EEBL - ECOLOGY & EVOL BIOLOGY

EEBL 600/ECCB 600 Populations, Communities, and Ecosystems

Credits 3. 3 Lecture Hours. Basic principles and methodologies of ecology and preparation for pursuit of advanced study in subfields such as population biology, community ecology, evolutionary ecology and ecosystem science; emphasis on population, community and ecosystem processes that also have significance and influence at landscape, regional and global scales as well as proximate to evolutionary time scales; basic principles of ecology that are critical to biological conservation and sustainable use of ecosystems and renewable natural resources. **Prerequisites:** Graduate classification. **Cross Listing:** ECCB 600/EEBL 600.

EEBL 601 Physiological Ecology

Credit 1. 1 Lecture Hour. Examination of how physiological systems respond, over different timescales, to variation in physical and biological environments; understanding how the interaction of organism and environment determines characteristics relevant to ecology; understanding the effect of individual characteristic on population and interspecific dynamics. **Prerequisite:** Graduate classification.

EEBL 602 Population Ecology

Credit 1. 1 Lecture Hour. Fundamental concepts in population dynamics; focus on birth, death, immigration and emigration processes; how processes are affected by internal factors and ways they affect population abundance. **Prerequisite:** Graduate classification.

EEBL 603 Community Ecology

Credit 1. 1 Lecture Hour. Fundamental concepts in community ecology; conceptual development of the sub-discipline; spatial and temporal patterns of community structure; processes that determine community structure and dynamics; interface of population, community and ecosystem ecology; applications of community ecology for natural resource management, agriculture and health **Prerequisite:** Graduate classification.

EEBL 604 Ecosystem Ecology

Credit 1. 1 Lecture Hour. Examination of flow of materials, energy and information between ecosystems and the geographic structure in which ecosystems are embedded globally; integrative nature of spatial and temporal processes acting across ecosystem units. **Prerequisite:** Graduate classification.

EEBL 605 Population and Quantitative Genetics

Credit 1. 1 Lecture Hour. Basic overview of the fields of population and quantitative genetics; fundamental concepts and their applications in research of natural populations. **Prerequisite:** Graduate classification.

EEBL 606 Phylogenetics and Comparative Biology

Credit 1. 1 Lecture Hour. Examination of phylogenetics and comparative biology. **Prerequisite:** Graduate classification.

EEBL 607 Evolutionary Genomics

Credit 1. 1 Lecture Hour. New techniques for generating large amounts of genetic data, including thousands of single-nucleotide polymorphisms and whole-genome sequence data; transforming the study of evolutionary biology and the interpretation of evolutionary phenomena; includes population genetics, adaptation, phylogenomics and speciation. **Prerequisite:** Graduate classification.

EEBL 608 Integrative Animal Behavior

Credit 1. 1 Lecture Hour. Examination of the contributions of behavior to survival and reproduction; the interaction of evolutionary history and ecological circumstance to shape the expression of behavior; integrative nature of behavior; interaction of evolutionary processes, mechanistic constraints and ecological demands involved in selecting for a set of behavioral strategies. **Prerequisite:** Graduate classification.

EEBL 610 First Year Graduate Seminar

Credit 1. 1 Lecture Hour. Attendance and active participation in the weekly dinnertime conversation on PhD and career planning with ecology and evolutionary biology core faculty and others; faculty and colleagues provide feedback on application for fellowship support. **Prerequisite:** Graduate classification.

EEBL 612 Open Source for Open Science Bootcamp

Credit 1. 1 Lecture Hour. Exposure to command line programming in R; principles of data import, vetting, processing, analysis, graphing and produce export; bootcamp precedes Fall semesters over a three-day period. **Prerequisite:** Graduate classification or approval by instructor.

EEBL 645 Ecological Genomics

Credits 3. 3 Lecture Hours. Ecological genomics toolkit including genetic maps, genotyping, RAD-sequencing, whole-genome assembly and resequencing, RNA-sequencing analyses; genomics of adaptation; speciation genomics; speciation genomics; conservation genomics; genomics and life history traits; phylogenomics; climate change and genomics. **Prerequisites:** GENE 301, GENE 302, GENE 310 or GENE 412, or approval of instructor. **Cross Listing:** ECCB 645 and GENE 645.

EEBL 676 Speciation Genetics

Credits 3. 3 Lecture Hours. Introduction to the ability to speciate into biologically diverse forms via microevolutionary processes; literature on the origin of species beginning with Darwin and continuing through contemporary work; overview of several major topics in speciation with special emphasis on the genetics of speciation in this genomic era. **Prerequisites:** GENE 603 and BIOL 610 or BIOL 466, or equivalent. **Cross Listing:** VIBS 676 and GENE 676.

EEBL 681 Seminar

Credit 1. 1 Lecture Hour. Attendance and active participation in the weekly ecology and evolutionary biology colloquium featuring guest speakers invited by students and faculty. May be taken up to six hours for credit. **Prerequisite:** Graduate classification.

EEBL 689 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in an identified area of ecology and evolutionary biology. **Prerequisite:** Graduate classification.