

BIOLOGY 334-001, L01 - HERPETOLOGY

College of Charleston, Department of Biology Spring 2018

Lecture meets: 11:20 - 12:35 p.m. T, R; HWWE 207

Laboratory meets: 12:40 - 4:40 p.m. T; HWEA 302

Instructor: Dr. Allison Welch

Office: 202 HWWE

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Office hours: 10:00 – 11:00 a.m. Tue, 12:45 – 1:45 p.m. Thu, or by appointment

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Course Description: Herpetology is the scientific study of amphibians and reptiles. This course addresses the biology of these fascinating organisms, including their evolutionary history, taxonomy and systematics, structure and function, behavior, and ecology. This course will emphasize the integrative nature of modern herpetology by (1) drawing together concepts from various levels of biological organization to understand the biology of amphibians and reptiles, and (2) highlighting how the study of these organisms has advanced our understanding of general concepts in physiology, behavior, ecology and evolution.

Laboratory is an essential component of the course, where you will gain first-hand experience with the organisms and concepts discussed in lecture. Investigations of preserved specimens in the laboratory will allow you to become familiar with the structure, taxonomy, diversity, and adaptations of amphibians and reptiles. Field trips will provide experience with local amphibians and reptiles in their natural habitat as well as an introduction to research techniques.

Student Learning Outcomes: At the end of this course, students are expected to be able to:

- describe the evolutionary history and phylogeny of amphibians and reptiles.
- discuss key features of the reproduction, life histories, behavior and physiology of amphibians and reptiles, and relate these features to the ecology of the organism.
- identify and describe evidence of shared ancestry, convergent evolution, and adaptation in the structure and function of various amphibians and reptiles.
- interpret, evaluate and synthesize information from primary herpetological literature.
- describe and identify major taxa of amphibians and reptiles.
- identify herpetofauna of South Carolina to the species level.
- use field techniques to study local herpetofaunal communities and populations.

Required Texts: *Herpetology*, 4th edition. F. H. Pough, et al.

Peterson Field Guide to Reptiles and Amphibians of Eastern and Central North America, 4th edition. R. Powell et al.

Prerequisites: BIOL 111, 112, 211

Pre or co-requisites: BIOL 305, MATH 250

COURSE POLICIES

Attendance and participation – Your attendance at every class meeting is expected and is critical to your performance in this course. Your attendance and active participation in laboratory and on field trips are mandatory. Absence from $>1/3$ of class meetings, whether excused or unexcused, may lead to a grade of “WA,” which is equivalent to a failing grade.

You are expected to participate in a way that is respectful of yourself and others, as well as the environment (classroom, lab, field). Significant participation will contribute to your grade. Many laboratory activities are self-paced, and the best way to learn the material and prepare for quizzes and exams is to investigate the material in depth. As such, you are expected to make wise use of your time in the laboratory, and doing so will contribute to your participation grade.

Exams and quizzes – Lecture and laboratory exams will be comprehensive; material from field trips will be covered on laboratory exams. Lecture and laboratory quizzes are designed to help you keep up with the large amount of material in this course. Quizzes will focus primarily on the most recent material (i.e., since the most recent quiz or exam), but may also require that you recall concepts from earlier in the semester. Any student eligible for accommodation due to disability should make arrangements with me as soon as possible.

If you must miss an exam or quiz, you are required to discuss this with me *well in advance*. Due to the nature of the course material, it may not be possible to make up missed exams or quizzes. An alternate assignment or make-up exam may be offered, at my discretion, for *excused, pre-approved* absences. Travel plans are *not* excused absences – please plan accordingly.

Field trips – Appropriate attire is imperative for field trips, for your safety and comfort and for the good of the group. Students whose attire is inappropriate will not be allowed to participate, and will sacrifice participation points. Come prepared for outdoor activities by wearing *long pants* and *sturdy, closed, low-heeled shoes* and bringing rain gear, sunscreen, insect repellent, etc. Please note that insect repellents can be toxic to amphibians; use judiciously. College vans will be used for field trips; students may not provide their own transportation. All students must sign a waiver before participating in field trips.

Field guide – Bring your field guide to every lab and field trip. Not bringing your field guide will affect your ability to learn the course material, as well as your participation grade.

Online resources – Course resources will be available via OAKS; *please subscribe to OAKS notifications*. Many links to helpful and interesting supplemental material are provided at sites.sinauer.com/herpetology4e/. Our class will also participate in a collaborative blog at: <http://ourherpclass.blogspot.com>; details will be provided in class.

Respectful conduct in class – You are expected to be respectful of others during lecture, lab and field trips. Please do not disrupt class activities by allowing cell phones to ring, by texting, by eating, drinking or using tobacco products in the classroom, lab or field, or by arriving late or leaving early from class. Food and beverages are not allowed in the laboratory. Use of electronics (e.g., laptops, tablets) for course-related work is permitted in lab but not in lecture.

Academic integrity – The College of Charleston’s Honor Code will be followed in this course. For extra credit, email me a cool herp pic before 1/16. (Refer to pages 10-11 of the CofC Student Handbook, <http://studentaffairs.cofc.edu/honor-system/studenthandbook>).

SAFETY POLICIES

During this course, you may be exposed to potential hazards in the laboratory and field. To ensure your safety, participation in the course requires adherence to safety standards. Students that are not in compliance will not be allowed to participate in lab or field activities. Any coursework missed due to lack of safety compliance will be treated as an unexcused absence.

1. You are responsible for knowing the hazards associated with materials being used in the laboratory as well as environments and organisms that may be encountered in the field. Listen to all instructions and ask questions about that which you do not understand.
 - a. The laboratory will make use of specimens preserved in ethyl alcohol (ethanol), which can be potentially hazardous. The MSDS safety information for ethyl alcohol is available in the laboratory.
 - b. Potentially dangerous animals may be encountered on field trips. Do not touch any snake unless it is confirmed to be non-venomous. Alligators may be passively observed only.
 2. Know the appropriate emergency response procedures. If there is an injury or emergency, call 953-5611. Know the location of safety equipment including telephones, eyewash, fire extinguisher, fire pull, and first aid kit.
 3. Do not work alone in the laboratory if you are working with hazardous materials. Do not work alone in the field: always work in pairs or groups, and do not venture away from the class.
 4. Do not engage in horseplay, pranks or other acts of mischief while in lab or on field trips.
 5. Drinking, eating, and application of cosmetics is forbidden in the laboratory. Smoking is forbidden in all College buildings and vehicles, and on field trips.
 6. Closed toe shoes are required in the laboratory and in the field. The heel and top of foot must be covered. Sandals and perforated shoes are not permitted.
 7. Appropriate protective gloves will be available in the laboratory. Students are required to provide protective eyewear. If skin irritations are detected, wash exposed surface with mild soap and plenty of water. If alcohol is splashed on eyes, immediately flush eyes with plenty of water for 15 minutes.
 8. Appropriate clothing must be worn on field trips, as described by the instructor, including long pants and sturdy, closed toe shoes.
 9. During field trip travel, seatbelts must be used at any time that the vehicle is in motion.
 10. Broken glass and any other sharp objects should be disposed of in specially labeled containers in the laboratory.
 11. Clean up the work area when you are done. Before leaving the laboratory or field vehicles, you are responsible for making sure your space is clean and organized.
 12. Always have your College of Charleston identification and insurance information with you when working in a laboratory or in the field. MedicAlert identification must be worn if you have any potential life-threatening chemical sensitivities or medical conditions.
 13. Report any accident or injury, however minor, to the instructor immediately. An accident report form must be completed and forwarded to the department chair, dean, and to the Director of Environmental Health and Safety.
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LECTURE SCHEDULE

<u>Date</u>	<u>Lecture topic / activity</u>	<u>Reading*</u>
Jan 9	Herpetology as a field of study	Ch 1
Jan 11	Evolutionary origins of tetrapods	Ch 2
Jan 16	Amphibian evolution	Ch 2
Jan 18	Amphibian diversity 1 / <i>Quiz 1</i>	Ch 3
Jan 23	Amphibian diversity 2	Ch 3
Jan 25	Amphibian reproduction / <i>Literature discussion 1*</i>	Ch 8
Jan 30	Amphibian life history / <i>Quiz 2</i>	Ch 8
Feb 1	Mating systems and sexual selection	Ch 14
Feb 6	LAB QUIZ 1	
Feb 8	Amphibian communication / <i>Literature discussion 2*</i>	Ch 13
Feb 13	Reptile evolution	Ch 2
Feb 15	Reptile diversity 1/ <i>Quiz 3</i>	Ch 4
Feb 20	Reptile diversity 2	Ch 4
Feb 22	Reptile diversity 2	Ch 4
Feb 27	Reptile reproduction and life history	Ch 9
Mar 1	MIDTERM EXAM	
Mar 6	Reptile communication	Ch 13
Mar 8	Temperature relations / <i>Literature discussion 3*</i>	Ch 6
Mar 13	LAB QUIZ 2	
Mar 15	Water relations	Ch 6
Mar 20, 22	*** Spring break – no class ***	
Mar 27	Performance and energetics	Ch 7
Mar 29	Body support and locomotion / <i>Quiz 4</i>	Ch 10
Apr 3	Movement and orientation / <i>Literature discussion 4*</i>	Ch 12
Apr 5	Feeding	Ch 11
Apr 10	Trophic relations	Ch 15
Apr 12	Communities and ecosystems	Ch 16
Apr 17	Conservation	Ch 17
Apr 19	<i>FIELD TRIP – starts at 11:20</i>	
May 1	FINAL EXAM: 8:00 – 11:00 a.m.	

****Literature discussion readings will be available via OAKS.***

LABORATORY SCHEDULE

<u>Date</u>	<u>Laboratory topic/activity</u>
Jan 9	Characters and phylogenies
Jan 16	Amphibian diversity I: Caudata
Jan 23	Amphibian diversity II: Caudata, continued + Anura
Jan 30	Amphibian diversity III: Anura, continued
Feb 6	Reptilian diversity I: Testudines
Feb 13	Reptilian diversity II: Crocodylia + Lepidosauria
Feb 20	Reptilian diversity III: Lepidosauria, continued
Feb 27	Field trip
Mar 6	Field trip
Mar 13	Field trip
Mar 20	*** Spring break – no lab ***
Mar 27	Field trip
Apr 3	Lab review
Apr 10	Lab exam
Apr 17	Field trip (<u>starts at 11:20</u>)

REQUIREMENTS AND ASSESSMENT

<u>Course component</u>	<u>total points</u>	<u>percent</u>	<u>Grading policy</u>
Laboratory worksheets (7 x 10)	70	7.8%	A: 93.0-100.0%
Laboratory quizzes (2 x 40)	80	8.9%	A-: 90.0 - 92.9%
Laboratory exam	120	13.3%	B+: 87.0 - 89.9%
Laboratory assignments and participation	100	11.1%	B: 83.0 - 86.9%
Lecture quizzes (4 x 10)	40	4.4%	B-: 80.0 - 82.9%
Research presentation	100	11.1%	C+: 77.0 - 79.9%
Literature discussions (4 x 15)	60	6.7%	C: 73.0 - 76.9%
Midterm exam	150	16.7%	C-: 70.0 - 72.9%
Final exam	150	16.7%	D+: 67.0 - 69.9%
Lecture attendance and participation	30	3.3%	D-: 60.0 - 62.9%
Total	900		F: 0.0 - 59.9%

Please note: The material in this syllabus is provided for your information. However, the syllabus is subject to scheduling changes and other alterations as necessary. Any syllabus updates will be announced and posted on OAKS.