

VERTEBRATE MORPHOLOGY LECTURE
BIOSC 1200
Dr. West

This class will meet synchronously via Zoom on 8/30, 9/1, and 9/8. After that time, any new instructions from the provost's office will be evaluated and updates for this class will be communicated via Canvas Announcements.

Textbook: [Vertebrate Life by Janis & Pough, 10th Edition \(Links to an external site.\)](#). The 10th edition differs substantially from previous editions. Reading is required so make sure you have access to a copy.

Office Hours: Your UTA, Talia, is available on zoom every Friday at 11:15. I recommend starting with Talia if you have content questions, she took the class last year! I am available on zoom by request for content and other concerns.

Discord: (discord link)

Content: Lectures and required reading from the textbook & other sources are posted in the course calendar.

Assessment: Quizzes are every two weeks (see calendar), and take the entire class period. Quizzes will be returned during class the following week for review and corrections.

Case studies are introduced in class and completed as homework, due every alternate week (see calendar). Case studies are open book/open note and synthesis of the broader course material in your answers is expected.

Classwork or participation is required most class periods and graded on completion. Participation will be on Top Hat for at least weeks 1 and 2 -- access Top Hat by the link in the left sidebar of Canvas!

Final exam has a short case study plus some quiz-style questions and takes place during exam week (schedule TBA).

COURSE CALENDAR – modules roughly correspond to weeks of semester.

Module	Reading	Topics	Assessment
1: Phylogeny	1.1-1.3, 2.1-2.3, 3.2	<ul style="list-style-type: none">Review of phylogenetics, chordate synapomorphiesGnathostomata	Self-evaluation and course goals
2: Embryology and development	2.4-2.6, 8.1, 12.1 Embryology Handout	<ul style="list-style-type: none">EmbryogenesisGerm layers, tissue types, the development and homologies of integumentary structures	Quiz 1
3: Head skeleton	3.3-3.7, 7.1-7.2	<ul style="list-style-type: none">Cranial skeleton and paired pectoral appendages	Case study 1

	Walker head skeleton chapter	<ul style="list-style-type: none"> • Bone and joints 	
4: Gnathostomes	6.1, 4.1, 10.1, 10.2	<ul style="list-style-type: none"> • Feeding adaptations in water • Osteichthyes 	Quiz 2
5: Musculoskeletal system	8.1-8.2, 9.2, 9.6, 10.2, 14.2, 19.3-19.4, 19.7, 24.4, 25.2 Kardong muscles chapter	<ul style="list-style-type: none"> • Musculoskeletal system • Muscles of the appendicular skeleton in fish and tetrapods 	Case study 2
6: Tetrapodomorpha	5.1, 5.4, 5.5, 8.3, 9.7, 10.1-10.3, 11.1 Tetrapod skull diagrams Paper for 9/30	<ul style="list-style-type: none"> • Terrestrial adaptations of the skull and skeleton • Tetrapod evolution 	Quiz 3
7: Terrestrial adaptations	11.2-11.5 12.3-12.7, 14.6, 22.1, 24.4	<ul style="list-style-type: none"> • Amphibians • Amniotes 	Case study 3
8: Amniota	17.4, 17.5, 25.2, 25.5	<ul style="list-style-type: none"> • Cranial musculature and feeding adaptations in amniotes 	Quiz 4
9: Cardiovascular system	12.4, 14.4, 2.6, 3.4, 24.3	<ul style="list-style-type: none"> • Amniote hearts • Amniote ventilation 	Case study 4
10: Nerves and brains	Nerves, cranial nerves, and brain handouts Kardong chapter	<ul style="list-style-type: none"> • Nervous system and brain • Sensory systems 	Quiz 5
11: Diapsids and Synapsids	19.1-19.7, 19.10, 21.1, 22.1-22.2	<ul style="list-style-type: none"> • Permian turnover • Dinosaurs 	Case study 5
12: Ears	4.2, 7.2, 12.5, 22.5, 22.6 24.3, 24.4, 24.5, 25.2 Mammal Skull Handout	<ul style="list-style-type: none"> • Synapsids • Mammal ear and jaw joint 	Quiz 6
13: Mammals	24.3, 24.4, 25.1, 25.5-25.7	<ul style="list-style-type: none"> • Synapomorphies diversity of mammals. • Primates and humans. 	Case study 6

POLICIES AND INFORMATION:

During this pandemic, it is extremely important that you abide by the [public health regulations \(Links to an external site.\)](#), the University of Pittsburgh's [health standards and guidelinesLinks to an external site.](#), and [Pitt's Health RulesLinks to an external site.](#) These rules have been developed to protect the health and safety of all of us. Universal [face coveringLinks to an external site.](#) is required in all classrooms and in every building on campus, without exceptions, regardless of vaccination status. This means you must wear a face covering that properly covers your nose and mouth when you are in the classroom. If you do not comply, you will be asked to leave class. It is your responsibility have the required face covering when entering a university building or classroom. For the most up-to-date information and guidance, please visit [coronavirus.pitt.eduLinks to an external site.](#) and check your Pitt email for updates before each class.

If you are required to isolate or quarantine, become sick, or are unable to come to class, contact me as soon as possible to discuss arrangements.

Course Summary

A study of the gross anatomy, histology, development, and evolution of the vertebrates. Topics include vertebrate origins, evolutionary history, and phylogeny; basic histology; early embryology; integument; skeletal system; muscular system; sense organs; nervous system; endocrine system; body cavity and mesenteries; digestive system; respiratory system; circulatory system; excretory system; reproductive system. Body system development, histology, and functional anatomy are examined, emphasizing an evolutionary comparative context. The purpose of the course is to provide an understanding of the evolution and functional anatomy of the vertebrate body plan, and a background for further studies in embryology, physiology, systematics, human anatomy, and physiology.

By the end of this semester, you will be able to (among other things)

- Identify and compare features of major body systems across a range of vertebrate taxa.
- Identify major groups of vertebrates and their evolutionary relationships.
- Compare and contrast adaptations of the various vertebrate groups and explain how these relate to major events and environmental conditions.
- Define and identify examples of homology, constraint, and ecomorphology.
- Provide evidence from comparative anatomy for evolution as the mechanism for observed biodiversity.
- Read, interpret, and evaluate primary literature in morphology and paleontology.

Communication:

Important announcements will be posted to Canvas; you will get an email notification when an announcement is posted. If you have the Canvas app, you can set it to send you a push when an announcement is posted.

Questions about course content should be posted on the Canvas Discussions board. Generally, I will not answer email inquiries about content. If you have a question, first check if it's already answered on the discussion board, and if not, post it there.

You can always email me if you wish to set up a meeting privately or at a different time than regular office hours.

Intellectual property:

All course materials, including but not limited to lecture notes, powerpoint slides, quizzes, homework, videos, recitation assignments, are Dr. West's intellectual property. You may not reproduce any part of any quiz, exam, or graded assignment in any way. No photos, copying/pasting, screen-shots, etc.

Posting any part of the course content on any website or sharing it with anyone not currently enrolled in the course, without my express written permission, is a violation of the academic integrity code and may be a violation of intellectual property laws.

University Policy on Academic Integrity:

Students are expected to comply with the University of Pittsburgh School of Arts and Sciences [Academic Integrity Code](#)[Links to an external site.](#). Any student suspected of failing to meet the student obligations of the code during the semester will be required to participate in the procedures for adjudication, initiated at the instructor level. This may include, but is not limited to, confiscation of the assignment of any individual suspected of violating the code. A minimum sanction of a zero score for the assignment will be imposed. Violation of the Academic Integrity Code requires the instructor to submit an Academic Integrity Violation Report to the Dean.

Course Policy on Academic Integrity:

If you cheat on a quiz or exam you will receive an F in the course and an Academic Integrity Violation Report will be filed.

Resources:

If you do not have access to a reliable internet connection and a PC that meets the recommended minimum standards, including a current operating system, a limited number of mobile hotspots and/or laptops are available for temporary loan. Please visit <https://www.technology.pitt.edu/remotedevices> for more information.

For all technology-related issues, contact the 24/7 IT Help Desk at 412-624-HELP (4357) or utilize Virtual Technical Support.

The digital platforms used in this course are Canvas, Panopto, and Zoom. All materials, announcements, deadlines, zoom links, panopto links, and discussion boards for this course can be found on Canvas. You should check Canvas at least every Tuesday, Wednesday, and Thursday. Missing a Canvas announcement is not an excuse for missing an assignment or deadline.

Online tutoring, peer tutoring, and other studying help is available at Study Lab. I encourage you to check out this resource even if you are not sure exactly what you need. <https://www.asundergrad.pitt.edu/study-lab>

If you have a disability for which you are or may be requesting an accommodation, you should contact both Dr. West and [Disabilities Resources and Services](#)[Links to an external site.](#) 216 William Pitt Union, (412) 648-7890/(412) 383-7355 (TYT), as early as possible in the term. DRS will determine reasonable accommodations for this course. The Canvas LMS platform was built using the most modern HTML and CSS technologies, and is committed to W3C's Web Accessibility Initiative and Section 508 guidelines. Specific details regarding individual feature compliance are documented and updated regularly.

Each student is issued a University e-mail address (username@pitt.edu) upon admittance.

This e-mail address may be used by the University for official communication with students. Students are expected to read e-mail sent to this account on a regular basis. Failure to

read and react to University communications in a timely manner does not absolve the student from knowing and complying with the content of the communications. The University provides an e-mail forwarding service that allows students to read their e-mail via other service providers (e.g., Hotmail, AOL, Yahoo). Students that choose to forward their e-mail from their pitt.edu address to another address do so at their own risk. If e-mail is lost as a result of forwarding, it does not absolve the student from responding to official communications sent to their University e-mail address. To forward e-mail sent to your University account, go to <http://accounts.pitt.edu>, log into your account, click on Edit Forwarding Addresses, and follow the instructions on the page. Be sure to log out of your account when you have finished.

University's policy on diversity and inclusion: The University of Pittsburgh does not tolerate any form of discrimination, harassment, or retaliation based on disability, race, color, religion, national origin, ancestry, genetic information, marital status, familial status, sex, age, sexual orientation, veteran status or gender identity or other factors as stated in the University's Title IX policy. The University is committed to taking prompt action to end a hostile environment that interferes with the University's mission. For more information about policies, procedures, and practices, see: <https://www.diversity.pitt.edu/civil-rights-title-ix-compliance/policies-procedures-and-practices>Links to an external site.. You can contact the Title IX Coordinator by calling 412-648-7860, or e-mailing titleixcoordinator@pitt.edu. Reports can also be filed [onlineLinks to an external site.](#). You may also choose to report to a faculty/staff member; they are required to communicate this to the University's Office of Diversity and Inclusion. If you wish to maintain complete confidentiality, you may also contact the [University Counseling CenterLinks to an external site.](#) (412-648-7930).

Mental health: Factors including significant stress, mood changes, excessive anxiety, or problems with sleeping can interfere with your academic performance. You have a support network to help you through these challenging times. If you are in an EMERGENCY situation, call 911 or Pitt Police at 412-624-2121. If your symptoms are due to financial strain, please visit <https://pitt.libguides.com/assistanceresources> ([Links to an external site.](#)) to see all available University resources. If your symptoms are due to strained relationships, families, or personal crises, please visit the [University Counseling CenterLinks to an external site.](#) for free confidential services. If your symptoms are strictly related to your performance in this course, we can discuss this privately at your discretion: make an appointment by emailing me. Resolve Crisis Service (FREE 24-hour crisis service for Allegheny County):1-888-796-8226 General Mental Health Crisis Response: 412-648-7930 Sexual Assault Response: 412-648-7856