designation:** Honors - Honors Only Courses (H)

**Repeatable for Credit:** No

AGRONOMY 699 — SPECIAL PROBLEMS

1-4 credits.

Offered at Madison and the branch experiment stations.

**Requisites:** Sr st cons inst

**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

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.

**Requisites:** Grad st; coursework in either college-level biology or ecology; 1 sem college-level chemistry or physics; or cons inst

**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.

**Requisites:** STAT/F&W ECOL/HORT 571

**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.
Requisites: STAT/F&W ECOL/HORT 571
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.
Requisites: Consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

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

Use of statistical methods to facilitate improvements in quantitative traits of cultivated plants.
Requisites: Intro crses in genetics stat
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

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.
Requisites: AGRONOMY/HORT/AGRONOMY 811
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

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.
Requisites: Agron/HORT/AGRONOMY 338 or 501 or cons inst
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.

Requisites: Graduate or 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.

Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions

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

Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions

AGRONOMY 990 — RESEARCH
1-9 credits.

Requisites: Consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions