A. COURSE INFORMATION
Course number/section: BIOL 5410.001; BIOL 5410.101(lab)
Class meeting time: Lecture – TR 8-9:15
Lab – F 9-11:50
Class location: Lecture – CS 103
Lab – ECMS 114
Course website: Blackboard

B. INSTRUCTOR INFORMATION
Instructor: Kim Withers
Office location: NRC 3205
Office Hours: 10-12 MW, 1-2 T
Telephone: 825-5907
Email: Kim.Withers@tamucc.edu
Appointments: Call to set up an appointment outside of office hours

C. COURSE DESCRIPTION
Catalog Course Description
4 sem. hrs. (3:3)
Systematics and ecology of mammals. Prerequisite: BIOL 1407 - Biology II; (BIOL 3414 - Vertebrate Zoology is also recommended). Corequisite: Safety training given in SMTE 0091 - Biological Laboratory Safety Seminar is required for continued participation in this course. Offered fall semester of even-numbered years.

Extended Course Description
In this course we will explore mammalian origins, structure and function, ecology, behavior, and conservation and survey mammalian diversity. In the laboratory, students will learn to identify mammals using skulls and skins as well as learning about and practicing a variety of techniques used to study mammals in the field. Extensive field and lab work are required; field trips required. Graduate students will propose and conduct a field study on some aspect mammalian ecology or behavior

D. PREREQUISITES AND CO-REQUISITES
Prerequisites
BIOL 1407 Biology II

Corequisite
SMTE 0091 Biological Laboratory Safety Seminar

E. REQUIRED TEXTBOOKS, READINGS, & SUPPLIES
Required Textbooks


Other Required References
Additional readings from the primary literature and other sources will be assigned throughout the semester.

**Required Supplies**

1. Lab Coat
2. Field and Lab Notebook: MUST be a Rite in the Rain, Level pattern, side-spiral, No. 313
   [http://www.riteintherain.com/side-spiral-level-4-5-8-x-7](http://www.riteintherain.com/side-spiral-level-4-5-8-x-7); purchase at Amazon.
3. Stopwatch or stopwatch app (a real stopwatch is probably easier)
4. GPS app

**F. STUDENT LEARNING OUTCOMES AND ASSESSMENT**

By the end of this course, students should:

1. DEMONSTRATE knowledge of the biology and ecology of mammals
2. UNDERSTAND the biotic and abiotic interactions that shape mammalian communities
3. UNDERSTAND the challenges and opportunities for mammal conservation
4. DEMONSTRATE competence in field methods for surveying mammalian populations
5. DEMONSTRATE the ability to identify mammals by sight or from remains such as skulls, skins, scat, or tracks
6. PLAN & CARRY OUT a field study on some aspect of mammalian ecology or behavior
7. COMMUNICATE the results of the field study orally and in writing

**G. INSTRUCTIONAL METHODS & ACTIVITIES**

Lecture, readings with discussion, and case studies will be the bulk of the “lecture” portion of the course. For the lab, there will be a mix of in laboratory and field exercises, largely focused on learning techniques for identification of mammals and quantifying their populations. Graduate students will exhibit leadership in the lecture by preparing and/or presenting a case study.

**H. MAJOR COURSE REQUIREMENTS & GRADING CRITERIA**

<table>
<thead>
<tr>
<th>Element</th>
<th>Student Learning Outcome</th>
<th>Points (% of Grade)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture Exams (2 [midterm, final] @ 100 pts each)</td>
<td>1, 2, 3</td>
<td>200 (21)</td>
</tr>
<tr>
<td>Prepare/present case study (1@ 50 pts)</td>
<td>1, 2, 3</td>
<td>100 (10.5)</td>
</tr>
<tr>
<td>Lab Assignments (various) (4 @ 50 pts each)</td>
<td>4, 5</td>
<td>200 (21)</td>
</tr>
<tr>
<td>Lab Exams (2 @ 100 pts each)</td>
<td>4, 5</td>
<td>200 (21)</td>
</tr>
<tr>
<td>Field Study Proposal (1@50 pts)</td>
<td>6</td>
<td>100 (10.5)</td>
</tr>
<tr>
<td>Field Study Presentation &amp; Paper (1@ 150)</td>
<td>7</td>
<td>150 (16)</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>950</strong></td>
</tr>
</tbody>
</table>

Grades will be assigned as follows:
A = 90% or greater
B = 80-89%
C = 70-79%
F = <70%
I. COURSE CONTENT/SCHEDULE (TENTATIVE)

I RESERVE THE RIGHT TO ALTER THE LECTURE OR LAB SCHEDULE AT ANY TIME

LECTURE SCHEDULE & READING ASSIGNMENTS

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture</th>
<th>Reading (Vaughan et al., 6th edition unless otherwise noted)</th>
</tr>
</thead>
</table>
| 1 (8/25) | Introduction, Origins, Classification, Diversification | Chapters 1-4  
See also Chaps. 1-3, Martin et al. |
| 2 (8/30, 9/1) | Evolution & Dental Characteristics  
Biogeography | Continue, Chapter 25 |
| 3 (9/6, 8) | Integument, Support & Locomotion  
Feeding | Martin et al. Chap 4, 7  
Chapter 24 – Foraging Behavior |
| 4 (9/12, 14) | Biological Rhythms  
Environmental Adaptations | Chapter 24 – Activity Rhythms  
Chapter 21 |
| 5 (9/19, 21) | Reproduction  
Mating Systems | Chapter 20  
Chapter 24 – Mating Systems,  
Parental Care |
| 6 (9/26, 28) | Communication  
Monotremata, Metatheria | Chapter 22, Chapter 24 –  
Communication  
Chapters 5-6  
Martin et al. Chapter 10-11 |
| 7 (10/3, 5) | Intro to Eutherians  
Chiroptera | Chapter 7, Chapter 15  
Martin et al. Chapter 14 |
| 8 (10/10, 12) | Mid-term (Tuesday)  
Primates | Chapter 12, Martin et al. Chapter 16 |
| 9 (10/17, 19) | Xenarthrans (Cingulata, Pilosa, Pholidota)  
Carnivora | Chapters 10, 16  
Martin et al. Chapters 17-19 |
| 10 (10/24, 26) | Rodentia, Lagomorpha  
Proboscidea (Paengulata) | Chapters 9, 13  
Martin et al. 22-23, 25 |
| 11 (10/31, 11/2) | Perissodactyla, Artiodactyla  
Cetacea | Chapters 17-19  
Martin et al. 20, 26-27 |
| 12 (11/7, 9) | Parasites/Diseases,  
Case Study – White-nose syndrome | Chapter 28 |
| 13 (11/15, 17) | Domestication  
Conservation | Chapters 26-27 |
| 14 (11/21) | Continue, Thanksgiving | |
| 15 (12/5) | Conservation Case Study | |
| Monday, 12/12 | Final Exam = Exam 3 + Comprehensive Terminology (from lab) | |

LAST DAY TO DROP IS FRIDAY NOVEMBER 11, 2016 BEFORE 5 PM.
<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (8/26)</td>
<td>Introduction, Projects</td>
<td></td>
</tr>
<tr>
<td>2 (9/2)</td>
<td>Skull anatomy and terminology Keys, keying</td>
<td>Martin et al. Chapter 2, 8, 9 Ryan Chapter 1</td>
</tr>
<tr>
<td>3 (9/9)</td>
<td><strong>Due: Short write-up of Skull exercise</strong> Teeth, Dental Formulas</td>
<td>Martin et al. Chapter 3, 10, 11 Ryan Chapter 2</td>
</tr>
<tr>
<td>4 (9/16)</td>
<td>Diversity I – Monotremes, Marsupials, Insectivores, Macroscelidea, Tubulidentata, Xenarthrans, Pholidota, Dermoptera, Chiroptera, Primates Mark-Recapture methods &amp; calculations</td>
<td>Martin et al. Chapters 10-14, 16-18, 21, 24 Ryan Chapters 6, 7, 9 Martin et al. Chapter 36</td>
</tr>
<tr>
<td>5 (9/23)</td>
<td><strong>Due: Short write-up of mark-recapture exercise</strong> Diversity I – Continue Behavioral observations</td>
<td>Ryan Chapter 13</td>
</tr>
<tr>
<td>6 (9/30)</td>
<td>Diversity I – Continue Optimal Foraging Behavior</td>
<td>Ryan Chapter 14</td>
</tr>
<tr>
<td>7 (10/7)</td>
<td><strong>Due: Short write up of optimal foraging behavior exercise</strong> Field Trip – Gladys Porter Zoo Turn in Ethogram at the end of the trip</td>
<td>Review Ryan Chapter 13</td>
</tr>
<tr>
<td>8 (10/14)</td>
<td>Lab Exam I: Diversity I</td>
<td></td>
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<tr>
<td>9 (10/21)</td>
<td>Diversity II – Carnivores, Subungulates (Proboscidea et al. [Paengulata], Rodentia, Lagomorpha, Ungulates (Perissodactyla, Artiodactyla), Cetacea</td>
<td>Martin et al. 19, 20, 22, 23, 25-27</td>
</tr>
<tr>
<td>10 (10/28)</td>
<td>Live trapping &amp; Measurements Diversity II – Continue</td>
<td>Ryan Chapter 5</td>
</tr>
<tr>
<td>11 (11/4-11/6)</td>
<td>Field Trip: Kickapoo Caverns State Park Animal Sounds – Bat Detector, spotlighting, tracks, etc.</td>
<td>Martin et al. Chapter 29-30</td>
</tr>
<tr>
<td>12 (11/11)</td>
<td>GPS Tracking Exercise Grad Student Project Presentations Diversity II Continues</td>
<td>Ryan Chapter 11</td>
</tr>
<tr>
<td>13 (11/18)</td>
<td><strong>Due: GPS Tracking Exercise</strong> Diversity II Continues</td>
<td>Martin et al. Chapter 35</td>
</tr>
<tr>
<td>14 (11/25)</td>
<td>No Lab, Thanksgiving <strong>Due: Project Paper – In class, 11/22</strong></td>
<td></td>
</tr>
<tr>
<td>15 (12/2)</td>
<td>Lab Exam II – Diversity II</td>
<td></td>
</tr>
</tbody>
</table>
J. COURSE POLICIES

Attendance/Tardiness
You are expected to attend every lecture and lab. Courtesy dictates that you will be on time for lecture and lab. For case studies and associated discussion activities you will not get credit for the in-class portion if you do not attend class that day.

For field trips off campus **YOU WILL BE LEFT BEHIND IF YOU ARE NOT ON TIME.**

Late Work and Make-up Exams
Late work is not accepted – this includes losing your opportunity to take the quiz if you are late to lab and leaving lab without turning in your daily worksheet.

For case studies and associated discussion activities you will not get credit for the in-class portion of the activity if you do not attend class that day. This kind of activity cannot be made up.

Make-up lecture exams are only given in the case of extreme circumstances, such as hospitalization or death. Documentation of the circumstances through the appropriate on-campus division will be expected and arrangements must be made **PRIOR** to the exam for a make-up exam to be given.

There are **NO** make-ups for lab exams, including quizzes.

There is **NO** alternate credit given for the field trip. You must attend the field trip to get credit.

Extra Credit
There is **NO** such thing as “extra credit” in this class. In the words of Spongebob Squarepants and Mrs. Puff:

Spongebob: “Mrs. Puff, I don’t feel like I really did anything.”
Mrs. Puff: “That’s how extra credit is supposed to feel.”

For more about my attitude toward extra credit, see this article by Jack Slay Jr. [http://chronicle.com/article/No-Extra-Credit-For-You/44956](http://chronicle.com/article/No-Extra-Credit-For-You/44956)

Cell Phone Use
Please turn off and stow your cell phone when you come to class.

Laptop Use
Many studies have shown that laptops in the classroom are mostly a distraction (to both you and the people around you); this article describes some of the issues [http://www.newyorker.com/tech/elements/the-case-for-banning-laptops-in-the-classroom](http://www.newyorker.com/tech/elements/the-case-for-banning-laptops-in-the-classroom). You may get more words than when you take notes on the computer but the increased number of words does not translate into better grades on quizzes or tests.

While more words were recorded, with more precision, by laptop typists, more ended up being less: regardless of whether a quiz on the material immediately followed the lecture or took place after a week, the pen-and-paper students performed better. The act of typing effectively turns the note-taker into a transcription zombie, while the imperfect recordings of the pencil-pusher reflect and excite a process of integration, creating more textured and effective modes of recall. D. Rockmore, “The Case for Banning Laptops in the Classroom” *The New Yorker*, 6 June 2014.

I think you are generally better off to take notes by hand and transcribing them later. I will tolerate laptop use in class as long as you limit yourself to taking notes. I will also ask that if you use a laptop you sit in a particular area of the classroom so that you do not distract other students and so that I can more easily monitor your laptop use. If I see you are doing other things, like surfing the web, I will ask you to turn the laptop off.
Food in Class

Food or drinks are allowed in the lecture classroom, but cannot be taken into the lab.

Missed Exam

See “Late Work and Make-up Exams” policies above.

K. COLLEGE & UNIVERSITY POLICIES

Academic Integrity (University)

It is expected that university students will demonstrate a high level of maturity, self-direction, and ability to manage their own affairs. Students are viewed as individuals who possess the qualities of worth, dignity, and the capacity for self-direction in personal behavior.

See Full University Policy at http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity

Deadline for Dropping a Course with a Grade of W (University)

The grade of W will be assigned to any student officially dropping a course by Friday, November 11, 2016. No student is eligible to receive a W without completing the official drop process by this deadline. Visit the Office of the University Registrar for the Course Drop Form that must be submitted. After November 11, 2016 a student will not be allowed to drop a course.

Grade Appeals (College of Science and Engineering)

As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage at http://sci.tamucc.edu/students/GradeAppeal.html. For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

Disability Services (http://disabilityservices.tamucc.edu/)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

Statement of Academic Continuity

In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

GENERAL DISCLAIMER

I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.