

Biology and Identification of Ferns **July 15-July 20, 2019**

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Course Description and Goals:

During this course, students will obtain a comprehensive understanding of the seedless vascular plants, or cryptogams, or pteridophytes, including ferns and fern allies like lycopodium, and obscure taxa like the Appalachian gametophyte. Within the framework of classification, taxonomy, and evolution, we will dive deeply into studies of life cycles, morphology, basic anatomy, ecology, taxonomy, and nomenclature. We will take daily field trips within the Southern Appalachians and within a couple hours drive to collect specimens, bring them back to the laboratory, and identify them to species. The majority of our time will be spent either collecting in the field or keying species in the laboratory; that is, we will use the exercise of keying species to learn the important characters for identifying Southern Appalachian pteridophytes. Students will be encouraged to assemble reference collections and the last hours of the course will be spent assembling these collections. We will use various sources for species identification, but the *Guide to Tennessee Vascular Plants of Tennessee* will be the main key for species identification.

Prerequisites & Prior Training: This course is designed for professional biologists, naturalists, and undergraduate/graduate students that who have an interest in ferns, plant taxonomy, or field botany and who have some experience with dichotomous keys. No previous experience with ferns is required, but if you have experience I can probably take you further in your knowledge. That is, I have often taught this class and others to a diverse crowd of student's wide spectrum of knowledge bases. Depending on the different field trips, participants should be prepared to put in at least a couple 12-hour days.

Instructional Material: The instructor will provide pressed material for many species not likely to be seen on the fieldtrips. We will use the keys in the *Guide to the Vascular Plants of Tennessee*. Additional keys, like that of Alan Weakley (UNC Chapel Hill) are also available online.

Field Trips: We will take field trips to (1) learn how to search for pteridophytes, (2) to study their ecology, (3) to learn field recognition of species. These will be short day trips to sites near Highlands and we may visit several sites in a day, so please be prepared for at least one 12-hour day.

If the course is taken for academic credit, evaluation will be based on:

A series of oral quizzes in the field	50 pts
1 Final Exam over the biology of ferns and traditional fern allies	50pts (Friday, June 2 from 2-3 PM)
Plant Collection	100 pts (due Friday, June 2 PM)

Grades: 90%+ = A, 80%+ = B, 70%+ = C, 60%+ = D, <60% = F)

Additional Recommended Materials – items marked with an (*) below are strongly recommended, those without an asterisk might be useful to some students but not necessarily to all. The HBS will supply dissecting scopes and dissecting tools but some students prefer to bring their own, especially forceps and dissecting needles.

What to Expect: Class will begin each morning at 9:00 a.m. Typically you should expect to “work” from 9:00 a.m. to 5 p.m. every day (students not taking the course for credit may wish or need to stop a bit earlier with the understanding that they may be missing some information – your choice). Most days we will take a field trip. These may be short trips within Highlands or several hour-long trips to nearby natural areas (up to 2 hour drive away). Please come to class each morning prepared to stay out for the day, that is, be sure to bring snacks, lunch, water, raincoat, sweatshirt, notebook, hand lens, field guide, and anything else that you might need during the day. On days we are on campus at lunchtime, e.g., day 1, we will break for a one-hour lunch break from 12-1 pm. If it is raining hard or if there is severe weather, we will stay on campus and work in the lab. We will adjourn class most days before the dinner hour ~6 p.m. We may meet informally after dinner to spend additional time in the lab.

Students with Disabilities

Any student who has a condition that may affect his or her academic performance is encouraged to contact the instructor and Highlands Biological Station staff (828) 526-2602) ahead of time to discuss needs.

Itinerary

Daily:

- 8:30 or 9:00 a.m. Meet in the laboratory or near the van for our trip
 - 9:00 a.m. on the first day of class
- 9:00 a.m. to ~5:00 p.m. Class time, either in the field or in the laboratory
- 5:00 p.m. to 6:30 p.m. Break for dinner
- 7:00 to whenever Additional time in the laboratory to refine knowledge

Field Trips

Whiteside Mountain
Satula Overlook / Sunset Rock?
Panthertown – Schoolhouse Falls
Iron Bridge
Wasilik Trail
Walking Fern Cove (Buck Creek Road)
Ocoee/Hiwassee Rivers?