VERTEBRATE ZOOLOGY
(BIOL 3414)
TEXAS A&M UNIVERSITY-CORPUS CHRISTI
DEPARTMENT OF LIFE SCIENCES
SPRING 2020

A. COURSE INFORMATION
Course number/section: BIOL 3414.001; BIOL 3414.101, 3414.102, 3414.103 (lab)
Class meeting time: Lecture – TR 8-9:15
Lab – T 12:30-3:20 (103), W 11-1:50 (101), W 2-4:50 (102),
Class location: Lecture – OCNR 115
Lab – ECMS 114 (Wet Lab)
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
Ecology, life history, and conservation of the vertebrates, including the evolutionary development of the vertebrate classes and their interrelationships. Structure, classification, and identification of the vertebrates and techniques for their study in the field. Required weekend field trip. Prerequisite BIOL 1407. SMTE 0091 is a co-requisite for this course. Documented completion of this safety training is required early in the semester for continued participation in this course. Safety training given during a laboratory meeting early in the semester is required for continued participation in the course.

Extended Course Description
Students in this course will investigate the natural history, biology, ecology, evolution, and conservation of vertebrates around the world. Understanding biological nomenclature and the role of Greek and Latin prefixes, suffixes, and roots will be emphasized. The lab includes comparing and contrasting the structure of the various vertebrate classes to better understand the evolutionary relationships among the classes. The lab also includes a significant identification component – learning how to use dichotomous keys and other materials to determine the species – and a focus on the external structures that are important for this task. You are strongly urged to participate in the zoo field trip associated with the course. There is no alternate activity.

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

Corequisite
SMTE 0091 Biological Laboratory Safety Seminar

E. REQUIRED TEXTBOOKS, READINGS, & SUPPLIES
Required Textbooks
You can use either the 8th or 9th edition.

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

Lab Coat

Recommended Supplies

Three-ring binder for laboratory exercises, notes etc.

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Students in this course will become familiar with the life history and biodiversity of the vertebrates, and issues in their conservation and management. The lab will focus on comparative anatomy of the vertebrate classes, with an emphasis on the anatomy and diversity of the vertebrates.

By the end of this course, students should be able to:

1. DEMONSTRATE knowledge of relationships among and between the vertebrate classes with regard to their evolution, anatomy and physiology, taxonomy, and ecology
2. UNDERSTAND how vertebrate anatomy and physiology affect their life history
3. UNDERSTAND the social, economic and political issues affecting the exploitation of vertebrates well as their management and conservation
4. DEMONSTRATE knowledge of the worldwide diversity of the vertebrates from lab exercises and field trip

G. INSTRUCTIONAL METHODS & ACTIVITIES

Lecture and case studies will be the bulk of the “lecture” portion of the course. For the lab, students will be guided through structured exercises and observations that are designed to ensure that they understand the structure of vertebrates, the evolutionary relationships among the classes that the structure reveals, and the methods by which vertebrates are classified and identified. In addition, a field trip to a zoo will provide students with the opportunity to learn about the worldwide diversity of vertebrates.

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</td>
<td>1-3</td>
<td>225 (26%)</td>
</tr>
<tr>
<td>Exams (4 @ 75 pts each; lowest grade is dropped)</td>
<td>1-3</td>
<td>225 (26%)</td>
</tr>
<tr>
<td>Final Comprehensive Exam (1)</td>
<td>1-3</td>
<td>150 (17%)</td>
</tr>
<tr>
<td>Case Study (2)</td>
<td>3</td>
<td>100 (11%)</td>
</tr>
<tr>
<td>Lab</td>
<td>1, 2</td>
<td>110 (13%)</td>
</tr>
<tr>
<td>Lab Quizzes (11 @ 10 pts each)</td>
<td>1, 2, 4</td>
<td>120 (14%)</td>
</tr>
<tr>
<td>Daily Worksheets (12 @ 10 pts each)</td>
<td>1, 2, 4</td>
<td>120 (14%)</td>
</tr>
<tr>
<td>Field Trip Participation (scavenger hunt worksheet)</td>
<td>4</td>
<td>70 (8%)</td>
</tr>
<tr>
<td>Diversity Exam (from lab and field trip)</td>
<td>4</td>
<td>100 (11%)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>875</td>
</tr>
</tbody>
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Grades will be assigned as follows:
A = 90% or greater
B = 80-89%
C = 70-79%
D =60-69%
F = <60%
## I. COURSE CONTENT/SCHEDULES (TENTATIVE)

I reserve the right to alter the schedules of either lecture or lab at any time.

### LECTURE SCHEDULE & READING ASSIGNMENTS

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture</th>
<th>Reading (Pough et al., 9th edition)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>Chapter 1, 2</td>
</tr>
<tr>
<td>2</td>
<td>Diversity, Evolution, Classification</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Origins, Early vertebrates</td>
<td>Chapter 3, 4</td>
</tr>
<tr>
<td>4</td>
<td>Continue &lt;br&gt;<strong>Exam 1</strong></td>
<td>Chapter 5, 6</td>
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<tr>
<td>5</td>
<td>Fishes,</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Origins and Radiation – Tetrapods,</td>
<td>Chapter 8, 9</td>
</tr>
<tr>
<td>7</td>
<td>Amphibians &lt;br&gt;<strong>Exam 2</strong></td>
<td>Chapter 10</td>
</tr>
<tr>
<td>8</td>
<td>Spring Break</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Case Study (?) &lt;br&gt;Turtles, Lepidosaurs</td>
<td>Chapter 11-13</td>
</tr>
<tr>
<td>10</td>
<td>Lepidosaurs, Archosaurs</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Therapods and Evolution of birds &lt;br&gt;<strong>Case Study (?)</strong></td>
<td>Chapter 16-17</td>
</tr>
<tr>
<td>12</td>
<td><strong>Exam 3</strong> &lt;br&gt;Birds</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Mammals</td>
<td>Chapter 18, 20-21</td>
</tr>
<tr>
<td>14</td>
<td>Continue</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Conservation &lt;br&gt;<strong>Exam 4</strong></td>
<td>Chapter 25</td>
</tr>
<tr>
<td>16</td>
<td><strong>Case Study - Conservation</strong></td>
<td></td>
</tr>
<tr>
<td>Final Exam Day</td>
<td><strong>Final Exam = Comprehensive including Terminology from lab</strong></td>
<td></td>
</tr>
<tr>
<td>Week</td>
<td>Lab</td>
<td>Activities &amp; Assignments</td>
</tr>
<tr>
<td>------</td>
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</tr>
</tbody>
</table>
| 1    | Phylogeny Exercise  
      | Dichotomous Key Exercise | Daily Worksheet |
| 2    | Vertebrate Origins including Lamprey Dissection | Quiz – Key Terms  
      | Daily Worksheet |
| 3    | Fish – External Structures & Diversity (dichotomous keys) | Quiz – Key Terms  
      | Daily Worksheet |
| 4    | Fish Dissection | Quiz – Key Terms  
      | Daily Worksheet |
| 5    | Amphibians – External Structures & Diversity | Quiz – Key Terms  
      | Daily Worksheet |
| 6    | Amphibian Dissections | Quiz – Key Terms  
      | Daily Worksheet |
| 7    | Reptiles – External Structures, skulls & diversity (dichotomous keys)  
      | Non-amniotic vs amniotic egg | Quiz – Mini Practical  
      | Daily Worksheet |
| 8    | Spring Break | |
| 9    | Birds – External Structures & diversity  
      | Birding around campus | Quiz – Key Terms  
      | Daily Worksheet |
| 10   | Bird Dissection | Quiz – Key Terms  
      | Daily Worksheet |
| 11   | Mammals – Skulls, Teeth, & Appendages | Quiz – Key Terms  
      | Daily Worksheet |
| 12   | Mammal External Structures & Diversity (dichotomous keys) | Quiz – Key Terms  
      | Daily Worksheet |
| 13   | Owl Pellets | Quiz – Key Terms  
      | Daily Worksheet |
| 14   | Lab Exam: Diversity (all including zoo trip) | |
| 15   | No Lab | |

**Lab Quizzes**

Quizzes will be given at the beginning of class and **CANNOT BE MADE UP**. If you are late to lab, then you miss your opportunity to take the quiz. Quizzes will largely cover terminology (“Key Terms”) & other topics from the previous lab.

**Daily Worksheets**

Daily worksheets will guide you through the lab exercises for the day and will require a variety of responses from you for them to be completed. You must turn the completed worksheet in **before you leave lab that day**. They will not be accepted after lab is over. They will be graded – in other words, this is not just a “completion” grade.

**Field Trip – TBA**

The field trip to the San Antonio Zoo is set for DATE. I **strongly urge you to participate in** the field trip: for participating and turning in a correctly filled out “scavenger hunt” worksheet you will get **70 points** and the trip will help you greatly to make a good grade on the Lab Diversity Exam. **There is no alternate activity.** You pay for the field trip – you should participate. And **these are not extra credit points – these are points that are used to calculate your grade.**
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 or if the absence is due to a university-sponsored activity that you must attend (e.g., track meet). 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

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. 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)**
  University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work). In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

- **Classroom/Professional Behavior**
  Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

- **Statement of Civility**
  Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

- **Deadline for Dropping a Course with a Grade of W (University)**
  I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day 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**
  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.

http://disabilityservices.tamucc.edu/

• **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.

L. **OTHER INFORMATION**

• **Academic Advising**

  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

**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.