# BSC 4933 – Mammalogy and Mammalian Evolution

## Spring 2017 Course Syllabus

## College of Arts and Sciences, University of South Florida


**Professor:** Dr. Loren Cassin Sackett (Integrative Biology)
**Office:** SCA 303
**Telephone:** (813) 974-4576
**E-mail:** SackettL@usf.edu


**Office hours:** SCA 303. Mon 3 - 4 pm, Tues 12:30-1:30 pm, and by appointment

**TA:** Jason Richardson, jcricha3@mail.usf.edu

**TA Office hrs:** Tues 12:30-1:30, Thurs 9:45-10:45, SCA 325

**Meeting times:** TR 11 - 12:15 PCD 1146 (lecture), R 1-3:30 **ISA 3070** & **SCA 222** (lab)

**Required Texts:**

- *Mammalogy: Adaptation, Diversity, and Ecology* (4th Edition). 2015. Feldhamer, Drickamer, Vessey, and Merritt. Previous editions **are** acceptable; however, it is your responsibility to ensure you are reading the correct topics.
- You will be provided additional required information (e.g., lab manual, scientific papers) in pdf form.

**Recommended Texts (not required but they will help you be a better mammalogist):**

- Brown, L.N. 1997. *A Guide to the Mammals of the Southeastern United States*. University of Tennessee Press, 236 pp.
- Reid, F.A. 2006. *Peterson Field Guides: Mammals of North America*. Houghton Mifflin. **OR** Tekiela, S. 2010. Mammals of Florida Field Guide. Adventure Publications Inc.
- Jones, J. K., Jr., and R. W. Manning. 1992. *Illustrated key to skulls of genera of North American land mammals*. Texas Tech University Press, Lubbock, iv + 75 pp.
- Borror, D. J. 1988. *Dictionary of word roots and combining forms.* Mayfield, Mountain View, CA, iii +134 pp. Available in print or pdf on Canvas.

**Recommended Free Apps:**

- Map of Life
- iNaturalist

**COURSE DESCRIPTION:**

This course will explore not just WHAT mammals are, but WHY they are. In other words, what ecological and evolutionary forces have led to the world's fascinating array of mammalian wonders? We will explore this question as a learning community through lectures, discussions, lab examination of specimens, field trips, and independent projects. Hold on to your hats – it's going to be a fun, furry, and challenging ride!

**COURSE OBJECTIVES:**

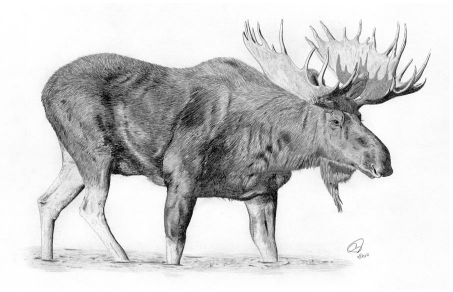
Prerequisites: BSC 2011 Biodiversity AND one of the following
PCB 3063 Genetics

PCB 3712 Physiology
PCB 3043 Ecology
Recommended courses: Evolution and Genetics

**Exams and quizzes.**
There will be three lecture exams in this course, including the final exam. The final will be cumulative, emphasizing broad concepts and patterns from the course. Makeup exams will not be given unless prior arrangements are made. There will be three lab quizzes assessing your knowledge of mammalian body structures and evolutionary relationships. The bulk of the course grade will come from an independent project of your choosing, and from smaller independent projects associated with the lab.

**Research Project.**
One component of your exploration of mammalogy will be an independent inquiry into a mammalogical topic of your choice, with the end goal of answering a scientific question about mammalian ecology or evolution (including mammalian diseases, biogeographic patterns, the evolution of particular genes or traits, etc.). This project can focus on any aspect of mammalogical study; the only primary criterion is that it incorporates at least one of the data sources from the lab. Projects may be conducted individually or in pairs. For more information on this project, please see the project guidelines on Canvas. The Writing Studio (https://www.lib.usf.edu/writing/) is an excellent resource for writing feedback at all levels.

**Other Assignments.**
Other assignments in this course will include a 15-minute presentation on your project, an essay supporting your choice of victor in the 2017 Mammal March Madness competition, and lab assignments designed to introduce you to the resources you will likely find useful for your research projects. See Canvas for more details on each of these. You will have two weeks from the date you receive a grade to ask questions about the exam or assignment during instructor office hours.



**Grading**.
Your grade will be determined as a percentage of total points accumulated out of 1000, as follows:

| | |
|---|---|
| ***Lecture Exams:*** | 200 points |
| ***Lab Quizzes:*** | 150 points |
| ***Research Project:*** | 300 points |
| ***Other Lab Projects:*** | 250 points |
| ***Participation:*** | 100 points |

**Late assignments will be assessed a 10% per day penalty.**

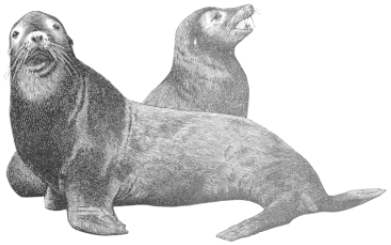
**Participation.**
You are expected to actively participate in your own learning in this class. One component of your grade that is designed to help you do this is mini-assignments associated with each reading in the Feldhamer text. For each chapter, you will:

a) Summarize, in one sentence, the main point of each chapter. List three examples that support this statement.
b) List one fun fact.
c) Generate a hypothesis explaining one of the major patterns described in the chapter.

You should be prepared to discuss your ideas with your classmates at the beginning of each class. For example, if the syllabus requires you to read Ch 11 for class on August 10, you should read the chapter before class, and be prepared to discuss chapter 11 on August 10.

**Grading Scale:**

| | | |
|---|---|---|
| 93-100 | A | (excellent performance) |
| 90-92.9 | A- | |
| 87-89.9 | B+ | |
| 83-86.9 | B | (good performance) |
| 80-82.9 | B- | |
| 77-79.9 | C+ | |
| 73-76.9 | C | (average performance) |
| 70-72.9 | C- | |
| 67-69.9 | D+ | |
| 60-66.9 | D | (poor performance) |
| < 60 | NC | |



**For general policies with respect to the class, please see the IB Instructional Guidelines document which is posted on the IB webpage. Certain aspects of the Instructional Guidelines document are detailed here; other items from Instructional Guidelines also apply.**

**Academic Dishonesty.**

The University of South Florida does not tolerate academic dishonesty of any kind. All university policies apply to all aspects of this course. Any observed dishonesty will be sanctioned. You will be submitting your papers through Turnitin, a plagiarism detection software, via Canvas. You will only be permitted to submit each assignment once.

From the IB Instructional Guidelines,

"This course requires you to submit your paper to a plagiarism detection site that will be identified by your instructor. In order to comply with federal (FERPA) and state privacy laws, you (students) are not required to include personal identifying information such as your name, SSN, and/or U# in the body of the work (text) or use such information in the file naming convention prior to submitting. Please follow carefully your instructor's instructions regarding what identifying information to include. Your submission will be placed in the course grade center in your account that can be accessed by the instructor and attributed to you."

WHAT IS PLAGIARISM?

1. quoting a book, article, webpage without enclosing the quote in quotation marks and citing the source
2. paraphrasing a book, article, webpage without citing the source
3. paraphrasing poorly (e.g., replacing a few key words but maintaining sentence structure) and **citing** the source. PARAPHRASE WITH CARE.

For more info, see http://www.lib.usf.edu/public/index.cfm?Pg=Plagiarism

If a student is suspected of plagiarism, they will be issued one warning and asked to re-write that assignment. If an incident of plagiarism is detected again in a student's work the professor reserves the right to fail them outright in the class and assign them a "FF" grade for the course.

In this course, all quizzes and exams will be closed to texts and notebooks, and they will have a time limit. You are expected to perform your own work on all exams and assignments, and to appropriately acknowledge all sources used in your oral and written work. Remember that it is your responsibility to clarify any ambiguous situations—if you are uncertain what to do, ask me.

**Emergency procedures (quoted from "Integrative Biology Instructional Guidelines):**

"In the event of an emergency, it may be necessary for USF to suspend normal operations. During this time, USF may opt to continue delivery of instruction through methods that include but are not limited to: Canvas, Elluminate, Skype, and email messaging and/or an alternate schedule. It's the responsibility of the student to monitor Canvas site for each class for course specific communication, and the main USF, College, and department websites, emails, and MoBull messages for important general information."

**Please assume class will be held as scheduled unless notified that the university is closing.**

**Religious observance policy:**

- Students who anticipate the necessity of being absent from class due to the observation of a major religious observance must provide notice of the date(s) to me, in writing, by the second class meeting.

**Additional accommodations:**

- Students in need of academic accommodations for a disability may consult with Students with Disabilities Services to arrange appropriate accommodations. Students are required to give reasonable notice prior to requesting an accommodation.

**Electronic devices:**

- Use of recorders to enhance notetaking by individuals is permitted. However, using such devices to generate notes which will be sold to other students is PROHIBITED and considered a form of academic dishonesty. Students who are discovered using their recorders in this manner will be given an F in the course.
- Programmable calculators, laptop computers, and PDAs are permitted in this class.
- Cell phones must be silenced during class to prevent disruption.

**Disruption of the Academic Process:**

- Disrupting class will not be tolerated; the penalty for doing so ranges from verbal reprimand to dismissal from class, depending on the seriousness of the incident.

**Email Policy.**

You are free to email me at any time. However, I cannot guarantee a timely response on weekends or after 6 pm on weekdays.

**Lab Safety.**

Students will be asked to leave the lab if they fail to comply with departmental safety standards. All university policies apply to all aspects of this course. Any observed dishonesty will be sanctioned. You will be required to sign a lab safety form within the first two weeks of lab.

**Sexual Misconduct.**

USF is committed to providing an environment free from sex discrimination, including sexual harassment and sexual violence (USF System Policy 0-004). The USF Center for Victim Advocacy and Violence Prevention is a confidential resource where you can talk about incidents of sexual harassment and gender-based crimes including sexual assault, stalking, and domestic/relationship violence. This confidential resource can help you without having to report your situation to either the Office of Student Rights and Responsibilities (OSSR) or the Office of Diversity, Inclusion, and Equal Opportunity (DIEO), unless you request that they make a report.

Please be aware that in compliance with Title IX and under the USF System Policy, educators must report incidents of sexual harassment and gender-based crimes including sexual assault, stalking, and domestic/relationship violence. If you disclose any of these situations in class, in papers, or to me personally, I am required to report it to OSSR or DIEO for investigation. Contact the USF Center for Victim Advocacy and Violence Prevention: (813) 974-5757.

**University Writing Center.**
The University Writing Center is a free resource for USF undergraduates and graduates. At the UWC, a trained writing consultant will work individually with you on anything you're writing (in or out of class), at any point in the writing process from brainstorming to editing. Appointments are recommended, but not required. For more information or to make an appointment, visit the UWC website at http://www.lib.usf.edu/writing, stop by LIB-125, or call 813.974.8293.

## (Tentative) Course Schedule*

*Please note that this schedule is subject to change – you will be informed of alterations as they become necessary. NOTE: All readings are associated with the day for which they are listed and should be read the night before. Additional pdf readings will be posted on Canvas. 'Text' = Feldhamer et al. Mammalogy text; 'Lab' = pdf Lab readings on Canvas. Assignments are due at the beginning of class.

| Date | Lecture | Lab | Reading | Assignments |
|---|---|---|---|---|
| *10-Jan* | Intro to and history of mammalogy | | Text Ch 1 & 2 | |
| *12-Jan* | What is a mammal? Why is a mammal? | ISA 3070: Integument, claws, horns; locomotion | Text Ch 3<br>Lab Ch 1, 5, 6, 7 & 8 | |
| *17-Jan* | Mammalian skin, derivatives | | Text Ch 7 | |
| *19-Jan* | Dentition; Paleomammals | SCA 222: VertNet exploration & assignment | Text Ch 5<br>http://www.vertnet.org/about/about.html<br>https://en.wikipedia.org/wiki/Wallace_Line | |
| *24-Jan* | Mammalian homeostat | | Text Ch 9 | |
| *26-Jan* | Mammalian reproduction | ISA 3070: Skulls, dentition; scats, tracks & sign | Text Ch 11<br>Lab Introduction; Lab Ch 3, 4 & 9 | **DUE:** VertNet Homework |
| *31-Jan* | Locomotor & Foraging adaptations | | Text Ch 8 | |
| *2-Feb* | Biogeography and FL History | SCA 222: Citizen Science: Zooniverse, SciStarter, etc. | Text Ch 6 & 4 | **DUE:** LAB QUIZ 1 |
| *7-Feb* | Interpreting phylogenies; ***Adaptation***; logistics about field trip (leave at end of exam or at lab time? Other drivers? Print out lab assignment if you don't do it electronically) | | Text Ch 10 | |
| *9-Feb* | **Exam 1 (75 points)** | **FIELD TRIP:** Apollo Beach manatee viewing | | **DUE:** EXAM |
| *14-Feb* | Monotremes & Marsupials | | Text Ch 12 | |
| *16-Feb* | Laurasiatheria I: Eulipotyphyla | ISA 3070: Mammalian Orders, Part I | Text Ch 13<br>Lab Ch 11 | **DUE:** Citizen Science HW |
| *21-Feb* | Taxonomy and Morphological Evolution (Bryan McLean) | | Text Ch 3 | |
| *23-Feb* | Laurasiatheria II: Cetartiodactyla: Hippos & Cetacea; Tragulidae, Giraffidae, Antilocapridae | SCA 222: Global Mammal Parasite Database | Ch 20 morphology, fossils, economics; Whippomorpha; Ch 21 | |
| *28-Feb* | Laurasiatheria III: Cetartiodactyla: Bovidae, Cervidae, Camelidae, Suidae, Moschidae | | Ch 20 remainder of Artiodactyla | |
| *2-Mar* | Mammalian Diseases lecture + discussion on Ezenwa et al. 2008 paper + interpretation of figures | SCA 222: **M**ammal **M**arch **M**adness | Text Ch 28; Ezenwa et al. 2008 paper | **DUE 03/05:** 2017 MMM victor selection & justification |

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| *7-Mar* | Laurasiatheria IV: Perissodactyla, Chiroptera; How to use the literature correctly (appropriate sources) | | Text Ch 14, Ch 14: Perissodactyla | |
| *9-Mar* | Laurasiatheria V: Carnivora & Pholidota (pangolins); practice interpreting figures | ISA 3070: Mammalian Orders, Part II | Text Ch 17, Ch 16: Pholidota<br>Lab Ch 11 | **DUE:** Parasite database 1+ taxa |
| *Week of Mar 13* | **Spring break: NO CLASS** | **Spring break: NO LAB** | | |
| *21-Mar* | meet with Loren and Jason re: projects | | | **DUE:** Well planned-out project idea w/ proposed methods |
| *23-Mar* | Euarchontoglires I: Glires = Rodents, Lagomorphs, Scandentia (Tupaiidae/Ptilocercidae) | SCA 222: eMammal and Camera Trapping | Text Ch 18; Ch 13: Scandentia<br>Lab Ch 2 | **DUE:** LAB QUIZ 2 |
| *28-Mar* | Euarchontoglires II: Primates, Colugos (Dermoptera) | | Ch 15; Ch 13: Dermoptera | |
| *30-Mar* | Afrotheria (Tenrecoidea, Macroscelidea, Tubulidentata, Sirenia, Hyracoidea, Proboscidea) | ISA 3070: Mammalian Orders, Part III | Text Ch 13: Tenrecoidea, Macroscelidea; Ch 16: Tubulidentata; Ch 19<br>Lab Ch 11 | **DUE:** Project Introduction (rough draft) |
| *4-Apr* | Xenarthra (sloths, anteaters, armadillos) | | Text Ch 16: Pilosa, Cingulata | |
| *6-Apr* | Mammalian Evolution & Conservation | SCA 222: Trait mapping on phyologenies using PhyTools | Text Ch 30 | **DUE:** Catalog a no-data specimen |
| *11-Apr* | **Exam 2 (75 points)** | | | **DUE:** EXAM |
| *13-Apr* | Behavior, Life history | ISA 3070: Florida Mammal genera | Text Ch 22, 24, 26<br>Lab Ch 12A | |
| *18-Apr* | Dispersal, Community Ecology; Mating Systems, Parental Care, Sexual Selection | | Text Ch 23, 25, 27 | |
| *20-Apr* | [#]**SPECIAL SEMINAR:** Molly McDonough, Smithsonian Institution 3:30 - 4:30, CMC 147 | **Lab Final Quiz** | | **DUE:** Lab FINAL QUIZ |
| *25-Apr* | **Presentations** and evaluations (please bring your phone!) | | | **DUE:** Project Presentations |
| ***26-Apr*** | **[No class - last day of classes]** | | | **DUE:** Final Project |
| *2-May* | **Final Exam (50 points), 10 a.m. - 2 p.m.** | | | **DUE:** Final Project Revisions if any |

[#] **This seminar takes the place of the regularly scheduled lecture for this day. I will take attendance at this seminar as part of your participation grade. If you cannot attend, please see me for alternate arrangements.**