

EEB 450: BIOLOGY OF AMPHIBIANS AND REPTILES

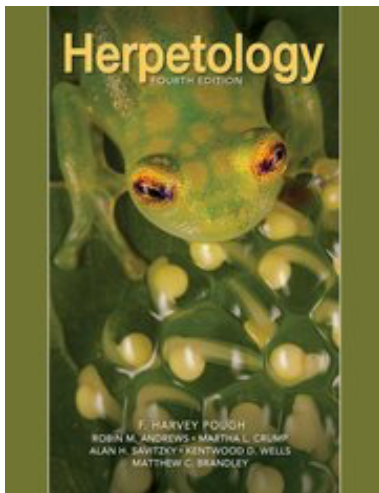
Course Description and Goals

EEB 450 is a biodiversity survey course that integrates lecture and laboratory to teach the fundamentals of herpetology, with a special focus on the reptiles and amphibians of Michigan. Lectures address both contemporary and deep-time understanding of the evolution and ecology of global herpetofauna, from organismal form and function to explorations of biogeography, species relationships, and behavior. Laboratory exercises promote “practical herpetology” skills through both specimen-based inquiry and connections to current research, including project- and game-based exploration of species richness gradients, CT scanning and 3D digital morphology, and the evolution of feeding strategies.

By the end of this course, you will have mastered the following:

- Working knowledge of global herpetofaunal diversity, evolutionary relationships, and key biological traits
- Identification and distribution of Michigan’s herpetofauna
- Understanding of links between morphology and ecology
- Comprehension of major evolutionary transitions contributing to the success and extinction of herpetofaunal radiations over deep time
- Appreciation for the critical conservation issues facing today’s reptiles and amphibians
- Ability to assess and discuss current research in herpetology

Textbook and Readings



F. Harvey Pough et al. 2016. Herpetology (Fourth Edition) is **required** for this course. *Please read assigned sections from the text before each lecture.* Occasional supplemental papers may be available on the course’s Canvas website [Resources/Readings]. Additionally, Holman’s Amphibians and Reptiles of Michigan is strongly encouraged for the laboratory section, and this guide is available as a pdf in your Canvas resources.

Course Info

Lecture:

Tuesday & Thursday
10:00-11:30am, REMOTE

Lab:

Tuesday
1:00-4:00pm, REMOTE

Final Exam:

Due April 30th: 12:30pm

Course website: [Canvas](#)

Instructor Info

Dr. Alison Davis Rabosky

ardr@umich.edu
2064 Biological Sciences Bldg.

Office hours:

Monday 2:00 - 4:00pm
([Zoom link](#)) or by appointment

Graduate Student Instructor:

Hayley Crowell,
hlcrowel@umich.edu
Friday 11am-1pm ([Zoom link](#))

Textbooks

F. Harvey Pough et al. 2016. Herpetology (Fourth Edition). Sinauer Associates, Massachusetts. **Required**

Holman. 2012. The Amphibians and Reptiles of Michigan: A Quaternary and Recent Faunal Adventure. **pdf in Canvas**

Grading

Each exam - one each on amphibians and reptiles - has two parts: a) a lab practical portion of testing knowledge specifically from the lab section and b) a lecture-based portion on assigned textbook and lecture content.

- Two exams (**due March 2nd** and **April 30th**): 150 points each (300 points total)
- Laboratory section participation and worksheets: 200 points
- Final Project: 100 points

Letter grades will be determined based on the following grading scale according to the percentage of total points earned: A+ = 97-100%, A = 93-97%, A- = 90-93%, B+ = 87-90%, B=83-87%, B- = 80-83%, C+ = 77-80%, C = 73-77%, C- = 70-73%, D+ = 67-60%, D = 63-67%, D- = 60-63%, E < 60%. **Please note UM's COVID-19 grading policies, which may be subject to updates** ([linked here](#)).

Exams

There are two exams (midterm and final), which are remote and asynchronous with 4-day completion windows. There will be no lecture activities on exam days so that you can choose to do the exam with that time if you want. The format for each exam will be a combination of multiple choice, fill in the blank, and short answer, intended to take ~1.5 hours to complete. The exams will be completely open resource (open book, use the internet, whatever you want), although we request that you not work with other people on the exam itself (on the honor system).

Final Project Guidelines

You will have an exciting final project ("MORPH") that uses reptiles and amphibians to demonstrate why morphology is important for biodiversity science, which you'll share with the public through educational outreach with the UM Museum of Natural History. Please see the Final Project pdf in Canvas for more information!

Laboratory Sections

The first laboratory section occurs during the week of January 19, 2021. Each lab that doesn't relate to the "MORPH" final project (see schedule below) is worth 20 points, for 200 points total. Synchronous attendance is highly encouraged to get the most out of each lab, but every lab section will be recorded to allow asynchronous engagement as necessary. Completed lab activities should be submitted by Fridays at 5pm through Canvas.

Course Policies

- **Attendance and Makeups:** Synchronous engagement is highly encouraged in all aspects of the class. However, all lectures and labs will also be recorded and available asynchronously to accommodate remote challenges. Please notify Dr. Davis Rabosky as soon as possible if you have a legitimate conflict with an exam window or a documented emergency.
- **Accommodation:** If you need any accommodation based on the impact of a disability, please let Dr. Davis Rabosky know at your earliest convenience. Any information that you provide is private and confidential.
- **Extra Credit:** Email us your favorite herp-themed memes at any time during the course. Provided that they are tasteful (and biologically accurate), we will award 1pt of extra credit for each one, limit 10pts total.



Course Schedule (Zoom links in Canvas)

| Date | Topic | Reading | Lab |
|-----------------|---|------------|---------------------------------|
| January 19 | Why Study Herpetology? | Chapter 1 | Phylogenies meet & greet! |
| January 21 | Origin and History of Amphibians | Chapter 2 | |
| January 26 | Systematics and Diversity of Amphibians | Chapter 3 | MORPH projects: Intro |
| January 28 | Salamanders 1: How They Work | Chapter 6 | |
| February 2 | Salamanders 2: What They Do | | Salamanders |
| February 4 | Frogs 1: How They Work | Chapter 7 | |
| February 9 | Frogs 2: What They Do | | Frogs |
| February 11 | Caecilians 1: How They Work | Chapter 8 | |
| February 16 | Caecilians 2: What They Do | | Caecilians |
| February 18 | Amphibian Conservation | Chapter 15 | |
| February 23 | Diets and Predators | | ARC: Batrachian Barf Bowl |
| February 25 | Guest Lecture: Herps in Media | Chapter 17 | |
| March 2 | Exam 1: Amphibians, due at 12:30pm | | MORPH projects: Peer feedback |
| March 4 | Origin and History of Reptiles | Chapter 4 | |
| March 9 | Systematics and Diversity of Reptiles | Chapter 5 | Mesozoic Week! |
| March 11 | Lizards 1: How They Work | Chapter 9 | |
| March 16 | Lizards 2: What They Do | | Lizards + Tuatara |
| March 18 | Snakes 1: How They Work | Chapter 10 | |
| March 23 | <i>Well-being break: NO LECTURE</i> | | <i>Well-being break: NO LAB</i> |
| March 25 | Snakes 2: What They Do | Chapter 11 | |
| March 30 | Crocodylians 1: How They Work | | Snakes + Crocodylians |
| April 1 | Crocodylians 2: What They Do | Chapter 13 | |
| April 6 | Turtles 1: How They Work | | Turtles |
| April 8 | Turtles 2: What They Do | Chapter 14 | |
| April 13 | Guest lecture: Herpetological Fieldwork | | ARC: Fieldwork lab |
| April 15 | Reptile Conservation | Chapter 16 | |
| April 20 | Emerging Frontiers: Future of Herpetology | | MORPH projects: Presentation |
| April 30 | FINAL EXAM: Reptiles, due at 12:30pm | | |