

Iowa Lakeside Laboratory Courses (IA LL)

Iowa Lakeside Laboratory is a field station located in the Iowa Great Lakes region of northwest Iowa. It is run cooperatively by the three Regents' Universities. Each summer Iowa Lakeside Laboratory offers a variety of hands-on courses in many disciplines (archaeology, biology, ecology, environmental science, hydrology, soils, taxonomy, writing). Both undergraduate and graduate courses are offered. For information about courses being offered this summer and registration/housing forms, see the Iowa Lakeside Laboratory Web site www.iowalakesidelab.org or contact the Iowa Lakeside Laboratory Administrative Office (250 Continuing Education Facility, The University of Iowa, Iowa City, IA 52242-0907. Phone: 1-888-469-2338 [toll free]. Early registration is advisable because enrollment in Lakeside courses is limited.

Courses

IA LL 1010. Earth, Air and Sky — 2 hrs.

Introduction to the essentials of earth science (astronomy, meteorology, geology, and paleontology). (Summer)

IA LL 2019. Soils and Environmental Quality — 4 hrs.

Role of soils in the environment; relationship between soil quality and plant growth. Field studies on soil identification, degradation and restoration as well as identifying tools useful in effective land and water stewardship. (Summer)

IA LL 2030. Natural History Workshop — 1-2 hrs.

Offered as demand warrants. Five day-long, non-technical introductions to a specific aspect of the natural history of the upper Midwest or techniques for studying natural history. Prerequisite: junior standing. (Variable)

A. Amphibians and Reptiles

B. Birds and Birding

C. Nature Photography

D. Mushrooms and Other Fungi

E. Iowa's Trees and Forests

F. Fish Biology

G. Prairies

I. Common Insects

J. Aquatic Plants

K. Life in Rivers

L. Life in Lakes

M. Mosses and Liverworts

N. Natural History of Iowa Great Lakes Region

P. Field Archaeology

Q. Common Algae

S. Scuba Diving

T. Astronomy

U. Sketching Nature (Variable)

IA LL 2031. Ecology — 4 hrs.

Introduction to the evolutionary and basic principles of ecology at the organismal, population, community, and ecosystem levels. Integrates lectures and field studies to examine the distribution and abundance of plants and animals in native ecosystems. (Summer)

IA LL 2034. Topics in Ecology and Sustainability — 1-4 hrs.

Scientific introduction to ecology and evolution of important groups of organisms. Topics include: 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. May be repeated. (Summer)

IA LL 2040. Field Archaeology — 4 hrs.

Nature of cultural and environmental evidence in archaeology and how they are used to model past human behavior and land use; emphasis on Iowa prehistory; basic reconnaissance surveying and excavation techniques. (Summer)

IA LL 2043. Illustrating Nature-Sketching — 2 hrs.

Sketching plants, animals, and terrain. Visual communication, development of a personal style, and integration of typographic and visual elements on a page will be emphasized. (Summer)

IA LL 2044. Illustrating Nature - Photography — 2 hrs.

Beginning to intermediate technical and compositional aspects of color photography of natural areas and their plants and animals. (Summer)

IA LL 2045. Undergraduate Internships — 1-5 hrs.

Placement with county conservation boards, camps, parks, etc., for experience as interpreters, rangers, and technicians. (Summer)

IA LL 3100/5100. Techniques For Biology Teaching — 1-2 hrs.

Development and implementation of laboratory exercises suitable for inclusion in elementary, middle, high school, and community college biology and environmental courses. Exercises will be built around common organisms and ecosystems in Iowa. Field trips. A. (Summer)

IA LL 3102/5102. Plant-Animal Interactions — 4 hrs.

Introduction to ecology and co-evolution of plants and animals. Emphasis on dispersal, pollination, and plant-herbivore interactions; field and laboratory work, reading, and discussion. Prerequisite(s): one course in the biological sciences; junior standing. (Variable)

IA LL 3103/5103. Aquatic Ecology — 4 hrs.

Analysis of aquatic ecosystems. Emphasis on basic ecological principles; ecological theories tested in the field, and identification of common plants and animals. Prerequisite(s): courses in ecology, chemistry, and physics or consent of instructor; junior standing. (Summer)

IA LL 3105/5105. Plant Taxonomy — 4 hrs.

Principles of classification and evolution of vascular plants; taxonomic tools and collection techniques; use of keys. Field and laboratory studies emphasizing identification of local flowering plants and recognition of major plant families. Prerequisite(s): two semesters of introductory biology or consent of instructor; junior standing. (Summer)

IA LL 3107/5107. Field Parasitology — 4 hrs.

Ecology and life history of parasites, protozoans, helminths, arthropods; field and laboratory investigations including preparation, identification, and morphology of representative types and stages; general and comparative concepts of parasitology. (Variable)

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IA LL 3109/5109. Ecology and Systematics of Algae: Cyanobacteria and Green Algae — 4 hrs.

Ecology and Systematics of Algae: Cyanobacteria and Green Algae (Summer)

IA LL 3111/5111. Summer Writing Festival at Iowa Lakeside Laboratory — 1 hr.

One-week workshop designed for young adult to adult writers of all levels, helps participants apply their imagination to their life experiences and become more effective writers. Writing exercises invite imaginative leaps and thoughtful reflections and humor, as well as seriousness. Participants work in various forms of expression, including the personal essay, poetry, and short fiction. Prerequisite(s): junior standing. (Summer)

IA LL 3121/5121. Plant Ecology — 4 hrs.

Principles of plant population, community, and ecosystem ecology illustrated through studies of native vegetation in local prairies, wetlands, and forests. Group or individual projects. Prerequisite(s): two semesters of introductory biology or consent of instructor; junior standing. (Summer)

IA LL 3122/5122. Prairie Ecology — 4 hrs.

Basic patterns and underlying physical and biotic causes of both regional and local distributions of plants and animals of North American prairies; field and laboratory analyses and projects. Prerequisite(s): two semesters of introductory biology or consent of instructor; junior standing. (Summer)

IA LL 3124/5124. Wetland Ecology — 4 hrs.

Ecology, classification, creation, restoration, and management of wetlands. Field studies examine the composition, structure, and functions of local natural wetlands and restored prairie pothole wetlands. Individual or group projects. Prerequisite(s): junior standing. (Summer)

IA LL 3126/5126. Ornithology — 2-4 hrs.

The biology, ecology, and behavior of birds with emphasis on field studies of local avifauna. Group projects stress techniques of population analysis and methodology for population studies. Prerequisite(s): two semesters of introductory biology or consent of instructor; junior standing. (Summer)

IA LL 3127/5127. Introduction to Insect Ecology — 4 hrs.

Field and laboratory study of insects, their diversity, and life history. Emphasis on ecology and behavior. Prerequisite(s): junior standing. (Variable)

IA LL 3128/5128. Fish Ecology — 2-4 hrs.

Basic principles of fish interaction with the biotic and abiotic environment. Field methods, taxonomy, and biology of fish with emphasis on the fish fauna of northwestern Iowa. Prerequisite(s): junior standing. (Summer)

IA LL 3132. Ecology — 4 hrs.

Introduction to the evolutionary and basic principles of ecology at the organismal, population, community, and ecosystem levels. Integrates lectures and field studies to examine the distribution and abundance of plants and animals in native ecosystems. Prerequisite(s): two semesters of introductory biology or consent of instructor. (Summer)

IA LL 3134/5134. Animals and their Ecosystems — 4 hrs.

Focus on the vertebrate and invertebrate animals of the Midwest. Animals are observed in nature either through passive observational techniques or active trapping exercises. Once identified, animals are placed in their proper taxonomic position (i.e., put onto the "Tree of Life"). They also are put into ecological perspective, including habitat

preferences (i.e., wetland, lake prairie, forest, river, edge), trophic position, and activity patterns. Conservation status is discussed and in many cases emphasized. Prerequisite(s): an introductory biology course; junior standing. (Summer)

IA LL 3135/5135. Aquatic Toxicology and Wetland Dynamics in Freshwater Systems — 2 hrs.

Fundamental knowledge and understanding of scientific concepts related to the physio-chemical and biological environment; problems and issues (global, national, regional, and local) of freshwater systems; how wetland restoration is used to ameliorate problems; basic tools used to assess aquatic toxicological problems. Prerequisite(s): one year of biology and one year of chemistry; junior standing. (Summer)

IA LL 3140/5140. Water Policy & Politics — 1 hr.

Historical, legal, economic, cultural, and political dimensions of water resources; public perception and enjoyment of this abundant and important natural resource; how public policy developed; private rights; differences between the previous appropriation system in the western U.S. and Eastern riparian rights law; public rights regarding water for navigation, recreation, and environmental protection; water-related institutions such as suppliers of municipal water and irrigation water; interbasin transport of water. Prerequisite(s): junior standing. (Summer)

IA LL 3142/5142. Watershed Hydrology and Surficial Processes — 4 hrs.

Effects of geomorphology, soils, and land use on transport of water and materials (nutrients and contaminants) in watersheds. Fieldwork will emphasize investigations of the Iowa Great Lakes watershed. Prerequisite(s): four courses in the physical or biological sciences or engineering; junior standing. (Summer)

IA LL 3160/5160. Restoration Ecology — 4 hrs.

Ecological principles for the restoration of native ecosystems; establishment (site preparation, selection of seed mixes, and planting techniques) and management (fire, mowing, and weed control) of native vegetation; evaluation of restorations. Emphasis on the restoration of prairie and wetland vegetation. Prerequisite(s): a course in ecology; junior standing. (Summer)

IA LL 3162. Restoration Ecology — 2 hrs.

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. (Summer)

IA LL 3163. Conservation Biology — 4 hrs.

Population- and community-level examination of factors influencing the viability of plant and animal populations from both demographic and genetic perspectives; assessment of biodiversity; and design and management of preserves. Prerequisite(s): general biology. (Summer)

IA LL 3165/5165. Behavioral Ecology — 4 hrs.

Animal coloniality, courtship, territoriality, predator defense, habitat selection, foraging, mating systems, and parental care will be examined in the field in order to evaluate various ecological and evolutionary theories of animal behavior. Prerequisite(s): two courses in the biological sciences; junior standing. (Summer)

IA LL 3166/5166. Amphibians & Reptiles — 2-4 hrs.

Ecology, behavior, and conservation biology of amphibians and reptiles. Emphasis on their anatomy and morphology, temperature and water regulation, locomotion, life history, reproduction, population and community ecology, and conservation. (Summer)

IA LL 3175/5175. Soil Formation & Landscape Relationships — 2-4 hrs.

Relationships between soil formation, geomorphology, and environment. Soil description, classification, geography, mapping, and interpretation for land use. Prerequisite(s): introductory soils course or IA LL 3142/5142; junior standing. (Summer)

IA LL 4178/5178. Analysis of Environmental Data — 2 hrs.

Provides students with training in the theory and application of a range of statistical techniques useful for the analysis of ecological and paleoecological data. Topics include data management, exploratory data analysis, regression analysis, direct and indirect ordination methods, classification techniques, transfer functions and the analysis of temporal data. Lectures and practical classes with hands-on-training. Directed towards advanced undergraduate, graduate, and working professionals in ecology and paleoecology. Prerequisite(s): an undergraduate course in statistics, understanding of basic concepts such as correlation and regression, and familiarity with PC-based software for data analysis; junior standing. (Summer)

IA LL 4193. Undergraduate Research — 1-4 hrs.

Prerequisite(s): junior standing; consent of instructor. (Variable)

IA LL 4198. Undergraduate Independent Study — 1-4 hrs.

Prerequisite(s): junior standing; consent of instructor. (Variable)

IA LL 6210. Global Climate Change: Causes, Connections and Cures — 2 hrs.

Underlying causes of global climate change, both natural and human; web of interrelated links affecting the physical and living world, including human society; cause-and-effect relationships and interventions that may reduce negative consequences; for teachers of grades 7-12 and students enrolled in teacher education programs for those grades. Prerequisite(s): bachelor's degree. (Summer)

IA LL 6215. Field Mycology — 4 hrs.

Identification and classification of the common fungi; techniques for identification, preservation, and culture practiced with members of the various fungi groups. (Summer)

IA LL 6217. Ecology and Systematics of Diatoms — 4 hrs.

Field and laboratory study of freshwater diatoms; techniques in collection, preparation, and identification of diatom samples; study of environmental factors affecting growth, distribution, and taxonomic characters; project design and execution, including construction of reference and voucher collections and data organization and analysis. Prerequisite(s): two semesters of introductory biology or geology, and consent of instructor. (Summer)

IA LL 6225. Physical Limnology — 2-4 hrs.

Mechanisms of physical transport of heat and contaminants in lakes; temperature cycle and stratification; disturbances to seasonal temperature structure, including the diurnal mixed layer, waves, upwelling, differential heating; turbulence, mixing, transport; field measurements of physical processes, computer models of transport. (Summer)

IA LL 6234. Topics in Ecology and Sustainability — 1-4 hrs.

Scientific introduction to ecology and evolution of important groups of organisms. Topics include: 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. May be repeated. (Summer)

IA LL 6240. Natural History Workshop — 1-3 hrs.

Offered as demand warrants. Graduate workshop on some aspect of the natural history of the Upper Midwest or on techniques for studying natural history. Prerequisite(s): consent of instructor. (Variable)

IA LL 6263. Conservation Biology — 4 hrs.

Population- and community-level examination of factors influencing the viability of plant and animal populations from both demographic and genetic perspectives; assessment of biodiversity; and design and management of preserves. (Summer)

IA LL 6291. Graduate Internships — 1-5 hrs.

Placement with county conservation boards, camps, parks, schools, etc., for experience as interpreters, rangers, technicians, and teachers. Prerequisite(s): consent of instructor. (Variable)