**Salamander Conservation**

**Highlands Biological Field Station, Summer 2025**

**26 May – 1 June**

**Instructor**: Dr. William E. Peterman, Associate Professor

The Ohio State University, Columbus, OH 43210

E-mail: Peterman.73@osu.edu

Website: <http://petermanresearch.weebly.com/>

**Prerequisites**: Zoology, Herpetology or Vertebrate Biology; Ecology or Population Biology; or permission from instructor

**Grading**: Based on participation in discussions, presentation of primary literature, and lightning talk presentation of salamander conservation topic.

**Description:** The Appalachian region harbors the greatest diversity of salamanders in the world. This course will provide an overview of the unique ecology, life history, and diversity of plethodontid salamanders in the Appalachian region, with emphasis on how these factors affect salamander conservation and habitat management. Students in this course will read and discuss seminal papers in salamander ecology and conservation, which will be reinforced through daily field excursions to see and experience salamanders and their habitats.

**Discussion Topics**

Overview of salamander diversity

Salamander ecology and life history

Conservation and management of salamanders

Overview of landscape ecology

Spatial heterogeneity and scale

Habitat connectivity & configuration

**Instructional Material:** PDFs of all discussion literature will be provided. Students should bring a laptop or other device to read primary literature.

* High quality rain gear
* Hiking boots (Gore-Tex/waterproof preferred: it often rains in Highlands and we may be spending time in headwater streams)
* Field clothes
* Headlamp (weatherproof since we may be out in the rain)
* [SUGGESTED] Field notebook (Rite in the Rain: <http://goo.gl/pCqmna>)

A major focus of this course will be on the salamanders around Highlands. A relatively inexpensive and relevant text is:

Dodd, C. K. 2004. The Amphibians of the Great Smoky Mountains National Park. The University of Tennessee Press, Knoxville, Tennessee, USA.

**What to expect:** Students will be expected to have read all papers prior to class and to contribute to discussions. We will have daily field trip and some night outings. Some discussions of papers will occur during commutes or in the field. There is a lot to learn, see, and explore in a short period of time. We’re going to make the most of our time and have fun doing it!

**Course Schedule (subject to change depending upon weather):**

**26 May–Monday**

Morning Course registration, introduction and course organization

Introductions

Lectures: Diversity and declines

Afternoon Organization of literature presentations

**TRIP**: Local Excursion

*Evening DISCUSS: Grant et al. 2016, Scientific Reports;* ***NIGHT WALK***

**27 May –Tuesday**

Morning Lecture: Salamander ecology and life history

Lecture: Altered climate and disturbance

*DISCUSS: Marsh & Trenham 2001, Conservation Biology*

Afternoon **TRIP**: Coweeta

Evening Nocturnal Salamander Observations

**28 May –Wednesday**

Morning Lecture: Introduction to Landscape Ecology

Lecture: Scale in Ecology

*DISCUSS: With, Chapter 1; Wiens 1989, Functional Ecology*

Afternoon **TRIP**: Panther Creek

**29 May –Thursday**

Morning Lecture: Wildfire

Student presentations

Afternoon **TRIP**: Brevard

**30 May –Friday**

All Day **TRIP**: Great Smoky Mountains National Park

**31 May –Saturday**

Morning Student presentations

**TRIP**: Wayah Bald

Afternoon Work time

**1 June –Sunday**

Morning **TRIP**: TBD

Afternoon **Lightning Talk Presentations**

**Leading discussion of literature (30 points)**

Everyone will be required to lead class discussion on a primary literature article. When doing so, you should clearly identify the objectives that the author(s) had in conducting their study, the main questions or hypotheses that were addressed, the methods used, the focal study system / organism(s), and the major findings. Since everyone will have read the paper with the same questions in mind, we should be able to have a lively and fun discussion about each paper!

**Lightning Talk Topic Presentation (50 points)**

Everyone will give a 5-minute lightning talk (15 slides, 20 seconds each slide) on an approved salamander conservation topic.

**Participation (70 points total; 10 points each day)**

We are a small group, and we want to hear everyone’s thoughts, opinions, and perspectives. Active participation and contribution to all discussions is expected. All questions are good; ask frequently and openly!

**Grading (150 points possible)**

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| A | 93–100 |  | B– | 80–82.9 | D+ | 67–69.9 |
| A- | 90–92.9 |  | C+ | 77–79.9 | D | 60–66.9 |
| B+ | 87–89.9 |  | C | 73–76.9 | E | <60 |
| B | 83–86.9 |  | C– | 70–72.9 |  |  |