

BIOLOGY 334-001, L01 - HERPETOLOGY

College of Charleston, Department of Biology Spring 2020

Lecture meets: 10:50 a.m.–12:05 p.m. T, R; RITA 261

Laboratory meets: 12:10–4:10 p.m. T; RITA 261

Instructor: Dr. Allison Welch

Office: RITA 235

Email: welcha@cofc.edu

Office hours: 1:30–2:30 p.m. Wed, 12:30–1:30 p.m. Thu, or by appointment

TA: Kyra Reisenfeld

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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 and evolutionary history 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, participation, and conduct – Your attendance at every class meeting is expected and is important 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.

Engaged and courteous participation is expected in both lecture and lab and will contribute to your grade. Conduct during all class sessions is expected to be respectful of yourself and others, as well as the environment (classroom, lab, field). I strive to promote a welcoming learning environment for all students, and I expect you to do the same (e.g., using nonjudgmental language, welcoming different perspectives and identities, avoiding disruptive behavior).

Please arrive on time and ready to learn, and please wait until the class period is over to pack up. Electronic devices should be stowed in your bag during class. Food and beverages are not allowed in the laboratory/classroom or field. 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 and lab/field notebook – Bring your field guide and lab/field notebook to every lab and field trip. Not doing so will affect your ability to learn, as well as your participation grade.

Online resources – Course resources will be available via OAKS; please subscribe to OAKS notifications. Our class will also participate in a collaborative blog; details will be provided in class.

Writing resources and avoiding plagiarism – Any time you use someone else’s idea, you must put it in your own words and include a citation. Using someone else’s words in rearranged form is considered plagiarism – be sure to thoroughly paraphrase or summarize your sources using your own words and your own voice. (Direct quotes are rarely used in scientific communication

and always require quotation marks as well as a citation.) If you are not sure whether you are using sources properly, or if you would like help with other aspects of the writing process, please refer to the CofC Writing Lab: <http://csl.cofc.edu/labs/writing-lab>, the Purdue Online Writing Lab: <https://owl.english.purdue.edu/owl>, or contact me.

Originality and authorship of work – All work in this class must be completed individually, without collaboration with others, unless the instructor explicitly specifies that students may work together. Unauthorized collaboration (working together without permission) is considered a form of cheating.

Research conducted and/or papers written for other classes or projects cannot be used, in whole or in part, for any assignment in this class. In rare cases, permission may be granted for a student to build on work conducted in another context, but only when this would provide significantly greater learning for the individual student and/or the class as a whole. This is a rare exception and not the norm, and permission must be sought early.

Getting help – I encourage you to meet with me during office hours to ask questions. I'm always willing to take time to help you better understand the course material. In addition, the Center for Student Learning (<http://csl.cofc.edu/>) offers a variety of free, helpful resources, including study strategies workshops and speaking and writing labs.

COLLEGE AND COURSE POLICIES

Inclement weather – If the College of Charleston closes and members of the community are evacuated due to inclement weather, students are responsible for taking course materials with them in order to continue with course assignments consistent with instructions provided by faculty. In cases of extended periods of institution-wide closure where students have relocated, instructors may articulate a plan that allows for supplemental academic engagement despite these circumstances.

Disabilities accommodation – Any student eligible for and needing accommodations because of a disability is requested to speak with me during the first two weeks of class or as soon as you have been approved for services so that reasonable accommodations can be arranged.

Inclusion – I will gladly honor your request to address you by the name and gender pronouns of your choice. Please advise me of this at your earliest convenience via your college-issued email account or in person. A gender-neutral restroom can be found on the first floor of RITA. For more resources, see <http://gender-sexuality-equity.cofc.edu>.

Religious Accommodation – The College will make reasonable accommodation for religious observance in regard to class attendance and exam scheduling, unless the accommodation would create an undue hardship on the College. Regardless of any accommodation that may be granted, students are responsible for satisfying all requirements of the course. If such accommodation is requested, please contact your professors as soon as possible, with a minimum of one week advance notice.

Other Support Services – At times, students may experience other difficulties that can interfere with learning, such as physical and mental health challenges, assault or abuse, and food or housing insecurity. If you or someone you know is experiencing any of these difficulties, various resources on campus are available to help. The Office of the Dean of Students (843-953-5522; <http://deanofstudents.cofc.edu>) can direct you to resources and support. If you are

comfortable notifying me, I may be able to help you navigate your coursework and identify available resources while remaining sensitive to your situation.

- **Mental and Physical Wellbeing:** If you find yourself experiencing physical illnesses, please reach out to Student Health Services (843-953-5520). And if you find yourself experiencing any mental health challenges (for example, anxiety, depression, stressful life events, sleep deprivation, and/or loneliness/homesickness) please consider contacting either the Counseling Center (professional counselors at <http://counseling.cofc.edu> or 843-953-5640, 3rd floor Robert Scott Small Building) or the Students 4 Support (certified volunteers through texting "4support" to 839863, <http://counseling.cofc.edu/cct/index.php>, or meet with them in person at 3rd floor Stern Center). These services are there for you to help you cope with difficulties you may be experiencing and to maintain optimal physical and mental health.
- **Food and Housing Resources:** The College of Charleston offers assistance for students who have difficulty affording groceries or accessing sufficient food to eat every day, or who lack a safe and stable place to live. If food or housing troubles are affecting you, please contact the Dean of Students for support. You can visit the Cougar Pantry in the Stern Center (2nd floor), a student-run food pantry that provides dry-goods and hygiene products at no charge to any student in need. More on- and off-campus resources can be found at <http://studentaffairs.cofc.edu/student-food-housing-insecurity> and <https://advising.cofc.edu/student-resources/community-resource-guide.php>, including free excess food from campus events, meal swipes, and temporary housing.
- **Other Resources:** *Always call 911 for emergencies*
 - Emergency Resources: <http://studenthealth.cofc.edu/emergencies>
 - Office of Victim Services: <http://victimservices.cofc.edu>
 - Collegiate Recovery Program: <http://deanofstudents.cofc.edu/collegiate-recovery-program>
 - Center for Student Learning: <http://csl.cofc.edu>
 - Students of Concern: <http://deanofstudents.cofc.edu/students-concern>

Honor Code and Academic Integrity – Lying, cheating, attempted cheating, and plagiarism* are violations of our Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved.

Incidents where the instructor determines the student's actions are related more to misunderstanding and confusion will be handled by the instructor. The instructor designs an intervention or assigns a grade reduction to help prevent the student from repeating the error. The response is recorded on a form and signed both by the instructor and the student. It is forwarded to the Office of the Dean of Students and placed in the student's file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This status indicator will appear on the student's transcript for two years after which the student may petition for the XX to be expunged. The F is permanent.

Students can find the complete Honor Code and all related processes in the *Student Handbook* at <http://deanofstudents.cofc.edu/honor-system/studenthandbook/index.php>.

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. *Always call 911 in case of emergency.* 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 14	Evolutionary origins of tetrapods	Ch 2
Jan 16	Amphibian evolution	Ch 2
Jan 21	Amphibian diversity 1	Ch 3
Jan 23	Amphibian diversity 2 / <i>Quiz 1</i>	Ch 3
Jan 28	Amphibian life history	Ch 8
Jan 30	Amphibian reproduction / <i>Literature discussion 1*</i>	Ch 8
Feb 4	LAB QUIZ 1	
Feb 6	Mating systems and sexual selection / <i>Quiz 2</i>	Ch 14
Feb 11	Amphibian communication	Ch 13
Feb 13	Reptile evolution / <i>Literature discussion 2*</i>	Ch 2
Feb 18	Reptile diversity 1/ <i>Quiz 3</i>	Ch 4
Feb 20	Reptile diversity 2	Ch 4
Feb 25	Reptile diversity 2	Ch 4
Feb 27	MIDTERM EXAM	
Mar 3	Reptile reproduction and life history	Ch 9
Mar 5	Reptile communication	Ch 13
Mar 10	LAB QUIZ 2	
Mar 12	Body support and locomotion	Ch 10
Mar 17, 19	*** <i>Spring break – no class</i> ***	
Mar 24	Water relations	Ch 6
Mar 26	Temperature relations / <i>Literature discussion 3*</i>	Ch 6
Mar 31	Performance and energetics	Ch 7
Apr 2	Feeding / <i>Quiz 4</i>	Ch 11
Apr 7	Trophic relations	Ch 15
Apr 9	Movement and orientation / <i>Literature discussion 4*</i>	Ch 12
Apr 14	Communities and ecosystems	Ch 16
Apr 16	Conservation	Ch 17
Apr 21	<i>FIELD TRIP – starts at 10:50</i>	
Apr 28 (Tue)	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 14	Characters and phylogenies
Jan 21	Amphibian diversity I: Caudata
Jan 28	Amphibian diversity II: Caudata, continued + Anura
Feb 4	Amphibian diversity III: Anura, continued
Feb 11	Reptilian diversity I: Testudines
Feb 18	Reptilian diversity II: Crocodylia + Lepidosauria
Feb 25	Reptilian diversity III: Lepidosauria, continued
Mar 3	Field trip
Mar 10	Field trip
Mar 17	*** Spring break – no lab ***
Mar 24	Field trip
Mar 31	Field trip
Apr 7	Lab review
Apr 14	Lab exam
Apr 21	Field trip (<u>starts at 10:50</u>)

REQUIREMENTS AND ASSESSMENT

<u>Course component</u>	<u>total points</u>	<u>percent</u>	<u>Grading policy</u>
Laboratory worksheets (6* x 10)	60	6.7%	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 & lit. discussions (7* x 15)	105	11.7%	B-: 80.0 - 82.9%
Research presentation	100	11.1%	C+: 77.0 - 79.9%
Midterm exam	150	16.7%	C: 73.0 - 76.9%
Final exam	150	16.7%	C-: 70.0 - 72.9%
Lecture attendance and participation	35	3.9%	D+: 67.0 - 69.9%
Total	900		D-: 60.0 - 62.9%
			F: 0.0 - 59.9%

* Your lowest lab worksheet score (1 of 7) and lowest lecture quiz or literature discussion score (1 of 8, total) will be dropped.

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 in class and posted on OAKS.