

# IB464 – Herpetology

## Spring 2021

### Lecture:

Join Zoom Meeting:

<https://illinois.zoom.us/j/81407754930?pwd=ZHgzWi8xME5EWUZkTUIJZjIFSzhSQTO9>

Meeting ID: 814 0775 4930

Password: 234893

**Lab:** 2:00–4:50 PM CDT T Natural History Building Room 4072

### Professor:

Dr. Mark A. Davis

Natural Resources Survey Annex

Room 220

[davis63@illinois.edu](mailto:davis63@illinois.edu)

(217) 300–0980



@ Mark\_A\_Davis79

### Graduate Teaching Assistant

Alessa Laserna

[laserna2@illinois.edu](mailto:laserna2@illinois.edu)

### Office Hours

Mark

**8-9 AM M** Join Zoom Meeting

<https://illinois.zoom.us/j/85257587768?pwd=KzITdGE3NVlxL1RVakdrN3ViQTRTUT09>

Meeting ID: 852 5758 7768

Password: 432032

Or by appointment (Zoom link to be determined upon request)

Will also answer questions and engage in discussion on the course Slack Channel

Alessa

**By appointment** (Always available to answer questions Via email).

**Preamble:** It's fair to say that S21 semester will be yet another challenging semester, as we continue to navigate life in a global pandemic while attending to our academic responsibilities. I recognize that many of you are facing tremendous, sometimes overwhelming challenges personally, professionally, and academically. I am sensitive to these challenges and I am committed to working with you to ensure success in this course, but also ensuring we are caring

for our health and wellbeing. I will maintain the highest of academic standards in this course, but I will also remain flexible in the face of the uncertainty we are all dealing with.

On the other side of that coin, this course will by necessity be wholly different than what was offered in previous years. This will require innovation and creativity on the part of the instructor and the TA. Some things we try will work well, others will not. I ask that you commit to working with me in good faith, provide constructive feedback, and remain flexible.

Finally, I ask that we all commit to respectful, open, honest communication. I believe that such a commitment will ensure that this course meets your expectations and allows you to explore, gain knowledge, and understanding of a fascinating taxonomic group that has fascinated and inspired me for my entire life.

**Course objective:** The course will familiarize you with the phylogenetic relationships, ecology, and evolutionary history of amphibians and reptiles. Take advantage of this opportunity to develop a deeper appreciation for these unique creatures and this particular aspect of the natural world.

#### **Herpetology Learning Outcomes**

- Connect taxonomic identification with major life history traits
- Describe the morphological, physiological, and developmental traits that define reptiles and amphibians.
- Place major gains/losses of traits within a phylogenetic context and suggest adaptive hypotheses
- Explain the role and importance of reptiles and amphibians in broader context of ecological communities
- Relate the biology of herps to the value of current science and scientists involved in herpetological research

#### **Recommended Materials**

**Herpetology, 4<sup>th</sup> Edition** by F.H. Pough, R.M. Andrews, M.L. Crump, A.H. Savitzky, K.D. Wells, and M.C. Brandley. 2015. (Sinauer Associates, Sunderland ML)

*NOTE: This text is very helpful for those interested in continuing a career associated with reptiles and amphibians, but you **will** be able to successfully complete this course without purchasing the text book. Consider the textbook entirely optional.*

#### **Required Materials**

**Peterson Field Guide to Reptiles and Amphibians of Eastern and Central North America, 4<sup>th</sup> Edition** by R. Powell, R. Conant, and J.T. Collins. 2016. (Houghton Mifflin Harcourt).

*NOTE: This book is NOT optional. It is essential for success in the laboratory portion of the course and on field trips. However, it will not be found in the UIUC bookstore. Please speak with Professor Davis about sourcing your copy if you have concerns.*

## **Additional readings will be assigned and posted on Learn@Illinois**

**Please Note:** Herpetology is designed as a participatory class – this means that students are expected to attend class and take notes. Some materials will be posted prior to lecture, but students should not expect to have PowerPoint slides posted to Moodle prior to lecture.

**Moodle:** <http://learn.illinois.edu> IB464 should be listed under your Moodle course links. It is required that you use the Moodle page for this class. Handouts will be available there, and some assignments will only be accessed through **Learn@Illinois**.

Lecture slides will be posted no later than Friday following the final lecture of the week. Lab slides will be posted after lab. Additional materials will be posted on a semi-regular basis.

**How to get your questions answered:** E-mail or the course Slack Channel is the preferred method for communication, either to answer your question directly or to set up a time to meet. Please note office hours are a great opportunity for you to ask questions. This is YOUR time, and I encourage you to take advantage of it.

**Prerequisites:** Prerequisites for this course are IB 302 **or** consent of instructor. You will be expected to understand information displayed in graphs and equations. In addition, lectures in this course require a basic understanding of anatomy, evolution, physiology, and chemistry. Don't hesitate to ask for clarification if you don't understand something, but please take responsibility for knowing prerequisite material.

### **Course grading:**

Student performance in IB464 will be evaluated based on assignments, exams and a non-cumulative final exam. A detailed grading breakdown can be found below. There is no extra credit. Missed quizzes or exams will be scored as zero points (but please see absence policy below).

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**Assignments (10%):** There will be occasional assignments in class (totaling 100 points). These will consist of both individual and group, and will include

**Exams (30%):** There will be exams (each 100 points for a total of 300 points). Exams will be timed, open book, open notes. You are expected to complete these individually.

**iNaturalist Observations (10%):** This project will span the semester and is worth 100 points. Details and a rubric will follow at a later date.

**Conservation Assessment (10%):** This project will span the semester with a culminating presentation during final exams. It is worth 100 points.

**Laboratory Grade (30%):** The lab grade will consist of two components: Lab exams (200 points total) and a group Lab Research Project (100 points total). See lab schedule for exam and quiz dates.

**Instructor-Based Grade (10%):** Based upon attendance and participation.

**Final Grade:** Final Lecture Grade (60%) + Final Lab Grade (30%) + Instructor-Based Grade (10%) = 1000 points

Allocation of Final Grade is based on your score, following the traditional scheme: A=1000-900, B=899-800, C=799-700, D=699-600%, F= less than 599

**In-depth concepts in Herpetology:** Pough et al. have done an excellent job of distilling herpetological principles and concepts. However, scientific experiments underlying the principles of the book were first described in scientific research articles (i.e., what we call “the primary literature”). Scientific papers will occasionally be assigned as part of your class readings. Reading and interpreting scientific writing is a useful skill for those of you interested in grad school or are pre-professionals. More importantly, this will help all of you become a scientifically literate member of society. These readings will be posted on **Learn@Illinois** and will, of course, be fair game on exams and quizzes.

**Zoom etiquette:** Help maintain an atmosphere conducive to learning. Act responsibly and show respect towards others. Have your video on and be prepared to engage in discussion/answer questions. You will be removed from Zoom **immediately** if your behavior/actions impede the learning of other students.

**Americans with Disabilities Act for Students with Special Needs:** To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the as soon as possible. To ensure that disability-related concerns are properly addressed from the beginning, students with disabilities who require assistance to participate in this class should contact Disability Resources and Educational Services (DRES) and see the instructor as soon as possible. If you need accommodations for any sort of disability, please speak to me after class, or make an appointment to see me, or see me during my office hours. DRES provides students with academic accommodations, access, and support services. To contact DRES you may visit 1207 S. Oak St., Champaign, call 333-4603 (V/TDD), or e-mail a message to [disability@uiuc.edu](mailto:disability@uiuc.edu). <http://www.disability.illinois.edu/>.

**Responsible Employees and Mandatory Reporting:** As employees of the University of Illinois and conscientious members of the UIUC community, one of our responsibilities is to help create a safe learning environment on our campus. We take this responsibility very seriously. We also have a mandatory reporting responsibility related to our role as instructors. We are required to share information regarding sexual misconduct with the Title IX Office. Students may speak to someone confidentially by contacting one of the Confidential Resources listed on the We Care website at [wecare.illinois.edu](http://wecare.illinois.edu).

**Academic Honesty Statement:** The academic community is predicated upon the principles of honesty, integrity, and fair play. The University of Illinois at Urbana-Champaign *Student Code* should also be considered as a part of this syllabus. Students should pay particular attention to Article 1, Part 4: Academic Integrity. Read the Code at <http://studentcode.illinois.edu/>. Every student is expected to review and abide by the Academic Integrity Policy. **Academic dishonesty will not be tolerated in any form and may result in a failing grade.** Ignorance is not an excuse for any academic dishonesty. It is your responsibility to read this policy to avoid any misunderstanding. Do not hesitate to ask the instructor(s) if you are ever in doubt about what

constitutes plagiarism, cheating, or any other breach of academic integrity. All allegations will be submitted to the university FAIR system and sanctions will be proportional to the severity of the violation.

**Cheating.** Cheating is the use of external information (written material, the exams of your fellow classmates, etc.) to complete an assignment, quiz, or exam in which such sources had been explicitly prohibited. Students taking quizzes or exams are prohibited from consulting specific quiz and exam questions *prior* to taking the quiz or exam or communicating with their fellow students about the exam. Allowing other students to copy your work is considered cheating by you. We examine materials closely to detect evidence of academic dishonesty. Students often like to look around the room while thinking about the answers to questions. But it is best to avoid any behavior during a quiz that could be construed as looking at the paper of another student.

**Plagiarism.** Plagiarism is the presentation of others' work as your own. Science builds upon information that was gathered and published in the past. It is important to cite sources of information both to avoid appearing to take credit for work done by others and to allow the reader to check your statements. Students may (and are encouraged to) discuss the content of the lab assignments with their classmates or others. However, the assignment that each student hands in must be written *in his or her own words*.

**Attendance and Punctuality:** You should attend every lab and lecture. **Students who miss a lecture and are requesting an excused absence must present written and dated documentation of a personal or medical emergency or a confining illness in a timely fashion for the opportunity to make up any missed quizzes, assignments, exams, etc.** Written documentation must specify the nature of the problem and document that it prevented the student from attending lab at the time in question. Students who visit McKinley Health Center or private physicians must provide verification of confining illness for the date in question. Letters for absences lasting more than three consecutive days should request a letter through the Office of the Dean of Students (Turner Student Services Building, 610 E. John, (217-333-0050). ***Documentation must be received within 1 week of the absence unless you are working with the Office of the Dean of Students.***

Veterans and student service members with special circumstances or who are activated are encouraged to notify the instructor as soon as possible and are encouraged to provide Activation Orders.

Students who need to miss lecture or lab for any other reason (religious observances, University of Illinois student athletic meets, professional interviews) should be in contact with us ASAP. Students must request accommodation for religious observance from the student assistance center within the first two weeks of the semester. For other absences, documentation must be received at least 1 week prior to the absence unless you are working with the Office of the Dean of Students.

**Make-up exams are HIGHLY discouraged. There will be no make-up exams without university-approved documentation of your absence.** Make-up exams will be in a different format than exams given and must be taken within 72 hours of the original missed exam.

**Requesting a regrade:** If you believe that an error has been made in the grading of any assignment, quiz, or exam, you may request a regrade. Such a request **must be made in writing** no more than one week after the assignment, quiz, or exam was returned to you. Except for arithmetical errors in point totals, a regrade involves the regrading of the *entire* assignment, quiz, or exam. The grade earned on the regrade will be the final grade for the assignment even if it is lower than the original grade.

**Emergency Response Recommendations:** Emergency response recommendations can be found at <http://police.illinois.edu/emergency-preparedness/>. We encourage you to review this website and the campus building floor plans website within the first 10 days of class at <http://police.illinois.edu/emergency-preparedness/building-emergency-action-plans/>.

**Family Educational Rights and Privacy Act (FERPA):** Any student who has suppressed their directory information pursuant to *Family Educational Rights and Privacy Act* (FERPA) should self-identify to the instructor to ensure protection of the privacy of their attendance in this course. See <http://registrar.illinois.edu/ferpa> for more information on FERPA.

### **How to do well in Herpetology**

- Attend class regularly: exams will stress material presented in lectures and readings
- Come prepared for class
- Hand write your notes (rather than type) – research shows better retention with handwritten notes!
- Review your lecture notes after each lecture (an effective learning strategy)
- Do the assigned reading – chapters supplement & clarify topics presented in lecture
- Keep your lecture notes neat and organized – legible notes are easier to study
- Stay up with the material
- Deal with ambiguities by seeking assistance promptly



**Lecture Schedule:** This preliminary schedule may be altered. Notice of alteration will be made on the course website and in class.

<b>Date</b>	<b>Day</b>	<b>Lecture</b>	<b>Topic</b>
25-Jan	Monday	1	Introductions & Course Overview
27-Jan	Wednesday	2	What IS Herpetology?
29-Jan	Friday	3	Evolutionary History of the Herptiles & Freaky Friday intro/demo
1-Feb	Monday	4	Evolutionary History of the Herptiles II
3-Feb	Wednesday	5	Herpetological Diversity I --> Amphibians
5-Feb	Friday	6	Herpetological Diversity II --> Amphibians
8-Feb	Monday	7	Herpetological Diversity III --> Early Reptiles
10-Feb	Wednesday	8	Herpetological Diversity IV --> Extant Reptiles I
12-Feb	Friday	9	Herpetological Diversity V --> Extant Reptiles II & Freaky Friday
15-Feb	Monday	EXAM	Exam I
17-Feb	Wednesday		Non-instructional BREAK
19-Feb	Friday	1	Exam Debrief, Freaky Friday, and iNaturalist Project Introduction
22-Feb	Monday	2	Reproduction & Parental Care - Amphibians
24-Feb	Wednesday	3	Reproduction & Parental Care - Reptiles
26-Feb	Friday	4	Reproductive Ecology - Amphibians & Freaky Friday
1-Mar	Monday	5	Reproductive Ecology - Reptiles
3-Mar	Wednesday	6	Life History - Amphibians
5-Mar	Friday	7	Life History - Reptiles & Freaky Friday
8-Mar	Monday	8	Water Balance/Gas Exchange - Amphibians
10-Mar	Wednesday	9	Water Balance/Gas Exchange - Reptiles
12-Mar	Friday	10	Thermoregulation & Energetics - Amphibians
15-Mar	Monday	11	Thermoregulation & Energetics - Reptiles
17-Mar	Wednesday	12	Anatomy
19-Mar	Friday		Freaky Friday & Exam Review
22-Mar	Monday	EXAM	Exam II
24-Mar	Wednesday		Non-instructional BREAK
26-Mar	Friday	1	Freaky Friday, Exam Review, & Conservation Assessment Introduction
29-Mar	Monday	2	Herptiles in Culture and Society
31-Mar	Wednesday	3	Communication
2-Apr	Friday	4	Spacing/Movement/Orientation & Freaky Friday
5-Apr	Monday	5	Foraging Ecology/Diet - Amphibians
7-Apr	Wednesday	6	Foraging Ecology/Diet - Reptiles
9-Apr	Friday	7	Defense & Freaky Friday
12-Apr	Monday	8	Population structure/dynamics
14-Apr	Wednesday	9	Community Ecology
16-Apr	Friday	10	Freaky Friday & Biogeography
19-Apr	Monday	EXAM	Exam III



<b>21-Apr</b>	<b>Wednesday</b>	<b>1</b>	<b>Amphibians, Reptiles and Mass Extinctions - Herp Superhero Intro</b>
<b>23-Apr</b>	<b>Friday</b>	<b>2</b>	<b>Climate Change and Amphibians</b>
<b>26-Apr</b>	<b>Monday</b>	<b>3</b>	<b>Climate Change and Reptiles</b>
<b>28-Apr</b>	<b>Wednesday</b>	<b>4</b>	<b>Anthropogenic Impacts - Amphibians</b>
<b>30-Apr</b>	<b>Friday</b>	<b>5</b>	<b>Anthropogenic Impacts - Reptiles</b>
<b>3-May</b>	<b>Monday</b>	<b>6</b>	<b>Conservation Biology of Amphibians</b>
<b>5-May</b>	<b>Wednesday</b>	<b>7</b>	<b>Conservation Biology of Reptiles</b>
<b>11-May</b>	<b>Tuesday</b>	<b>FINAL</b>	<b>Conservation Assessment Symposium (7-10PM)</b>

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**Lab Details:** Lab Grade out of 300 points (30% of grade)

**POINT BREAK DOWN:**

Garter snake project:

Proposal worksheet and presentation:	20
Outline:	20
Data collection sheets:	10
Final write-up:	80
Symposium presentation:	20

Worksheets/Activities (5): 5 x 10

Quizzes (5): 5 x 10

Participation (10): 10x 10

Total: 300

**Garter snake project:**

We will complete a scientific research project throughout the course of the semester. This project will be broken down into sections to make it manageable, with a final write up due at the end of the semester. You will learn basics of herpetology all data collection, will come up with your own research questions and hypotheses and analyze your data.

**Worksheets/Activities:**

There will be 5 in lab activities/worksheets that will be completed and turned in before the lab period ends.

**Quizzes:**

There will be 5 quizzes. Quizzes will be on a paper or video assigned to read/watch before the lab period or a previously covered topic. Quizzes will be announced with at least one week of anticipation.

**Participation:**

Participation in this lab will be highly valued and therefore will be 10% of your class grade. Days in which participation will be recorded will be announced at the beginning of the lab period and will be graded on a scale of 1-10pts.

**Attendance:**

Attendance to lab is mandatory and missing lab unexcused is not encouraged. You are responsible for notifying your TA if you will need to miss lab for any reason. Make up work will be assigned if the TA is notified within a reasonable amount of time and will consist of a one page essay and will replace your participation and/or worksheet grade for that week. We

understand we have yet another funky semester and for that reason we are understanding of absences, however it is important to keep an open communication with your instructor.

**Mask etiquette:**

Lab will be held in person and masks are required to be worn properly (over mouth and nose) when in the lab room/building and during the class period when working outside.

Lab #	Date	Topic
1	Feb 2	Introduction to course. Getting to know each other. Introduction to amphibian and reptilian classification.
2	Feb 9	Evolutionary History and characteristics of Amphibians: Caudata, Anura, Gymnophiona
3	Feb 16	Introduction to garter snake project (basics of herpetological data collection), research literature, come up with questions and potential hypotheses
4	Feb 23	Introduce Serpentes Proposal for research question(s) and present to class
5	Mar 2	Tentative first day collecting field data
6	Mar 9	<b>Project collection/data collection/data analysis</b>
7	Mar 16	Thermoregulation and energetics of Larcetilia. Write up outline
8	Mar 23	<b>Project collection/data collection/data analysis</b>
9	Mar 30	Project collection/data collection/ <b>data analysis</b>
10	Apr 6	Foraging ecology Crocodylia. Interpretation of results and discussion topics
11	Apr 13	<b>Non-instructional Day ( No class)</b>
12	Apr 20	Review of Reptilian classification. Free day to move around where needed.
13	Apr 27	Climate change and reptiles
14	May 4	Garter snake project lightning symposium