Instructor
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Course Description
Comparative Vertebrate Anatomy studies the diversity of vertebrate morphology with a focus on structure-function relationships. Differences in the vertebrate form will be examined by comparing primitive traits to derived traits in modern and extinct vertebrate animals.

RECOMMENDATIONS: A reasonable survey course for understanding the anatomy of vertebrate organisms. While knowledge of anatomy and physiology is helpful, background information will be covered in enough detail to understand the concepts.

Learning Objectives
1. Students will develop an understanding of the relationships between chordates and craniates. For example, how do primitive structures in Amphioxus (marine invertebrate with a notocord) relate to structures in animals with a skull?
2. Essential features of early development and embryology will be understood as a tool for understanding how adaption of primitive traits may result in formation of derived traits.
3. Specific anatomical features will be discussed as they relate to similarities in phylogenetic groups. Such as, understanding how similar bones are capable of producing the diversity of upper limbs in mammals (man vs. horse vs. seal).
4. Selected examples of the comparative anatomy of anatomical systems will be covered (integument, skeleton, muscular, ... circulatory systems).

Course Materials
Textbook: The texts are required. Used copies are available from your favorite book vendor for a substantially reduced price (I paid about $15.00, compared to the $160.00 sticker price for new). The 8th edition seems identical, but I’m using the 6th edition for the course.


Computer and Software: Access to a computer, modern browser and Internet connection are required for the course. A word processor compatible with the instructor's software is needed for preparation of written assignments.
Digital Imaging Device: Some method of producing digital images may be required for incorporating digital images into assignments. Good solutions include a flatbed scanner, digital camera, etc. I suggest students do not buy anything if possible as a photo from a cell phone will often produce satisfactory results.
Web Resources: Canvas, an online learning management system (LMS), is used for this course. Students will be responsible for becoming proficient at using the system. Instructions can be found online by searching the eCampus section of the University of Nebraska at Kearney web site. Students will be expected to check the course website often for announcements and assignments. In addition, students are required to use and check the email account assigned to them by the university (Lopermail).

Lecture AVIs and Study Notes: Lectures are supplied as HTML5 video that will likely only be compatible with a recent Firefox web browser. Support for mobile devices will be hit or miss, but students will be able to download the video if streaming does not work as anticipated. Note that much of the provided material is copyrighted by the authors. Students should refrain from distributing the resources to others without written permission from the copyright owner(s). All links and access to course materials will expire shortly after the last day of class.

Legal: The materials on this course website are only for the use of students enrolled in this course for purposes associated with this course and may not be retained or further disseminated. The materials on this course website may be protected by copyright, and any further use of this material may be in violation of federal copyright law.

Grading

Worksheets: Multiple exercises to encourage consistent engagement in the course and to provide the needed repetition for learning general anatomy. Students will upload a file for grading. Students often use a scan, photographs, doc, pdf, or other software to complete the assignments. In general, I am flexible on the format, provided I can view the student's work.

Quizzes: Numerous online quizzes are assigned throughout the semester and must be completed by the due date. Each quiz has a time limit.

Mini-Assignments Students will complete several mini-assignments. The topics will be assigned by the instructor. Typically, the assignment is to enhance the basic knowledge of anatomy and functional morphology of the human body or to enhance the understanding of specific concepts in modern anatomical sciences.

Common Readings: Students assess anatomy related topic or topics which may be a textbook, video series, or other information source. Points may (or may not) be divided into separate activities such as quizzes, written summaries and/or discussions.

Exams: Multiple time-limited online exams will be given. All exams are closed book and have a time limit. If the exam has a take home component, the permitted use of outside resources will be defined in the instructions.

Final Exam Students will be provided with the exam approximately one week before the due date. Late exams will not be accepted. The final exam is comprehensive and may contain any information covered in the course.
Tentative Point Distribution: Anticipated assignments with distribution of points for the course. Changes may be made at the discretion of the instructor.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points Each</th>
<th>Total Points</th>
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<tbody>
<tr>
<td>Worksheets</td>
<td>XX @ 10 pts</td>
<td>XXX pts</td>
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<tr>
<td>Quizzes</td>
<td>XX @ 10 pts</td>
<td>XXX pts</td>
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<tr>
<td>Mini-assignments</td>
<td>XX @ 10 pts</td>
<td>XXX pts</td>
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<tr>
<td>Common Readings</td>
<td>XX @ 20 pts</td>
<td>XXX pts</td>
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<tr>
<td>Online Exams</td>
<td>XX @ 100 pts</td>
<td>XXX pts</td>
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<tr>
<td>Final Exam</td>
<td>1 @ 150</td>
<td>XXX pts</td>
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<tr>
<td><strong>total</strong></td>
<td></td>
<td><strong>1000 pts</strong></td>
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The final grade will be determined base on the number of earned points. **Percentages are not used when assigning final letter grades for the course.** In the event that assignments are changed, the scores will be normalized to 1000 pts (points earned / total possible x 1000). Grades will be assigned as follows:

A+ (1000-990), A (989-960), A- (959-930), B+ (929-900), B (899-870), B- (869-840), C+ (839-810), C (809-780), C- (779-750), D+ (749-720), D (719-690), D- (689-660), F (Below 659)

Course Information and Policies

Expectations: Because students admitted to the graduate program in biology have significant exposure to biology, related disciplines (math, chemistry, physics, etc.) and general education coursework (English, writing, grammar, geography, history, etc.), it is anticipated that previously developed skills and knowledge will be utilized extensively throughout the course and reflected in the student's academic performance. Students are required to maintain a professional and cordial mannerism when communicating with the instructor and other students.

Due Dates: **Due dates will be clearly identified on Canvas and strictly enforced.** Students are strongly encouraged to complete assignments several hours (if not days) before due. There will be no opportunity to make up missed quizzes, assignments or exams, and a score of zero will be assessed. Assignments submitted by email after the assignment link has expired in Canvas will only be accepted at the discretion of the instructor. The final exam must be submitted by the due date or a grade of zero will be given. In the rare instances that material is accepted late, students will be assessed a late penalty (minimum of 10% for each day late).

Note on Technology: While not common, problems with technology do happen. This can be caused by instructor error, server crashes, weather-related power outages or problems with Internet connections. Verified problems with course technology will be dealt with fairly. If you find that the Canvas service is not responding or behaving improperly, notify the instructor immediately. If the problem is reasonably beyond the student's control, an opportunity to reclaim missed points may be provided. While instructors generally attempt to be helpful with the resolution of computer related problems, the operation of each student's personal computer is the sole responsibility of the student (i.e. virus protection, operating system maintenance and configuration, software installation, etc.), and user-specific issues are normally resolved through interaction with the UNK helpdesk.
Other Policies of Interest

Exams and Quizzes: All online evaluations are closed book unless specified otherwise. It is expected that students will not utilize notes, textbooks, the Internet, or any other source of information during an assessment. Note that use of the Internet during a quiz or exam has been the most commonly detected source of academic dishonesty by students. Point challenges will only be considered for 3 days after the due date and must be well supported by citing sources (short paragraph indicating why the question is mismarked). Fishing for points at the end of the semester will not be tolerated or considered for altering the points earned to letter grade mapping.

Plagiarism and Academic Dishonesty: Presenting someone else's work as your own is a serious academic offense. Any material containing plagiarism or reflecting academic dishonesty will receive a grade of zero and result in placing a record of the offense in the department's file. A second offense will result in assignment of an "F" for the course. All instances of plagiarism or academic dishonesty carry the risk of referral to the graduate committee, review of the student's file, and potential for expulsion from the university.

Withdraw and Incomplete Grades: Students should consult the academic calendar for the last day to withdraw from a course which will result in a grade of "W". Instructors are not permitted to withdraw a student; therefore, any student not continuing the class that fails to withdraw will receive a grade of "F". If unusual circumstances prevent completion of a course (such as major hospitalization, overseas deployment, etc.), students may request a grade of incomplete. At the sole discretion of the instructor, an "I" may be assigned for the course, and the instructor will provide the student with an enumeration of requirements with a deadline for completing the course. Grades of incomplete are not for improving course performance and normally will not be considered for students not passing at the time of the request.
Students with Disabilities

It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students with documented disabilities. To receive accommodation services for a disability, students must be registered with the UNK Disabilities Services for Students (DSS) office, 175 Memorial Student Affairs Building, 308-865-8214 or by email unkdso@unk.edu

UNK Statement of Diversity & Inclusion:

UNK stands in solidarity and unity with our students of color, our Latinx and international students, our LGBTQIA+ students and students from other marginalized groups in opposition to racism and prejudice in any form, wherever it may exist. It is the job of institutions of higher education, indeed their duty, to provide a haven for the safe and meaningful exchange of ideas and to support peaceful disagreement and discussion. In our classes, we strive to maintain a positive learning environment based upon open communication and mutual respect. UNK does not discriminate on the basis of race, color, national origin, age, religion, sex, gender, sexual orientation, disability or political affiliation. Respect for the diversity of our backgrounds and varied life experiences is essential to learning from our similarities as well as our differences. The following link provides resources and other information regarding D&I: https://www.unk.edu/about/equity-access-diversity.php

Students Who are Pregnant

It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students who are pregnant. To receive accommodation services due to pregnancy, students must contact Cindy Ference in Student Health, 308-865-8219. The following link provides information for students and faculty regarding pregnancy rights. http://www.nwlc.org/resource/pregnant-and-parenting-students-rights-faqs-college-and-graduate-students

Reporting Student Sexual Harassment, Sexual Violence or Sexual Assault

Reporting allegations of rape, domestic violence, dating violence, sexual assault, sexual harassment, and stalking enables the University to promptly provide support to the impacted student(s), and to take appropriate action to prevent a recurrence of such sexual misconduct and protect the campus community. Confidentiality will be respected to the greatest degree possible. Any student who believes she or he may be the victim of sexual misconduct is encouraged to report to one or more of the following resources:

- Local Domestic Violence, Sexual Assault Advocacy Agency 308-237-2599
- Campus Police (or Security) 308-865-8911
- Title IX Coordinator 308-865-8655

Retaliation against the student making the report, whether by students or University employees, will not be tolerated.

If you have questions regarding the information in this email please contact Mary Chinnock Petroski, Chief Compliance Officer (petroskimj@unk.edu or phone 8400).
University Policies Related to COVID-19: The university community is deeply concerned for the well-being of its students, faculty, and staff. Keeping each other as safe as possible will require commitment from each of us; failure to do so will literally place lives in danger. The full policy relating to mitigation of the spread of infectious diseases can be found at https://www.unk.edu/coronavirus/ Policies that apply to all courses (online, remote, blended, or face-to-face) include:

Students shall monitor their health daily. No student shall attend classes in person while sick. Those who have had contact with positive-tested individuals or show COVID-19 related symptoms must have clearance from the Public Health Center prior to returning to face-to-face classes. There will be no penalties for missing classes for COVID-19 related absences. Students will still be responsible for course content through alternative attendance or other options arranged with the instructor.

Additional policies specific to face-to-face instruction include the following:

1. During Phases I and II, all students are required to wear masks that cover the nose and mouth at all times during class and at any time, inside or outside, where physical distancing of at least 6’ is not possible. Instructors shall maintain 16’ of distance from students while lecturing but may be closer, if masked. Instructors have the authority to direct students who refuse to wear masks to leave the classroom. Students who have medical issues that make masks inadvisable should contact Disability Services for Students at 308.865.8214 to request an exemption.

2. Students shall not arrive for class more than 5 minutes before the scheduled start time for the course. Instructors shall dismiss students promptly at the end time and all shall leave the classroom promptly. Students who have questions should use office hours rather than before/after class times.

3. Instructors and students should clean their desks prior to class. Cleaning materials will be provided.

4. Additional requirements for Phase III, for specialty courses such as labs or performing arts, or for experiential learning are detailed below.

Questions regarding COVID-19 should be directed to the Public Health Center unkhealth@unk.edu or 308-865-8254. Questions regarding the COVID-19 academic policy should be directed to Sr. Vice Chancellor Bicak at bicakc@unk.edu. Questions regarding department specific requirements should be directed to the chair of the relevant department.

The above directions must be followed by everyone for the health and safety of our University. Students who do not comply may face disciplinary action from the university. Violations of any University or Campus Policy is a violation of the Student Code of Conduct.
**Tentative Schedule**

Sequence and any dates are **tentative** and subject to change by the instructor. Details of the readings and other assignments will be posted on the LMS (Canvas).

<table>
<thead>
<tr>
<th>Week / Date</th>
<th>Topics / Notes</th>
<th>Assignments</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction, Phylogeny Origins</td>
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<tr>
<td>2</td>
<td>Vertebrate Story</td>
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<td>3</td>
<td>Development Integument, Teeth</td>
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<td>4</td>
<td>Cranial Anatomy Axial Skeleton</td>
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<td>5</td>
<td>Appendicular Skeleton <strong>Exam I</strong></td>
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<td>6</td>
<td>Myobiology Form and Function Myobiology Development (Evolution)</td>
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<td>7</td>
<td>Digestive Systems</td>
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<td>8</td>
<td>Coelom and Mesenteries Respiration</td>
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<td>9</td>
<td>Circulatory Systems - Heart</td>
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<tr>
<td>10</td>
<td><strong>Exam II</strong> Circulatory Systems - Arteries</td>
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<tr>
<td>11</td>
<td>Circulatory Systems - Veins</td>
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<tr>
<td>12</td>
<td>Urogenital Systems Reproductive Systems</td>
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<td>13</td>
<td>Endocrine Systems</td>
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<td>14</td>
<td>Sensory Systems</td>
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<tr>
<td>15</td>
<td>Nervous Systems</td>
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<tr>
<td>16</td>
<td>Depends on Calendar (Thanksgiving Break or no break?)</td>
<td></td>
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<tr>
<td>17</td>
<td><strong>Finals Week ()</strong></td>
<td><strong>Final Exam</strong></td>
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**Last Day of Course**

Note this is on a **Thursday** afternoon. Course closes and becomes unavailable a few days later.

Q=quiz, W=worksheet, mA=miniAssignment, CR(NSxx)=common reading