

# Iowa Lakeside Laboratory

## Director

- Mary P. Skopec (Geographical and Sustainability Sciences)

## Iowa State University Participating Faculty

- Lori Biederman (Ecology, Evolution, and Organismal Biology), Alexander Braidwood (College of Design), Brianna Burke (English and American Indian Studies), James Colbert (Ecology, Evolution, and Organismal Biology), Elizabeth Swanner (Geological and Atmospheric Sciences)

## University of Iowa Participating Faculty

- Matthew P. Dannenberg (Geographical and Sustainability Sciences), John F. Doershuk (Anthropology), Andrew A. Forbes (Biology), Marc A. Linderman (Geographical and Sustainability Sciences), Corey D. Markfort (Civil and Environmental Engineering/Mechanical Engineering), Susan Meerdink (Geographical and Sustainability Sciences), Silvia Secchi (Geographical and Sustainability Sciences), Adam Skibbe (University College)

## University of Northern Iowa Participating Faculty

- Laura Jackson (Biology), Mark Meyers (Biology), Patrick Pease (Geography/Social Science and History Education), Daryl D. Smith (Biology)

**Website:** <https://iowalakesidelab.org/>

## Courses

## Iowa Lakeside Laboratory Courses

**IALL:1010 Earth, Air, and Sky** 1-4 s.h.  
Essentials of earth science, including astronomy, meteorology, geology, and paleontology; includes laboratory and fieldwork.

**IALL:1030 Natural History Workshop** 1-2 s.h.  
A specific aspect of the upper Midwest's natural history, or techniques for studying natural history; amphibians and reptiles, birds and birding, nature photography, mushrooms and other fungi, Iowa's trees and forests, fish biology, prairies, common algae, common insects, aquatic plants, life in rivers, life in lakes, mosses and liverworts, natural history of Iowa Great Lakes region, field archaeology, scuba diving, astronomy, nature sketching; five-day, nontechnical introductions.

**IALL:1040 Field Archaeology** 3-4 s.h.  
Nature of cultural and environmental evidence in archaeology, how such evidence is used to model past human behavior and land use; emphasis on Iowa prehistory; basic reconnaissance surveying, excavation techniques.

**IALL:1045 Illustrating Nature: Photography** 1-2 s.h.  
Beginning/intermediate technique and composition in color photography of natural areas, their plants and animals.

**IALL:3034 Topics in Ecology and Sustainability** 1-4 s.h.  
Scientific introduction at intermediate level to ecology and evolution of important groups of organisms: algae to vertebrates, different ecological phenomena (e.g., fire and climate change), varying landforms, different ecosystems (e.g., prairies and aquatic systems); emphasis on sustainability with introduction to concepts, issues, and practices; ability to communicate environmental information through a variety of means. Requirements: one general biology course.

**IALL:3099 Earth and Environmental Science for Educators** 1-4 s.h.  
How to introduce, explore, and understand Earth systems, processes, and environment; use of experiential, immersive, and place-based approaches to build confidence with subject matter and deepen understanding of landforms, landscapes, climate, geology, and geologic time; for in-service teachers, pre-service teachers, and informal educators.

**IALL:3101 Science Teaching Methods** 1-3 s.h.  
Development and implementation of laboratory exercises suitable for inclusion in elementary, middle, high school, and community college biology, geology, and environmental courses; exercises built around common organisms and ecosystems in Iowa; animal biology, plant biology, fungi and lichens, aquatic ecology, prairie ecology, wetland ecology, limnology, animal behavior, insect ecology, biology of invertebrates, noninvasive use of living organisms, Project WET; field trips.

**IALL:3103 Aquatic Ecology** 2,4 s.h.  
Analysis of aquatic ecosystems; emphasis on basic ecological principles; ecological theories tested in the field; identification of common plants and animals. Requirements: ecology course.

**IALL:3106 Plant Taxonomy** 2-4 s.h.  
Principles of classification and evolution of vascular plants; taxonomic tools and collection techniques; use of keys; emphasis on field and laboratory studies to identify local flowering plants; recognition of major plant families.

**IALL:3109 Ecology and Systematics of Algae** 2,4 s.h.  
Ecology, morphological structure, phylogeny, and taxonomy of freshwater algae based on field material collected; emphasis on genus-level identifications, biodiversity, ecology; habitat visits to lakes, fens, streams, rivers; algal ecology.

**IALL:3113 Undergraduate Independent Study** 1-4 s.h.  
Requirements: junior or senior standing.

**IALL:3114 Field Mycology** 2 s.h.  
Identification and classification of common fungi; techniques for identification, preservation, and culture practiced with members of various fungi groups.

**IALL:3117 Ecology and Systematics of Diatoms** 2,4 s.h.  
Field and laboratory study of freshwater diatoms; techniques in collection, preparation, and identification of diatom samples; study of environmental factors affecting growth, distribution, taxonomic characters; project design and execution, including construction of reference and voucher collections; data organization and analysis.

**IALL:3123 Prairie Ecology I** 2 s.h.  
Recognition of Iowa prairie plants and understanding the systems in which they exist; emphasis on identification of tallgrass prairie flora by sight recognition, family, genus, species, and common names. Requirements: basic familiarity with biology and ecology.

- IALL:3125 Prairie Ecology II** 2 s.h.  
Hands-on learning experiences demonstrating dynamic, human-influenced (anthropogenic) systems which have impacted prairie ecosystems for the past 10,000 years or more; emphasis on identification of tallgrass prairie flora by sight recognition, family, genus, species, and common names. Requirements: general familiarity with biology and ecology.
- IALL:3126 Ornithology** 2-4 s.h.  
Biology, ecology, and behavior of birds; emphasis on field studies of local avifauna; group projects with focus on techniques of population analysis and methodology for population studies.
- IALL:3131 Ecology** 4 s.h.  
Introduction to the principles of ecology at the population, community, ecosystem levels; field studies of local lakes, wetlands, and prairies used to examine factors that control distributions, interactions, and roles of plants and animals in native ecosystems. Requirements: two semesters of introductory biology.
- IALL:3141 Environmental Policy** 3 s.h.  
Theory and practice of environmental policies, including the study of U.S. federal environmental policies with direct and indirect bearings on water issues; focus on policy history, implementation, and effectiveness; how policies interact with each other, how local stakeholders perceive their pros and cons, and linkages between local implementation efforts and regional and large-scale impacts.
- IALL:3162 Restoration Ecology** 2 s.h.  
Ecological principles for restoration of native ecosystems; establishment (site preparation, selection of seed mixes, planting techniques) and management (fire, mowing, weed control) of native vegetation; evaluation of restorations; emphasis on prairie restoration and wetland vegetation. Requirements: ecology course.
- IALL:3164 Animal Behavior** 2 s.h.  
Examination of ecological and evolutionary theories of animal behavior through field studies of animal coloniality, courtship, territoriality, predator defense, habitat selection, foraging, mating systems, and parental care. Requirements: two biology courses.
- IALL:3175 Soil Formation and Landscape Relationships** 2-4 s.h.  
Relationships between soil formation, geomorphology, environment; soil description, classification, geography, mapping, interpretation for land use.
- IALL:3176 Glacial Geomorphology** 2,4 s.h.  
Field-based introduction to glacial environments and processes including the origin of sediments, landforms, and landscapes produced in glacial and associated environments; aeolian (wind) processes, river and lacustrine systems, and mechanisms and chronologies of climate change.
- IALL:3200 Introduction to Research and Inquiry** 1-3 s.h.  
How data transforms to information and ultimately knowledge through scientific investigations; examinations and applications include steps formulating the scientific method using 21st-century data, conditions, and related challenges; deliverables include a thoroughly documented scientific experiment beginning with research questions and hypotheses, recommended methods, and concluding with anticipated results.
- IALL:3210 Paleontology Field School** 1-3 s.h.  
Participants will be introduced to essential methods of field paleontology including prospecting; identification and comparative anatomy; site mapping; and excavation, preservation, and preparation techniques; as well as the process of interpreting fossil finds. The field school includes learning opportunities on the history, development, and current state of the science of paleontology, with a focus on dinosaur paleontology. Requirements: minimum age 18.
- IALL:5113 Literature and Multispecies Kinship: Making Kin With(in) Place** 1-3 s.h.  
Exploration of what it means to build kin within a place, while in a place (specifically NW Iowa); human impact on the planet and inherent demand from climate change to abandon anthropocentrism and fundamentally alter human relationship with environments, places, and species therein; interdisciplinary; readings include texts by ecologists, botanists, climatologists, indigenous writers and theorists, fiction writers and playwrights, poets, and podcasters.
- IALL:5164 Animal Behavior** 2 s.h.  
Examination of ecological and evolutionary theories of animal behavior through field studies of animal coloniality, courtship, territoriality, predator defense, habitat selection, foraging, mating systems, and parental care. Requirements: two biology courses.
- IALL:5213 Graduate Independent Study** 1-4 s.h.
- IALL:5217 Ecology and Systematics of Diatoms** 1-4 s.h.