2025-26 Homeschool High School Field Biology

Grades 9-12 or ages 14-18

Our staff at the University of Michigan – Dearborn Environmental Interpretive Center is looking forward to hosting your group for a once-a-week field exploration of the natural world. To help you prepare for the experience, **please carefully read the following information about various aspects of the program that you will need to know before coming to the first session.**

Program Objectives

First and foremost the program will involve the study of living plants and animals of the local environment. The various sub-topics of natural history that will be included in this program are ecology, phenology, adaptations, behavior, taxonomy, and systematics. Detailed discussions of physiology, biochemistry, developmental biology, evolution, and genetics will not be a part of this experience. Since the background of each program participant may be somewhat different, you are encouraged to review concepts and terms, which are unfamiliar to you in a textbook or with the program leaders(s).

The objectives of the Field Natural History Experience (listed below) are numerous:

1. You will become expertly knowledgeable about and appreciative of the rich biodiversity of southeastern Michigan through *persistent* and *repeated* field observations.

2. You will learn of the interactions between the plants and animals in our region

3. You will learn the techniques of making and recording field observations.

4. You will learn the techniques of identification of unknown organisms by use of field guides and taxonomic keys.

5. You will expand your natural history vocabulary.

6. You will learn how to process field data into a systematic notebook of data suitable for retrieving under a variety of topics.

7. You will become acquainted with some of the literature sources in this area.

8. You will learn a great deal about patient observation.

9. You will learn to be serendipitous.

10. You will learn a great deal about self teaching.

To accomplish these objectives the program will take place outdoors where the living organisms live. Our group will assemble indoors in Room 119 of the campus Environmental Interpretive Center at 9:30AM every Friday (except for holidays), from September 19 through May 22. Each program will conclude at the Center at 12:00PM. Most, if not all, programs will be held in the Environmental Study Area of the campus. You are advised to prepare for your physical needs of the program during the 2 1/2 hours of field study. The Environmental Study Area is our classroom; as such you should consider proper decorum in relationship to the habitats and toward each other during the program sessions.

Due to the intensive focus of this experience, you will be expected to be ready to share a keen interest in nature investigation within a quiet, intellectually rigorous, and mutually supportive setting. This is not simply a stroll in the woods. You will also be expected to demonstrate regular attendance at the program sessions.

THE LEARNING EXPERIENCE

This program is intended to encourage regular natural history observation and study during the seasonal transitions from fall to winter to late spring. The reference books and materials, which you purchase for this program, will be a sizeable investment and will be valuable to you for years to come. The procedures, which you will be taught, are standard procedures for field observation and will stand you in good stead for many situations.

Studying in the field requires a different process of learning than that of a typical lecture/laboratory experience. Textbooks and museums are the only places that plants and animals are found in systematically organized fashion. Since we will be working with plants and animals in the field we will study them as we find them in their natural habitats. Obviously, they will not present themselves to us in organized textbook fashion. Thus, in this field experience you should be acutely aware of at least three stages in our learning experience, namely, **observing, recording, and processing.** (By contrast, most people who take nature walks are only involved in the first stage-observation.)

First, good field natural history requires keen, sharp, discerning, **observations** of plants, animals, and ecosystems. In the field you will study all aspects of a plant or animal by observing its physical features such as size, shape, color, its behavior, and its intra-and inter-species behavioral relationships.

Second, a good field scientist must acquire the habit of **recording** accurate and copious notes of his or her observations. The observations that you make one day may never be observed again, or they may be one part of a series of similar observations. In either case you should document your observations carefully and concisely so that you will be able to refer to them in the future.

Observations and recordings must be **processed** into a highly usable and repeatable form. This activity will take the form of a highly organized field notebook. In order to process your field observations and recordings you must have a loose-leaf notebook so that insertions can be made as your studies progress. The most suitable size is a three-ring loose-leaf, 8.5” x 5.5” notebook. You should have at least two sets of dividers to sort out the various topics that you encounter throughout the course.

The product of your processing activity will be an up-to-date and highly organized field notebook.

YOUR FIELD NOTEBOOK

Your field notebook will make you an expert on the plants and animals of our study area. Its organization will follow the accepted techniques of proper field notebook construction. The goal of the preparation of your notebook will be to provide abundant experience and practice in **processing** field observations and records. Your notebook will be loose-leaf, 8.5” x 5.5”, and will include eight (8) sections.

1. DAILY LOGS

This section will provide you with chronological-phenological data. It should include a chronological record of each trip. Each field trip should be recorded on a separate page. You should record the date, such as 13 IX 2011, place, time of day, and weather conditions at the top of the page. Following this general information, you should list in chronological order all species observed that day. Occasional reference to the time and place organisms are observed should be made on your list as well.

2. SPECIES ACCOUNTS AND SYSTEMATIC SECTION

In order to make an expandable notebook, records of observations made on plants and animals must be made on a separate sheet of each species. At the top right corner of the sheet you must list the common name, genus and species (scientific name), phylum, class, order, and family.

Several methods may be used to describe a species in addition to written word descriptions; these include colored drawings, sketches, color photographs and/or slides. In addition to identification characteristics you should note the behavioral patterns and seasonal status of the plant or

animal. **Most important are the observations and sketches that you make of the plants and animals that YOU study.** These notes need not be extensive narratives. A good pattern to follow is to use a series of "bullets" for each item you wish to note about an animal or plant. In this way you will be able to retrieve your information easily by a quick scan of the page.

In addition to your field observations, you must include important supplementary material about a species life history—material that can be found in a variety of websites, reference books and other resources. A distinction must be made between your field observations and material derived from a reference; the source of this information must be given using the author's last name and the date of his/her publications.

3. TERMINOLOGY

Field Scientists and Naturalists have a professional terminology. As this program proceeds you must be alert to the terms which are used. All natural history terminology should be listed and organized in this section. A useful format is to have one page for all terms beginning with A, another for B, etc.

REQUIRED BOOKS

1. Michigan Trees: Revised and Updated: A Guide to the Trees of the Great Lakes Region. Barnes, B.V. and W.H. Wagner, Jr. The University of Michigan Press, Ann Arbor.
2. A Field Guide to the Birds of Eastern and Central North America Peterson, Houghton-Mifflin, Boston. 5th edition or earlier is recommended, not the 7th edition.
3. Newcomb's Wildflower Guide. Newcomb, L. 1989. Little, Brown & Co., Boston.

REQUIRED EQUIPMENT

1. Field Guides for birds and trees (see above).
2. Field Notebook (8.5" x 5.5") and clipboard for note-taking in rain.
3. Black ballpoint pen (good for outdoor use in all weather conditions)
4. Field bag (or side pack—not a back pack)
5. **Binoculars (7 x 35 or 8 x 32 best for varied use) A GOOD, FUNCTIONING PAIR OF BINOCULARS IS MANDATORY. THESE MUST BE BROUGHT TO EACH CLASS SESSION.**
6. Hand lens 10X
7. Mosquito repellant (for Sep, Oct, May and June sessions)
8. Suitable clothing for all weather (pay special attention to footgear and gloves). Raingear is a must! Tennis shoes are a disaster in cold, wet, and snowy conditions.

Other essentials: drinking water (even in cold weather), sunscreen, and lip protection.

The difference between enjoyment and adversity outdoors has a lot to do with the proper clothing and equipment! Please be prepared to spend most, if not all, of your time outdoors every time we meet!!

Indoor laboratory experiences will also be part of the program.

If you have any questions about any aspect of this program description, along with the requirements of your participation in the program, please contact Rick Simek, the course instructor, at (313) 593-5338. Rick is Program Supervisor at the Environmental Interpretive Center.