This summer program is in collaboration with Eastern Michigan University, and students from either university can enroll in several jointly offered courses and receive degree credit from their home university. EMU and WSU staff will also offer the following investigative/directed study courses (EMU BIOL/BOTN/ZOOL 497, 498, 499, 698, 699; WSU BIO 3990, 5996, 7996) each session for one or more credit hours in each of the previously listed classes.

Class size is limited to 20, so register early!

**FOR MORE INFORMATION ABOUT:**

- **registration**
  All courses available to WSU students will be listed in the Spring/Summer 2005 Schedule of Classes. Register during the regularly scheduled registration period through: pipeline.wayne.edu or telephone (313) 577-3279. On-site registration is available (no late fee). For assistance in registration, contact Kim Hunter in the Biological Sciences office (313-577-2873).
  Non-WSU students taking WSU courses should register as Guest Students (See www.apply.wayne.edu/guest_students/index.php).
  EMU students can register online at my.emich.edu. Non-EMU students registering for EMU courses register as Guest Students. Undergraduate guest application procedures can be found at www.emich.edu/public/admissions/UGquestPro.html. Graduate students should complete a MIGS application at the Registrars office of their home institution.

- **course fees**
  **Rates per Credit Hour**
  - WSU Lower-Division Undergraduates (resident): $159.80
  - WSU Upper-Division Undergraduates and Post-Degree Students (resident): $188.40
  - WSU Graduate Students (resident): $284.90
  - EMU* Courses: Undergraduate $156.90, Graduate $284.20

  **Additional Fees**
  - WSU
    - Registration: $98.50/term
    - Late Registration: $25.00 or $70.00
    - Omnibus Fee—Undergraduate: $14.40/credit hour
    - Omnibus Fee—Graduate: $21.60/credit hour
    - Course Material Fee: $10.00/credit hour
  - EMU*
    - Registration: $40.00/semester
    - General Fee: $21.00/credit hour
    - Technology Fee: $10.00/credit hour
    - Program Fee: $42.50/credit hour undergraduate, $50.00/credit hour graduate
    - Student Union Fee: $1.50/credit hour

- **financial aid (Limited financial aid may be available to qualified students)**
  Contact: WSU—Dr. Carl Freeman: (313) 577-2793
  EMU—Biology Department (734) 487-4242

- **accommodations and maps**
  Refer to our website: www.emich.edu/public/fishlake/fishwebp.htm
  For more information and reservations, contact: Ben Czinski, Resident Director, KEEC phone: (810) 667-2350, e-mail: bczinski@yahoo.com (NOTE: On-site registration for room and board is available)
  Room & Board Package for 3 weeks (19 nights lodging and 48 meals): $280.00
  Room & Board Package for 3 weeks (6 nights lodging and 21 meals): $116.00

- **courses/instructors**
  www.biosci.wayne.edu/fishlake

*All tuition and fees are subject to change at any time by action of the Eastern Michigan University Board of Regents without prior notice. Such changes may be retroactive to the date of original registration
Summer 2005

Fish Lake
Field Studies Program

Co-sponsored by
Wayne State University
and
Eastern Michigan University

Kresge Environmental Education Center
Lapeer, Michigan
Fish Lake Field Studies Program  
Summer 2005

Do you wonder how organisms and populations interact in their natural environments? Do you wonder how an ecosystem works or why there are so many species? Do you want to experience the wonder of nature felt by Audubon, Thoreau and Muir? Return to the traditions of American naturalism recast against a backdrop of 21st century environmental science and receive credit toward your degree in biological sciences or education.

Take courses through the Wayne State University—Eastern Michigan University collaborative Fish Lake Summer Program at the Kresge Environmental Education Center in south-central Michigan, near Lapeer (62 miles from the Wayne State University campus). The Fish Lake field station, nestled within 240 acres of fields, woodlands and wetlands, and adjacent to a 5,070 acre state game area, provides an extraordinary diversity of ecological communities and habitats characteristic of southern and central Michigan. Student facilities include classrooms, laboratories, and a dormitory for students who wish to reside at the station during academic sessions. A modern dining hall provides meals for both resident and day students.

*Natural History of Vertebrates (3 credits)  
WSU: BIO5700  
EMU: ZOOL310,  
Class Meetings: Mon, Tues, Wed June 6—June 22†  
Instructor: A. Kurta, PhD  
Field work includes radiotracking and live-trapping mammals, pit amphibians and reptiles, bird watching, netting bats and birds, recording bat etc. Labs involve identification of major groups of vertebrates, with an emphasis species. Students study actual specimens, as well as learn frog/toad calls, bi mammal tracks and skulls.

*Animal Behavior (3 credits)  
WSU: BIO5690  
EMU: ZOOL502  
Class Meetings: Thurs, Fri, Sat June 9—June 25†  
Instructor: L. Mertz, PhD  
Students will explore behavior in both vertebrates and invertebrates, with emphasis on Michigan species. The course will incorporate a substantial field including field trips, in which the students will view firsthand various example which may include communication, courtship and mating, care of the young predators and defense tactics, feeding, and territoriality.

*Forest Ecology for Teachers (2 credits)  
WSU: BIO5180/8000  
EMU: BOTN591  
Class Meetings: Mon, Tues, Wed June 27—June 30‡  
Instructor: L. Hannan, MS  
This course is designed to introduce in-service and pre-service teachers to general ecological principles governing eastern North American forest communities, with an emphasis on Michigan ecosystems. Topic to be covered will include biotic components of ecosystems, abiotic limits, energy flow, community structure, and succession. Students will also learn to identify common species (plant and animal) in different forest ecosystems.

*Ponds & Wetlands for Teachers (2 credits)  
WSU: BIO5180/8000  
EMU: BIOL591  
Class Meetings: Thurs, Fri, Mon, Tues July 7, 8, 11, 12‡  
Instructor: L. Hannan, MS  
This course is designed to introduce in-service and pre-service teachers to the interest in one of Michigan’s most diverse and interesting ecosystems. Students will be introduced to basic ecological principles, including biotic diversity, abiotic limit systems, and pond succession. Discussion will also focus on Michigan’s disappearing wetlands, and endangered and exotic species. Students will learn to identify common wetland plant species.

*Ornithology (3 credits)  
WSU: BIO5720  
EMU: ZOOL425/575  
Class Meetings: Saturdays, May 7—June 25†  
Instructor: William S. Moore, PhD  
A course in bird biology for the secondary teacher and students with advanced interest in biology. Field identification and census methods will be used to introduce the study of bird populations, behavior and ecology. A survey of major North American bird families will be made in the laboratory.

Conservation Biology (3 credits)  
WSU: BIO5180/8000  
EMU: BIOL592  
Class Meetings: Mon, Tues, Wed June 6—June 22†  
Instructor: D. Carl Freeman, PhD  
Our world is changing rapidly both naturally and because of the actions of man. The cumulative changes are responsible for one of the greatest episodes of extinction in the history of earth. In this course, we explore the intersection of ecology, evolution and genetics. The lab component will provide students with hands-on experience using the techniques that professionals use in the field.

Courses marked with an asterisk (*) may be of particular interest to pre-service and pre-service teachers. † Class meets from 8:00AM—5:30PM, ‡ Class meets from 9:00AM—3
*Aquatic Plants (3 credits)
Class Meetings: Mon, Tues, Wed June 27—July 13
Instructor: G. Hannan, PhD
This course will introduce students to features of aquatic habitats and the adaptations that plants display to cope with those conditions. Field and lab work will involve collecting and identifying plants from lakes, ponds, bogs and other wetland habitats. Students will prepare a collection of aquatic plants.

Mammalogy (3 credits)
Class Meetings: Thurs, Fri, Sat June 30—July 16
Instructor: H. Shoshani, PhD
This class will teach students to become familiar with mammals of Michigan, the U.S. and the world, know their habitats, evolutionary history, cladistic relationships, adaptations, biogeography, ecology, behavior, and conservation status. Anatomy, physiology, general trends in evolution, zoogeography, ecology & behavior (including thermoregulation), natural history, and conservation will be incorporated into lectures and labs. Students will identify Michigan species, especially specimens in the lab, by scientific name. The field component will focus on spoor identification, searching for owl pellets, setting mammals traps, and conducting taphonomical sessions.

*Natural History of Invertebrates (3 credits)
Class Meetings: Thurs, Fri, Sat June 30—July 16
Instructor: M. Kielb, MS
Introduction to the insects, spiders, and other invertebrates living in southeastern Michigan. Besides learning to distinguish these fascinating creatures through in-class and in-the-field experiences, students will gain insights into their behavior; courtship, mating and reproduction; diet; habitat; and importance to humans and the overall ecosystem.

Afternoons, with a particular field component, examples of behavior, the young, aggression, and practicing science.

Session 3: July 17—August 6

*Field Biology of Birds (2 credits)
Class Meetings: Mon, Tues, Wed, Thurs July 25—July 28
Instructor: M. Kielb, MS
This course will allow the student to learn about the diversity of birds in the Great Lakes Region of North America. It will cover bird identification, nesting behavior, song, migration and predator-prey interactions. We will examine a variety of habitats comparing differences in species composition, habitat generalists, and specialists.

*Field Biology of Insects (2 credits)
Class Meetings: Mon, Tues, Wed, Thurs August 1—August 4
Instructor: M. Kielb, MS
This course will allow the student to learn about the diversity of insects in the Great Lakes Region of North America. It will cover basic insect identification, predator-prey interactions, plant-insect interactions, migration, and life cycles. We will examine a variety of habitats comparing differences in species composition, habitat generalists, and specialists.

*Field Biology (3 credits)
Class Meetings: Mon, Tues, Wed, Thurs July 18—21 and Wed, Thurs, Fri, Sat July 27—July 30
Instructor: L. Mertz, PhD
This expansive course introduces students to the plants and animals of Michigan and the methods used by field biologists to study them. Students will spend the majority of the course outdoors trying out field-study techniques; discovering the names (and often the medicinal and other uses) of different trees, shrubs and wildflowers; and exploring the diverse animal life of field, forest and wetland both at the Fish Lake Biological Station and at various sites of interest.

NOTE: As with all outdoor classes, be prepared for hiking and other field activities, all types of weather, pests (particularly mosquitoes and flies) and any allergic reactions you may experience.