

Biodiversity Conservation and Management (BCM)

Courses

BCM 700. Conservation Ecology. 3 Credits.

Principles of ecology and biodiversity through the lens of conservation planning and policy. Drawing from concepts across multiple disciplines at various spatial and temporal scales in the physical and biological sciences, exploring topics and applications such as watershed management, agricultural practices, wetland delineation, population viability analysis, and ecosystem assessment.

FSS.

BCM 705. Conservation Research and Monitoring. 3 Credits.

Overview of current tools and best practices for designing research projects and acquiring, managing, and presenting conservation data. Topics include quality control, the importance of metadata, effective research design, statistical power, and other strategies for generating valid answers to important conservation questions.

FSS.

BCM 710. Conservation Design and Management. 3 Credits.

Focuses on all aspects of conservation project management, including understanding context and culture, writing grants, building partnerships, developing and managing a budget, assessing outcomes and deliverables, and communicating project results with diverse audiences. Students will explore principles of adaptive management related to conservation projects.

FSS.

BCM 720. Human Dimensions of Conservation. 3 Credits.

Principles and application of conservation relating to complexities of the human relationship with nature. Investigate and integrate social science into management, understand treaties, laws and policies, realize economic and recreational aspects, and consider ethics and advocacy. Enhance cultural competency and build capabilities for communicating and engaging with diverse audiences.

BCM 725. Evolution, Biodiversity, and Conservation. 3 Credits.

Explore species concepts, biogeography, and phylogenetics as they relate to conservation. Evaluate the curation and use of biological collections in conservation research and education. Practice using taxonomic keys and analyzing molecular data. Students will choose taxa of particular interest for a targeted project.

BCM 730. Data Analytics and Visualization. 3 Credits.

Apply analytical tools to investigate, visualize, interpret, and communicate conservation data. Students will gain hands-on experience with applications such as the R Statistical Computing System, Microsoft Excel, and cloud-based data storage frameworks.

BCM 740. Conservation Leadership and Community Engagement. 3 Credits.

Focuses on strategies and tools for leading and implementing collaborative conservation projects. Topics include engaging conservation partners and community volunteers, strategic planning and assessment, and communicating project progress and results to diverse audiences using mixed media. Exercises will enhance leadership and team-building skills relevant to conservation objectives.

BCM 745. Emerging Conservation Concepts and Technologies. 3 Credits.

A survey of current and developing approaches to conservation and land stewardship. Explore principles and emerging methods relevant to invasive species management, prescribed fire, disturbance regimes, and core conservation challenges. Innovative tools and monitoring technologies are investigated, including literature review and application to individual projects.

BCM 750. Spatial Analysis and Mapping. 3 Credits.

Foundational concepts in mapping and geospatial analysis as they apply to conservation. Process and utilize remotely sensed imagery and other geographic data. Hands-on experience using software for storing, managing, and displaying spatial information such as topography, vegetation, soil, and watershed data.

BCM 790. Biodiversity Conservation and Management Capstone Prep. 1 Credit.

Prepares students for an applied self-directed capstone experience. Address problem identification, research, and project formulation. Culminates in an oral and written proposal with project schedule.

P: Completion of at least 15 credits in the BCM program, including at least one course in each of the three certificate areas.

FSS.

BCM 795. Biodiversity Conservation and Management Capstone. 3 Credits.

The capstone course is an opportunity for students to apply what they have learned in the program by completing the proposed capstone project in a professional, laboratory, or field setting. The outcomes of the capstone project will be presented in a summary report. Prerequisite: Successful completion of BCM 790

P: BCM 790

FSS.