BIO 312-010 Vertebrate Biology – Spring 2008

Lectures 1:00-1:50 pm Monday and Wednesday in 260 Boehm Science Building

Dr. Todd J. Underwood
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Office Phone: (610) 683-4323
Office hours: Tues 10:00-11:00 am, Wed 2:00-4:00 pm, Thurs 9:00-11:00 am

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Supplies: dissecting kit, field notebook, and a waterproof pen or pencil. Binoculars and other miscellaneous lab/field equipment will be provided.

Course Objectives:

Upon the completion of the course, a successful student should be able to:

1. Explain or describe the origin and basic characteristics of vertebrates.

2. Understand and explain the evolutionary history of each major vertebrate group.

3. Describe the unique characteristics of each major vertebrate group.

4. Describe the different ecological adaptations of each major vertebrate group.

5. Recall the major taxonomic groupings of vertebrates.

6. Identify by sight the order, family, and/or species of representative Pennsylvania vertebrates from a specimen, model, or photograph (and a select few by sound).

7. Identify the family and/or species of any vertebrate specimen from Pennsylvania using a taxonomic key.

Course Description: This course provides an introduction to the major groups of vertebrate animals. It places emphasis on evolutionary history, taxonomy, basic characteristics, anatomy & physiology, and ecology of vertebrate animals. The laboratories will involve taxonomy, identification, morphology and field trips. Labs may be supplemented with lecture material and videos.
**Lecture Outline:** Below is a tentative outline of lectures. Based on time available, we may not cover all of these topics. Reading assignments are from your required textbook. Additional reading assignments outside of your textbook may be given throughout the semester.

<table>
<thead>
<tr>
<th>Week/Date</th>
<th>Tentative Lecture Topic(s)</th>
<th>Reading Assignment</th>
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<tbody>
<tr>
<td>14 – 16 Jan</td>
<td>Intro; Diversity &amp; Systematics; Chordate &amp; vertebrate Characteristics</td>
<td>Chapter 1-2</td>
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<tr>
<td>23 Jan (Wed)</td>
<td>Jawless Vertebrates (no class Monday – Martin Luther King Day)</td>
<td>Chapter 3</td>
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<tr>
<td>28 – 30 Jan</td>
<td>Jawless Vertebrates; Aquatic Environment – fish adaptations</td>
<td>Chapters 3-4</td>
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<tr>
<td>4 – 6 Feb</td>
<td>Aquatic Environment; Cartilaginous Fishes</td>
<td>Chapters 4-5</td>
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<tr>
<td>11 – 13 Feb</td>
<td>Cartilaginous Fishes; Bony Fishes</td>
<td>Chapters 5-6</td>
</tr>
<tr>
<td>19 Feb</td>
<td>(Tues) Bony Fishes; Origin of Tetrapods &amp; Amniotes</td>
<td>Chapters 6 &amp; 9</td>
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<tr>
<td><strong>20 Feb</strong></td>
<td><strong>Lecture Exam 1</strong></td>
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<tr>
<td>25 – 27 Feb</td>
<td>Amphibians</td>
<td>Chapter 10</td>
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<tr>
<td>3 – 5 Mar</td>
<td>Amphibians; Turtles</td>
<td>Chapters 10 &amp; 12</td>
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<tr>
<td><strong>10 – 12 Mar</strong></td>
<td><strong>Spring Break No Class</strong></td>
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<tr>
<td>17 – 19 Mar</td>
<td>Lizards &amp; Snakes</td>
<td>Chapter 13</td>
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<tr>
<td>26 Mar (Wed)</td>
<td>Dinosaurs &amp; Crocodiles (no class Monday – Reading Day)</td>
<td>Chapter 16</td>
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<tr>
<td>31 Mar</td>
<td>Birds – evolution &amp; characteristics</td>
<td>Chapters 16</td>
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<tr>
<td><strong>2 Apr</strong></td>
<td><strong>Lecture Exam 2</strong></td>
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<tr>
<td>7 – 9 Apr</td>
<td>Birds – adaptations &amp; flight</td>
<td>Chapter 17</td>
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<tr>
<td>14 – 16 Apr</td>
<td>Birds – reproduction</td>
<td>Chapter 17</td>
</tr>
<tr>
<td>21 – 23 Apr</td>
<td>Mammals – evolution &amp; characteristics; Adaptations</td>
<td>Chapters 18, 20</td>
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<tr>
<td>28 – 30 Apr</td>
<td>Mammals – major groups &amp; reproduction; Specializations</td>
<td>Chapters 20-21</td>
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<tr>
<td><strong>7 May 8:00 am</strong></td>
<td><strong>Final Exam (Wednesday)</strong></td>
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**General Policies:**

1. **Attendance.** Attendance and on-time arrival in lecture are expected and required. Attendance will be assessed through a daily pass/fail question of the day that will be given at the beginning or end of lecture. Students must use the index cards provided for their answers. Each card must be signed and have the student’s name clearly printed on it. Students who arrive late or leave class early will fail the quiz of the day. **Absences will only be excused with written documentation of an illness or university sanctioned event** (i.e., lectures missed for vacation or due to commuting problems will not be excused). Attendance and class participation also will be used to determine borderline grades.
2. **Classroom Courtesy.** You must **turn off all** cell phones and electronic devices during class. **Reading of non-class materials, listening to electronic devices, text messaging, and similar non-class activities are not permitted in class.**

3. **Academic Honesty.** Absolute honesty on exams, quizzes, lab work, and in preparing assignments is required. Each student is expected to do their own work, unless group work is specified. Plagiarism and cheating are serious offenses and will not be tolerated. Please see KU’s Academic Honesty Policy in The Key (www.kutztown.edu/divisions/studentservices/departments/dsscl/acadhonesty/index.aspx) for information on academic dishonesty and the consequences of offenses.

4. **E-mail.** Please access your KU e-mail account regularly or have your KU e-mail forwarded to your preferred account. I may contact you out of class for announcements or schedule changes. When sending me an e-mail, be sure to include your name, course and section. If you do not receive a prompt reply (within 2 business days), assume that I did not receive your e-mail. The university’s e-mail filter often blocks messages from large volume, free e-mail accounts (e.g. hotmail or yahoo).

5. **Assignments.** Assignments must be handed in on the date listed. Late assignments will be penalized 10% per day late.

6. **Exams.** Lecture exams will be based on lecture notes and material from reading assignments. Note: some lecture notes may be presented during lab. On-time arrival for exams is expected. A missed exam can only be made up with a legitimate excuse (an official university activity, illness or emergency) if proper written documentation is provided. **You must contact the instructor prior to or within 24 hours of a missed exam.** Missed exams must be made up with an **alternate exam within one week.** Because of the complex nature of lab practical exams, there will be no opportunity to make up these exams on an alternate date.

7. **Questions and Concerns.** Students are invited and encouraged to ask questions in class based on curiosity or for clarification. Students are also expected to participate and answer questions posed in class. If you have any questions or concerns about any aspect of this course, please feel free to meet with me outside of class during my office hours or we can arrange an alternate time to meet.

8. **Disabilities.** Any student who has a need for accommodation based on a documented disability should contact me privately to discuss their situation as soon as possible. If accommodations involve quiz/test arrangements, students must contact me at least **two weeks** prior to the first quiz/exam.
Evaluation

Writing Assignments:

There will be two writing assignments in this course. Students will work in assigned groups on both assignments. The first, the Box Assignment, is to write a short summary of a new and exciting research paper in vertebrate biology that might go as a “box” in Pough et al.’s (2005) Vertebrate Life textbook. The second will involve gathering and analyzing data to address a hypothesis involving vertebrate ecology or behavior. We will spend part of one or two labs gathering and analyzing these data. Your group will write a paper that interprets and presents the results using an extensive literature review mainly from the primary literature (i.e. journal articles). Exact details on these two assignments will be provided in separate handouts.

Exams, Assignments, Important Dates, and Grade Information:

<table>
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<tr>
<th>Assignment</th>
<th>Due Date</th>
<th>% of final grade</th>
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<tbody>
<tr>
<td>Lecture Exam 1</td>
<td>(20 Feb)</td>
<td>15 %</td>
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<tr>
<td>Lecture Exam 2</td>
<td>(2 Apr)</td>
<td>18 %</td>
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<tr>
<td>Final Exam</td>
<td>(7 May)</td>
<td>18 %</td>
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<tr>
<td>Writing Project (group)</td>
<td>(23 Apr)</td>
<td>10 %</td>
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<tr>
<td>Box Assignment (group)</td>
<td>(19 Mar)</td>
<td>4 %</td>
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<tr>
<td>Subtotal from Lecture</td>
<td></td>
<td>65 %</td>
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<tr>
<td>Subtotal from Lab</td>
<td></td>
<td>35 %</td>
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<tr>
<td>(see lab syllabus for details)</td>
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<tr>
<td>Final Grade Total</td>
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<td>100%</td>
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Your final grade will be adjusted based on your attendance in lecture (i.e., the number of failed lecture quizzes or unexcused absences). Zero failures (i.e., perfect attendance) will add 1.0% to your course grade; one to three failures will have no effect on your course grade. Beyond three failures, 0.5% will be subtracted from your course grade for each additional failure.

Letter Grade Scale:

90% = A  
80% = B  
70% = C  
60% = D  
<60% = F