

Mammalogy

Fall

2019

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hours: stop by if I'm
around!

Class Times

Tuesdays and Thursdays
from 1:00 - 1:50 in TNR
170. All labs meet in TNR
457. Section 1: Thurs 8-10
/ Section 2: Friday 8-10 /
Section 3: Thurs 10-12

Resources

Required textbook:
Mammalogy by
Feldhammer et al. /
Mammals of the Great
Lakes Regions by Kurta

What will we do in mammalogy and what will I learn?

“The scientist is not the person who gives the right answers, he is the one who asks the right questions.” – Claude Levi-Strauss

The lecture portion of the course has two primary objectives. First we will engage the mammals, primarily through lectures and discussions focusing on mammal structure and function, diversity, ecology, behavior, and biogeography. Second we will engage ourselves by working on skills that matter in the marketplace. The laboratory portion of the course will focus on mammalian diversity through the study of museum material, pictures, video, and primary literature. Efforts will be made to cover mammals of Wisconsin, North America, exotic mammals popular in zoos, as well as interesting mammals from around the world. Based on feedback from prior students we will be using Desire2Learn (D2L) to help prepare for laboratory practicals and to organize course materials.



Learning Outcomes

Examine mammal specimens and describe similarities and differences in order to distinguish, classify, and name them.

Solve problems individually and in groups related to laboratory and lecture assignments.

Research, analyze, and organize scientific data.

Communicate effectively, in writing and speaking, how to ask good scientific questions, how to design an experiment and test hypotheses, and how to present results in a public forum.



“There have only been about a half dozen genuinely important events in the four-billion-year saga of life on Earth: single-celled life, multi-celled life, differentiation into plants and animals, movement of animals from water to land, and the advent of mammals and consciousness.”

- Elon Musk (CEO Space X, Tesla, odd duck)

Mammalogy and the Bigger Picture

UWSP offers one of the few mammalogy courses in the state and one of the largest, in terms of enrollment, in the country. Skills learned in mammalogy are applicable to the fields of wildlife management, epidemiology and zoonotic disease transmission, systematic biology, animal control, and the behavioral sciences.

This course fulfills 3 credits of 300 level course work towards the Forty Credit Rule. The course also fulfills an elective requirement for the Biology Major (advanced animal biology), an elective requirement for the Environmental Education and Interpretation option for the Resource Management Major, an elective requirement for the Wildlife Ecology Major, and an elective requirement for the Wildlife and Conservation Biology Minors.

Grading

Your grade in this class is determined by 3 laboratory practicals, a bioacoustics research activity, daily notes uploaded to Canvas, 5 challenges, and 2 exams. The lab practicals are worth 50 points each ($50 \times 3 = 150$ points), and the research activity is worth 100 points. Lecture notes will be graded 20 times during the semester and each be worth 5 points ($20 \times 5 = 100$ points). Download note outlines from Canvas and use your textbook to fill in pertinent information. You will upload your notes to Canvas and can print a copy to bring to class. By completing notes before class everyone should know what we're talking about and be prepared to discuss the topic in class. Notes that are uploaded late will receive 0 points. There will be two non-cumulative lecture exams each worth 100 points ($100 \times 2 = 200$ points). Finally, there will be 5 challenges worth 10 points each ($5 \times 10 = 50$ points). Thus, a total of 600 points can be earned in this class. The final points will be added up, divided by 600, and multiplied by 100; the percentage obtained will determine your grade.

Bioacoustics Assignment (100 points)

Why? (watch *Start With Why* TED talk by Simon Sinek)

It turns out that employers are not interested in your ability to complete a lab assignment or dazzle them with your knowledge of skull bones and scientific names. They are looking for good communication skills, the ability to work in teams, positive attitude, and problem solving skills. Knowing what employers are looking for in college graduates is important since it offers you, the student, the opportunity to work on these basic skills in all of your classes. Employers will give you specific projects to work on and you will be expected to solve problems, present findings, and make recommendations. You are only valuable to the company if your solutions work. Knowing this, the student that does not take a classroom assignment seriously does so at their own peril, and worse, the peril of the team.

College is a four-year job interview. One of the most profound trends over the past few decades has been a sharp shift toward scientific teamwork. We rely on group

creativity because we live in a world of very hard problems and many of the most important challenges exceed the capabilities of the individual imagination (read *Imagine* by Jonah Lehrer). Because the best research now emerges from groups (consider the author lists from any primary literature paper you read this semester), the student that resists working in groups risks not developing a number of important job skills. Susan Cain, author of *Quiet: The Importance of Introverts in the Workplace* also believes it's vital for individuals to work on problems alone before coming to the group. This assignment is designed to develop skills employers are interested in. You will be asked to think creatively as an individual, think creatively as a team, bring your unique perspective to the team, be held accountable by the team, solve problems, and communicate findings.

[Continued...](#)

ATTITUDE

Nothing can stop the person with the right mental attitude from achieving their goal; nothing on earth can help the person with the wrong mental attitude. Thomas Jefferson

From Darwin's Journal or Researches December 7th, 1834, Chiloe Island, Chile

7th In the morning we stopped for a few minutes at a house at the extreme North point of Is^d of Laylec. This was the last house; the extreme point of S. American Christendom; & a miserable hovel it was. — The latitude is about 43° 10', which is considerably to the South of the R. Negro on the Atlantic coast of America. The people were miserably poor & as usual begged for a little tobacco. — I forgot to mention an anecdote which forcibly shows the poverty of these Indians; some days since, we met a man who had travelled 3 & ½ days on foot, on bad roads, & had the same distance to return to recover the value of an axe & a few fish! How difficult it must be to buy the smallest article, where such trouble is taken to recover so small a debt. — We had a foul wind & a good deal of swell [502] to struggle with, but we reached the Island of S. Pedro, the SE extremity of Chiloe, in the evening. When doubling the point of the harbor, M^{rs} Stuart & Osborne landed to take a round of angles. — A fox (of Chiloe, a rare animal) sat on the point & was so absorbed in watching their mænœvres, that he allowed me to walk behind him & actually kill him with my geological hammer.



How?

It begins with questions. The pioneering anthropologist Claude Levi-Strauss said a scientist isn't the person that gives the right answers, he's the one who asks the right questions. Asking good questions takes lots of practice. The ability to translate observations from nature into questions that can be answered defines scientific creativity. If you are wondering if you should go to graduate school, you need to ask yourself, "Do I ask good questions? What questions interest me?" A good scientific paper begins with a good question (usually found in the introduction) and ends with more good questions (usually found in the discussion). Once you have decided on a list of questions, you need to collect the data to address the questions. In this exercise you will use bat acoustic data collected at the Marshfield Zoo in collaboration with TWS. I also have data from Chamber's Island that has never been seen.

What?

You will develop your question and make a final presentation to the class. I will provide you with a rubric of what I will be looking for in the presentation.

Assessment

This assignment is worth 100 points; the equivalent of a full exam grade or 2 lab exams. It's nearly 20% of your final grade in the class.

Team Challenge (10 points): We will introduce the question in class and you will complete the homework assignment during the week. You should work together as a group but hand in individual papers. This will be graded as a challenge but is part of your team work (see next item).

Group participation points (25 points): This idea comes from years of putting students in groups and having to hear complaints that one or two people are doing all the work. Then I watched The Last Lecture by Randy Pausch (check it out - very inspirational) and learned that he always incorporated a peer assessment element into his group projects. This can be very difficult, as it requires a certain amount of subjectivity that does not come naturally for most people. The natural thing to do is to reward your friends and to punish your enemies, or to work out a deal that is equitable for all (pay attention to the Social Behavior lecture for strategies). You will assign each teammate, including yourself, a score between 1 (not helpful) to 5 (very helpful) so that each student has a maximum of 25 points for this section (based on a 5-member team).

Team points (50 points): *Alienus Non Diutius* is Latin for "Alone no longer". It is displayed prominently at Pixar, one of the most innovative and creative movie studios in the world. My brother's ex-girlfriend worked for Pixar on *The Incredibles* (he's married now to the librarian at the Sierra Club, an even cooler job!), and as I watched the credits looking for her name the number of people that worked on that movie impressed me. That individual product required a lot of teamwork (my wife and I always stay for the credits - we paid for them 😊). Your team will receive a group grade for the project, meaning all members of the team will get the same grade. The 50 points will be assigned as follows:

10 points for showing up the day of the presentation (it's a priority thing); 30 points for the organization and quality of the presentation; 10 points for the final presentation to the class (see rubric).

Academic Dishonesty: Any form of cheating on exams, homework, or any misrepresentation of your work will result in zero (0) points being recorded for that graded component of the course. **This includes plagiarism of published works or fellow students. Please see me for any clarification on what constitutes plagiarism if you have doubts.** All students are required to adhere to the standards outlined by UWS/UWSP Chapter 14, Student Academic Standards and Disciplinary Procedures which can be found at the following web address: <http://www.uwsp.edu/admin/stuaffairs/rights/rightsChap14.pdf>

"If you want something done right, then ask a mammalogist to do it."

- James S. Findley



How do I succeed in this course?

The first key to success in this course is getting into the rhythm of assigned reading, upload class notes to D2L, attend and participate in lectures, download and read lab materials, attend and participate in labs, and rise to the challenges. This rhythm alone will get you 150 “free” points. This might be short of the axiom that 95% of success is simply showing up, but it’s a start.

The second key to success is embracing the material and the assignments. If you grudgingly work at a class you are probably interested in, what will happen when your employer gives you a task that does not challenge you? Attitude matters and college is a relatively safe place to work on attitude.

Finally, you will probably have to study - [stupid college classes©!] Organismal biology courses like this have lots of names to memorize. With each specimen in lab, think about potential questions I could ask. I give essay exams in lecture so look for 2 or 3 big ideas from each lecture that could be the basis of an essay question.

Date	Topic	Chapter	
September	3	<i>Psychedelic haiku bat hand challenge</i>	
	5	Phylogeny and diversification of mammals	4
	5/6	Lab 1: Handling and use of museum collections	
		Bones and dental formula	
	10	Monotremes and Marsupials	12
	12	Foods and feeding	8
	12/13	Lab 2: Monotremes and Marsupials	
	17	Insectivores	13
	19	Locomotion	7
	19/20	Lab 3: Insectivores	
	24	Echolocation	14
		<i>Marshfield Zoo bats challenge</i>	
	26	Communication, aggression, spatial relations	22
	26/27	Lab 4: Chiroptera	
October	1	Environmental adaptations	10
	3	Reproduction	11
	3/4	Lab 6: Pilosa, Cingulata, Pholidota, Tubulidentata, Primates	
	8	Dillos, anteaters, sloths, pangolins, and aardvarks	16
	10	Biological Rhythms	9
	10/11	Lab 5: Lab Practicum I (through Chiroptera)	
	15	Sexual selection, parental care, and mating systems	23
	17	EXAM I	
	17/18	Lab 7: Marine mammals	
	22	Carnivora	17
	24	<i>Conceptual blending and the marten challenge</i>	
	24/25	Lab 8: Carnivora	
	29	Social behavior	24
	31	Dogs and more dogs video	
31/1	Lab 9: Lab Practicum 2		
November	5	Primates	15
	7	Dispersal, habitat selection, and migration	25
	7/8	Lab 10: Primates	
	12	Rodentia and Lagomorpha	18
	14	Populations and life history	26
		<i>Chamber's Island mouse challenge</i>	
	14/15	Lab 11: Rodentia and Lagomorpha I	
	19	Community ecology	27
	21	Parasites and Diseases	28
		<i>White-nose syndrome team challenge</i>	
	21/22	Lab 12: Rodentia and Lagomorpha II	
	26	Perissodactyla and Artiodactyla	
	28	Thanksgiving Break	
	28/29	Thanksgiving Break	
December	3	Zoogeography	6
	5	Presentations I	
	5/6	Lab 13: Perissodactyla and Artiodactyla	
	10	Presentations II	
	12	Presentations III	
	12/13	Lab 14: Final Lab Practicum	
	17	Final Exam – 8:00 – 10:00 (Tuesday)	

The top 10 skills employers say they seek in college graduates in order of importance.

1. Ability to work in a team.
2. Ability to make decisions and solve problems.
3. Ability to plan, organize and prioritize work.
4. Ability to communication with people inside and outside an organization.
5. Ability to obtain and process information.
6. Ability to analyze quantitative data.
7. Technical knowledge related to the job.
8. Proficiency with computer software programs.
9. Ability to create and / or edit written reports.
10. Ability to sell and influence others.

Source: The National Association of Colleges and Employers (NACE)



“Individual commitment to a group effort - that is what makes a teamwork, a company work, a society work, a civilization work.”
- Vince Lombardi

If updates are made to this syllabus the most recent syllabus will be posted on D2L. I will also send any updated syllabus to the class via email as an attached file.

Is College Worth It? It depends on what Gallup refers to as the “Big Six”. Graduates who had the following six experiences perform better on measures of long-term success compared with graduates who missed the mark on these experiences:

1. A professor who made them excited about learning.
2. Professors who cared about them as a person.
3. A mentor who encouraged them to pursue their goals and dreams.
4. Worked on a long-term project.
5. Had an internship where they applied what they were learning.
6. Were extremely involved in extra-curricular activities.

Source: “Big Six” College Experiences Linked to Life Preparedness by Sean Seymour and Shane Lopez, April 2015, Gallup.com.