

BOTANY (BOTANY)

BOTANY 100 – SURVEY OF BOTANY

3 credits.

Major emphasis on the roles of plants and microbes in past and present global ecology, and the past and present uses of plants and microbes by humans, including emerging applications of biotechnology.

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: Spring 2023

BOTANY/PL PATH 123 – PLANTS, PARASITES, AND PEOPLE

3 credits.

Explores the interaction between society and plant-associated microbes. Topics include: the Irish potato famine, pesticides in current agriculture, role of economics and consumer preference in crop disease management and the release of genetically engineered organisms.

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: Summer 2023

BOTANY/BIOLOGY 130 – GENERAL BOTANY

5 credits.

Introduction to the basic principles and concepts of the biology of plants. an integrative approach stressing evolutionary sequences and the relationship between structure and function at succeeding levels of organization: molecule, cell, organism, population, community. Correlated lectures, laboratories, and discussions.

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: Spring 2023

BOTANY/BIOLOGY/ZOOLOGY 151 – INTRODUCTORY BIOLOGY

5 credits.

Topics include: cell structure and function, cellular metabolism (enzymes, respiration, photosynthesis), information flow (DNA, RNA, protein), principles of genetics and selected topics in Animal Physiology.

Requisites: Not open to students with credit for BIOLOGY/ZOOLOGY 101, 102 or BIOLOGY/BOTANY 130

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: Spring 2023

BOTANY/BIOLOGY/ZOOLOGY 152 – INTRODUCTORY BIOLOGY

5 credits.

Topics include: selected topics in plant physiology, a survey of the five major kingdoms of organisms, speciation and evolutionary theory, and ecology at multiple levels of the biological hierarchy.

Requisites: ZOOLOGY/BIOLOGY/BOTANY 151

Course Designation: Gen Ed - Communication Part B

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: Spring 2023

BOTANY 211 – UNDERSTANDING CHANGED LANDSCAPES: WISCONSIN

3 credits.

Exposure to the changing uses of Wisconsin landscapes: as the home of native peoples; as a source of fur, lead and timber; as part of the new nation of the United States; and as a modern, vibrant collection of communities focused on enterprises as diverse as agriculture and education. Asks what roles science has played in shaping the landscape and in current land use. Covers genetically modified crops, the endangered species act, water use, global change.

Requisites: Sophomore standing and declared in an Honors program

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

Honors - Honors Only Courses (H)

Repeatable for Credit: No

Last Taught: Spring 2022

BOTANY 240 – PLANTS AND HUMANS

3 credits.

Plant parts and demonstrations of their utility to humans, origins of domesticated plants, modifications of plants by humans, ecosystem services owed to plants, and reasons to sustain plant diversity.

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 2022

BOTANY/F&W ECOL 250 – FORESTS AND HUMANS: FROM THE MIDWEST TO MADAGASCAR

2 credits.

Provides an overview of the geography, ecology, and economic importance of the world's forest biomes. Learn how climate influences vegetation and, in-turn, how forests impact global climate. Meet scientists working to understand the astounding biodiversity and ecological complexity of forest ecosystems, and how these ecosystems support human life. Discuss the threats to forest ecosystems around the world, and hear from the people trying to protect them. Emphasizes the forest resources and services upon which humans depend, and how we can maintain these resources into the future. Analyze the idea of "sustainability" when it comes to forest management, hear alternative viewpoints about what this word means, and discuss potential trade-offs and conflicts. Look at the many real-world programs in place at the global, national, and local level to sustainably manage forests.

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:** Summer 2020**BOTANY/ENVIR ST/ZOOLOGY 260 – INTRODUCTORY ECOLOGY**

3 credits.

The relationships of organisms and the environment. Population dynamics and community organization, human-environment relationships, action programs.

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:** Summer 2023**BOTANY 265 – RAINFORESTS AND CORAL REEFS**

3 credits.

Are you awed by the amazing biodiversity found in rainforests and coral reefs? See these ecosystems first hand and decide if a career in tropical biology or international conservation is for you. Focuses on the ecology of the world's most biodiverse ecosystems, and their global importance. Learn the physical, chemical, and biological processes that make rainforests and coral reefs function, and the history of human dependence upon these ecosystems. Understand why both of these ecosystems currently are threatened and what actions can and must be taken to protect them.

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 2022**BOTANY 299 – DIRECTED STUDY IN BOTANY**

1-3 credits.

Introduces students to research questions and facilitates learning in the field of botany by providing guidance and mentorship in a research environment.

Requisites: Consent of instructor**Course Designation:** Level - Elementary

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

Repeatable for Credit: Yes, unlimited number of completions**Last Taught:** Spring 2023**BOTANY 300 – PLANT ANATOMY**

4 credits.

Plant structure and development of seed plants, primarily of flowering plants. Emphasis is placed on structure in relation to function and on the plant body as a structural and functional entity.

Requisites: Sophomore standing and (ZOOLOGY/BIOLOGY/BOTANY 151, BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY 101, 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 2022**BOTANY 305 – PLANT MORPHOLOGY AND EVOLUTION**

4 credits.

A broad survey of the diversity of plants in the context of their evolutionary history. Similarities and differences in structure and reproduction among extant bryophytes, lycopods, ferns, gymnosperms, and flowering plants are emphasized along with the study of fossils representing extinct plant lineages.

Requisites: ZOOLOGY/BIOLOGY/BOTANY 151, BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY 101, 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 2022

BOTANY 330 – ALGAE

3 credits.

Introduction to ecology, evolution, systematics, taxonomy, physiology, biochemistry, cell biology, and molecular biology of freshwater, terrestrial and marine algae. Emphasis on techniques for identification, culture, analysis of growth and reproduction, and community composition assessment.

Requisites: ZOOLOGY/BIOLOGY/BOTANY 151, BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY 101, 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 2022

BOTANY/PL PATH 332 – FUNGI

4 credits.

Growth, development, variability and dispersal of saprophytic, parasitic, and symbiotic fungi, with a consideration of their ecological and economic significance. Develop skills in microscopy with live fungal materials.

Requisites: ZOOLOGY/BIOLOGY/BOTANY 151, BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY 101, 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 2023

BOTANY/PL PATH 333 – BIOLOGY OF THE FUNGI

2 credits.

Growth, development, variability and dispersal of saprophytic, parasitic, and symbiotic fungi, with a consideration of their ecological and economic significance.

Requisites: ZOOLOGY/BIOLOGY/BOTANY 151, BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY 101, 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 2023

BOTANY/AN SCI/MICROBIO 335 – THE MICROBIOME OF PLANTS, ANIMALS, AND HUMANS

3 credits.

Examination of the structure and function of microbial communities that live inside and on host organisms (plants, animals, and humans). Introduction to general concepts of the microbiome and microbiota, and their relationship to host nutrition, health, and disease.

Requisites: MICROBIO 101 or 303 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

Repeatable for Credit: No

Last Taught: Spring 2023

BOTANY/GEOG 338 – ENVIRONMENTAL BIOGEOGRAPHY

3 credits.

Explores how physical and biological factors affect the distribution of terrestrial biomes, ecosystem types, and biodiversity, as well as the role of disturbance and recent human activities on differences in past and modern day species distributions.

Requisites: Sophomore 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 2022

BOTANY/AGRONOMY/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: (ZOOLOGY/BIOLOGY/BOTANY 152 or ZOOLOGY/BIOLOGY 102) and (CHEM 104, 109, or 116) 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 2017

BOTANY/AGRONOMY/HORT 340 – PLANT CELL CULTURE AND GENETIC ENGINEERING

3 credits.

Presents an overview of the techniques, biology and underlying theory of plant tissue culture, genetic engineering and genome editing. Overviews of research and commercial applications, and issues/challenges in the area of plant biotechnology are also covered.

Requisites: (BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY/BOTANY 152, ZOOLOGY/BIOLOGY 102, or BIOCORE 381) and (CHEM 104, 109, or 116), 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 2022

BOTANY/AGRONOMY/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: PL PATH/BOTANY 123, BOTANY/BIOLOGY 130, SOIL SCI/ ENVIR ST 101, SOIL SCI/ATM OCN 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 2022

BOTANY 400 – PLANT SYSTEMATICS

4 credits.

Plant systematics: the integration of taxonomy (identification, nomenclature, classification emphasizing flowering plants), evolution (speciation, reproductive biology, adaptation, convergence, biogeography), and phylogenetics. Emphasis on representative families and genera of flowering plants in Wisconsin, use of keys, manuals, and iNaturalist, plant collection.

Requisites: ZOOLOGY/BIOLOGY/BOTANY 151, BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY 101, 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 2022

BOTANY 401 – VASCULAR FLORA OF WISCONSIN

4 credits.

Taxonomic survey of the vascular plants of Wisconsin. Emphasis on in forest identification.

Requisites: ZOOLOGY/BIOLOGY/BOTANY 151, BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY 101, 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: Summer 2023

BOTANY/F&W ECOL 402 – DENDROLOGY

2 credits.

Identification, ranges, uses, and some ecological characteristics of evergreen and deciduous woody plants, both native and cultivated; lab and field work.

Requisites: Sophomore standing; not open to special students

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: Summer 2023

BOTANY 403 – FIELD COLLECTIONS AND IDENTIFICATION

1-4 credits.

An independent experience in collecting plant specimens, identifying the specimens to species, making labels, and mounting of some specimens.

Requisites: Consent of instructor

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Advanced

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 2022

BOTANY/ANTHRO/ZOOLOGY 410 – EVOLUTIONARY BIOLOGY

3 credits.

Evolutionary biology, emphasizing how modern scientists study evolution. Topics include: nature and mechanisms of microevolution, macroevolution, adaptation, speciation; systematics and taxonomy; quantitative genetics and measurement of natural selection; phylogenetic analyses of behavior, physiology, morphology, biochemistry; current controversies in evolution.

Requisites: ZOOLOGY/BIOLOGY 101, BIOLOGY/BOTANY 130, ZOOLOGY/BIOLOGY/BOTANY 152, BIOCORE 381, (ANTHRO 105 and satisfied QR-A requirement), 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: Summer 2023

BOTANY 422 – PLANT GEOGRAPHY

3 credits.

Biogeography of plants. Relationship to climate and geology; paleobiogeography, historical biogeography and island biogeography; history and distribution of floras of North America and Wisconsin.

Requisites: ZOOLOGY/BIOLOGY/BOTANY 151, BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY 101, BIOCORE 381, ENVIR ST/GEOG 120, 127, 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 2021

BOTANY/ZOOLOGY 450 – MIDWESTERN ECOLOGICAL ISSUES: A CASE STUDY APPROACH

2 credits.

How ecological principles can be used to address contemporary environmental issues such as water quality, invasive species, and population growth. Emphasis on midwestern issues, practical approaches, the role of history, and geographic context.

Requisites: ZOOLOGY/BIOLOGY/BOTANY 152, BOTANY/BIOLOGY 130, (ZOOLOGY/BIOLOGY 101 and ZOOLOGY/BIOLOGY 102), or BIOCORE 381

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 2023

BOTANY/F&W ECOL 455 – THE VEGETATION OF WISCONSIN

4 credits.

Ecology of Wisconsin plant communities: floristic composition, community structure; relationship to history, climate, soil, and geology; response to human perturbation.

Requisites: ZOOLOGY/BIOLOGY/BOTANY 151, BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY 101, 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 2022

BOTANY/F&W ECOL/ZOOLOGY 460 – GENERAL ECOLOGY

4 credits.

Ecology of individual organisms, populations, communities, ecosystems, landscapes, and the biosphere. The interaction of organisms with each other and their physical environment. These relationships are studied, often in quantitative terms, in both field and laboratory settings.

Requisites: Satisfied Quantitative Reasoning (QR) A requirement and ZOOLOGY/BIOLOGY/BOTANY 152, (ZOOLOGY/BIOLOGY 101 and 102), BIOCORE 381, or BOTANY/BIOLOGY 130, or graduate/professional standing

Course Designation: Gen Ed - Quantitative Reasoning Part B

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: Summer 2023

BOTANY/ENTOM/ZOOLOGY 473 – PLANT-INSECT INTERACTIONS

3 credits.

Multiple ways in which arthropods exploit plants, plant traits that deter or augment insects, environmental mediation of these interactions, effects on population dynamics, community ecology and co-evolution, and implications to natural resource management, environmental quality, and sustainable development.

Requisites: F&W ECOL/BOTANY/ZOOLOGY 460, F&W ECOL/ENTOM 500, ENTOM/BOTANY/PL PATH 505, 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 2022

BOTANY/AMER IND/ANTHRO 474 – ETHNOBOTANY

3-4 credits.

Study of the interactions between human cultures and plants. Topics include: traditional resource management and agriculture; crop domestication, evolution, and conservation; archaeobotany; indigenous knowledge; folk taxonomy; plants in symbolism and religion; dietary patterns; phytochemistry; global movement of plants and peoples.

Requisites: Sophomore standing

Course Designation: Ethnic St - Counts toward Ethnic Studies requirement

Breadth - Either Biological Science or Social Science

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: Summer 2023

BOTANY 499 – INTERMEDIATE DIRECTED RESEARCH

1-3 credits.

Explore research questions that facilitate learning in the field of botany through guidance and mentorship in a research environment.

Requisites: Consent of instructor**Course Designation:** Level - Intermediate

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

Repeatable for Credit: Yes, unlimited number of completions**Last Taught:** Spring 2023**BOTANY 500 – PLANT PHYSIOLOGY**

3-4 credits.

An in-depth look at plant growth, development, respiration, photosynthesis, mineral nutrition, and water relations. Experimental approaches will be used to demonstrate principles described.

Requisites: Satisfied Quantitative Reasoning (QR) A requirement, sophomore standing, and (ZOOLOGY/BIOLOGY/BOTANY 151, BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY 101, or BIOCORE 381), or graduate/professional standing**Course Designation:** Gen Ed - Quantitative Reasoning Part B

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 2023**BOTANY/ENTOM/PL PATH 505 – PLANT-MICROBE INTERACTIONS: MOLECULAR AND ECOLOGICAL ASPECTS**

3 credits.

Molecular and ecological aspects of the interactions between plants and microorganisms. Explores many of the themes, from genetic to integrative, of modern biology, and illustrates how study of plant-microbe interactions contributes to understanding of fundamental plant science.

Requisites: MICROBIO 303, GENETICS 466, 468, BIOCHEM 501, 508, or graduate/professional standing**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Advanced

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 2023**BOTANY/PL PATH 563 – PHYLOGENETIC ANALYSIS OF MOLECULAR DATA**

3 credits.

Theory and practice of phylogenetic inference from DNA sequence data.

Requisites: ZOOLOGY/BIOLOGY/BOTANY 151, BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY 101, BIOCORE 381, or graduate/professional standing**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Advanced

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 2023**BOTANY 575 – SPECIAL TOPICS**

1-3 credits.

Topics of interest focusing on specific subjects or groups of organisms of plants, algae, or fungi.

Requisites: (ZOOLOGY/BIOLOGY 101, 102 and BIOLOGY/BOTANY 130), ZOOLOGY/BIOLOGY/BOTANY 152, 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

Repeatable for Credit: Yes, unlimited number of completions**Last Taught:** Spring 2023**BOTANY/BIOCHEM 621 – PLANT BIOCHEMISTRY**

3 credits.

Biochemistry of photosynthesis, respiration, cell walls, and other metabolic and biosynthetic processes in plants.

Requisites: BIOCHEM 501, 507, or graduate/professional standing**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Advanced

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 2021**BOTANY/HORT/SOIL SCI 626 – MINERAL NUTRITION OF PLANTS**

3 credits.

Essential and beneficial elements, solutions and soil as nutrient sources, rhizosphere chemistry, nutritional physiology, ion uptake and translocation, functions of elements, nutrient interactions, genetics of plant nutrition.

Requisites: BOTANY 500 or graduate/professional standing**Course Designation:** Level - Advanced

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 2019**BOTANY/ENVIR ST/F&W ECOL/ZOOLOGY 651 – CONSERVATION BIOLOGY**

3 credits.

Application of ecological principles and human dimensions to the conservation of biological diversity. Topics: biodiversity science; conservation planning; population ecology; habitat loss, species exploitation, invasive species, pollution; human attitudes and activities as they affect the biosphere; approaches to monitoring interventions.

Requisites: Satisfied Quantitative Reasoning (QR) A requirement and ZOOLOGY/BOTANY 450, F&W ECOL/BOTANY 455, ZOOLOGY/BOTANY/F&W ECOL 460, or graduate/professional standing**Course Designation:** Gen Ed - Quantitative Reasoning Part B

Level - Advanced

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 2022

BOTANY/GENETICS/M M & I/PL PATH 655 – BIOLOGY AND GENETICS OF FUNGI

3 credits.

Fungal genetics, genomics, and physiology using plant pathogenic fungi and the genetic models *Aspergillus nidulans* and *Neurospora crassa* as model systems to explore the current knowledge of fungal genetics and plant/fungal interactions.

Requisites: Graduate/professional standing**Course Designation:** Level - Advanced

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 2022**BOTANY/LAND ARC 670 – ADAPTIVE RESTORATION LAB**

2 credits.

Field experience in restoration as an adaptive process involving field experimentation; baseline data collection on restoration sites; design of experiments to advance restoration science; quantitative evaluation of restoration outcomes. Includes analysis and interpretation of data.

Requisites: Graduate/professional standing**Course Designation:** Level - Advanced

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 2015**BOTANY/F&W ECOL/ZOOLOGY 672 – HISTORICAL ECOLOGY**

2 credits.

Study the importance of past events for current ecosystems. Emphasizes concepts and applications.

Requisites: Senior standing**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Advanced

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 2022**BOTANY 681 – SENIOR HONORS THESIS**

3 credits.

Individual research for students completing theses for honors in the Botany major as arranged with a faculty member.

Requisites: Consent of instructor**Course Designation:** Level - Advanced

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

Honors - Honors Only Courses (H)

Repeatable for Credit: No**Last Taught:** Fall 2022**BOTANY 682 – SENIOR HONORS THESIS**

3 credits.

Individual research for students completing theses for honors in the Botany major as arranged with a faculty member.

Requisites: Consent of instructor**Course Designation:** Level - Advanced

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

Honors - Honors Only Courses (H)

Repeatable for Credit: No**Last Taught:** Spring 2023**BOTANY 691 – SENIOR THESIS**

2-3 credits.

Individual research for students completing theses as arranged with a faculty member.

Requisites: Consent of instructor**Course Designation:** Level - Advanced

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

Repeatable for Credit: No**Last Taught:** Spring 2023**BOTANY 692 – SENIOR THESIS**

2-3 credits.

Individual research for students completing theses as arranged with a faculty member.

Requisites: Consent of instructor**Course Designation:** Level - Advanced

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

Repeatable for Credit: No**Last Taught:** Spring 2023**BOTANY 698 – DIRECTED STUDY**

1-4 credits.

Advanced directed research projects as arranged with a faculty member.

Requisites: Consent of instructor**Course Designation:** Level - Advanced

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

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions**Last Taught:** Spring 2017**BOTANY 699 – DIRECTED STUDY**

1-4 credits.

Explore research questions that facilitate learning in the field of botany through guidance and mentorship in a research environment.

Requisites: Consent of instructor**Course Designation:** Level - Advanced

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

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions**Last Taught:** Spring 2023

BOTANY/ZOOLOGY 725 – ECOSYSTEM CONCEPTS

3 credits.

Scope and objectives of ecosystem ecology; roles of theory, long-term studies, comparative studies, and large-scale experiments; scaling problems; ecosystem services and ecological economics; adaptive ecosystem assessment and management.

Requisites: Graduate/professional standing**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Spring 2023**BOTANY 801 – ADVANCED PLANT COMMUNITY ECOLOGY**

4 credits.

Ecological determinants of plant community structure, dynamics, and diversity from an evolutionary perspective. Relations of vegetation types, physiognomy and phenology to plant adaptation and constraints. Gradient analysis, succession, nutrient cycling, plant-herbivore interactions, species richness.

Requisites: Graduate/professional standing**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Spring 2023**BOTANY 802 – PHYSIOLOGICAL PLANT ECOLOGY**

3 credits.

Gas exchange at the individual plant and community level, energy balance and water relations, nutrient cycling, biomechanical adaptations; growth analysis; adaptations to sun and shade, primary productivity models, physiological ecology of selected plant communities (arctic/alpine, boreal, chaparral, desert, tropical, aquatic).

Requisites: Graduate/professional standing**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Spring 2022**BOTANY/ENTOM/GENETICS/ZOOLOGY 820 – FOUNDATIONS OF EVOLUTION**

2 credits.

Explore some of the most important themes and debates that have permeated evolutionary biology over the last 50 years. Read key papers related to each controversial topic, debate the pros and cons of competing viewpoints, and reflect on the relevance of the issue to contemporary evolutionary biology.

Requisites: Graduate/professional standing**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Fall 2022**BOTANY/BIOCHEM/GENETICS 840 – REGULATORY MECHANISMS IN PLANT DEVELOPMENT**

3 credits.

Molecular mechanisms whereby endogenous and environmental regulatory factors control development; emphasis on stimulus perception and primary events in the signal chain leading to modulated gene expression and cellular development.

Requisites: Graduate/professional standing**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Fall 2020**BOTANY 858 – SPECIAL TOPICS IN PLANT PHYSIOLOGY**

1-3 credits.

Topics of interest in the area of Plant Physiology.

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 2022**BOTANY 860 – PLANT CELL BIOLOGY**

2 credits.

Structure/function relationships at the cellular level. Topics include the biogenesis of organelles, vesicle traffic, ion transport and signalling processes, and organization of the cytoskeleton and cell wall.

Requisites: Graduate/professional standing**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Spring 2023**BOTANY/F&W ECOL/ZOOLOGY 879 – ADVANCED LANDSCAPE ECOLOGY**

3 credits.

Emphasizes spatial patterning (its development and importance for ecological processes) and often focuses on large regions. Learn concepts, methods, and applications of landscape ecology.

Requisites: Graduate/professional standing**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Spring 2022**BOTANY/ATM OCN/CIV ENGR/ENVIR ST/GEOSCI/ZOOLOGY 911 – LIMNOLOGY AND MARINE SCIENCE SEMINAR**

1 credit.

Sections in various fields of zoological research.

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 2023

BOTANY 920 – SEMINAR IN ALGOLOGY: FRESH WATER ALGAE

1 credit.

Topics, recent advances literature in the area of Algology.

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 2015**BOTANY/PL PATH 930 – SEMINAR-MYCOLOGY**

1 credit.

Topics, recent advances literature in the area of Mycology.

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 2023**BOTANY 940 – SEMINAR IN PLANT SYSTEMATICS AND EVOLUTION**

1 credit.

Topics, recent advances literature in the area of Plant Systematics and Evolution.

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 2022**BOTANY 941 – PLANT TAXONOMY JOURNAL REVIEW**

1 credit.

Review of recent journal publications in the area of Plant Taxonomy.

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**BOTANY 950 – SEMINAR-PLANT ECOLOGY**

1 credit.

Topics, recent advances literature in the area of Plant Ecology.

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 2022**BOTANY 951 – PLANT ECOLOGY JOURNAL REVIEW**

1 credit.

Review of recent journal publications in the area of Plant Ecology.

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 2017**BOTANY/AGRONOMY/ATM OCN/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.

Requisites: Graduate/professional standing**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Fall 2022**BOTANY 960 – SEMINAR-PLANT PHYSIOLOGY**

1 credit.

Topics, recent advances literature in the area of Plant Physiology.

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 2022**BOTANY/ATM OCN/ENVIR ST/F&W ECOL/GEOG/GEOSCI/ ZOOLOGY 980 – EARTH SYSTEM SCIENCE SEMINAR**

1 credit.

Topics in earth system science. Emphasis on the coupling between atmospheric, oceanic and land surface systems, involving physical geochemical and biological processes, and including interactions with human systems.

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 2016**BOTANY 990 – RESEARCH-PHYCOLOGY**

1-12 credits.

Independent research in the area of Phycology.

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 2019**BOTANY 993 – RESEARCH: FUNGAL BIOLOGY**

1-12 credits.

Independent research in the area of Fungal Biology.

Requisites: Graduate/professional standing**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** Yes, unlimited number of completions**Last Taught:** Summer 2023

BOTANY 994 – RESEARCH-PLANT SYSTEMATICS

1-12 credits.

Independent research in the area of Plant Systematics.

Requisites: Consent of instructor

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

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Summer 2023

BOTANY 995 – RESEARCH-PLANT ECOLOGY

1-12 credits.

Independent research in the area of Plant Ecology.

Requisites: Consent of instructor

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

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Summer 2023

BOTANY 996 – RESEARCH-PLANT PHYSIOLOGY

1-12 credits.

Independent research in the area of Plant Physiology.

Requisites: Consent of instructor

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

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Summer 2023

BOTANY 999 – INDEPENDENT WORK

1-3 credits.

Mentored reading and research for dissertators.

Requisites: Consent of instructor

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

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Summer 2011