

BIO 4350K/6350K – Comparative Vertebrate Anatomy (4 hours)

Course Syllabus and Schedule

Kennesaw State University – Fall 2023

Instructor: Nicholas S. Green, Ph.D.

1. Class meetings

Meeting type	Location	Day(s)	Time (US Eastern)	Modality
Lecture	Kennesaw Hall 1301	TR	11:00 AM – 12:15 PM	Face to face
Lab (Section 1)	Science Building 247	R	8:00 AM – 10:45 AM	Face to face

2. Communication

2.1. Contact info

- **Email:** ngreen62@kennesaw.edu (best contact method). Please allow **1 business day** for a response.
- **Phone:** (470) 578-6546 (not a good contact method)
- **Messaging:** Microsoft Teams (KSU) or GroupMe (ngreen62@kennesaw.edu)
- **Office:** Science Building (SC) 331. We can also meet virtually using Microsoft Teams or Discord.
- **Office hours:** M 10:00 AM – 12:00 PM; T 9:00 – 11:00 AM; other times by appointment.

2.2. Course communication

- The best way to get in touch with me is by KSU email: ngreen62@kennesaw.edu
- **D2L** is used extensively for content delivery (e.g., lecture slides).
- Grades or other information covered by the [Family Educational Rights and Privacy Act \(FERPA\)](#) can only be communicated in-person or via official KSU channels (email or Teams associated with your KSU account).

3. Textbooks and other materials

- *Vertebrates: comparative anatomy, function, evolution* by Kenneth Kardong, published by McGraw-Hill, any edition.

4. Course description

4.1. Catalog description—BIOL 4350K (undergraduate)

Prerequisites: BIOL 1108 and 1108L; CHEM 1211 and 1211L

Students will explore a survey of representative vertebrates and related chordates emphasizing phylogeny and anatomical adaptations. Students will investigate evolutionary trends in the context of large-scale environmental changes that have occurred over geologic time. Using a comparative, systems-based approach, students will explore the relationships between structure and function. In the lab, students will learn to dissect selected vertebrate organisms and study anatomical adaptations among these representative models to recognize the relationships between form and function.

5. Course objectives

- Use knowledge of anatomy to recognize and diagnose various taxa of chordates.
- Develop an understanding of “the vertebrate story” and the relationships among chordates.
- Describe the challenges and solutions related to invasion of land by vertebrates.
- Recognize patterns in vertebrate evolution, including convergent evolution, adaptations to meet physical challenges, and historical constraints on vertebrate morphology.
- Describe how morphological variation facilitates adaptation to a diverse array of lifestyles.
- Dissect, recognize, and identify anatomical structures of major vertebrate organ systems.
- Interpret comparative morphological data to draw conclusions about vertebrate evolution.

6. Testing and grading

6.1. General information

- I use a system called [ungrading](#) to assign course grades. The main idea is that **your course grade is determined collaboratively by you and the instructor**. This policy has several objectives:
 - To reduce the anxiety and gamesmanship associated with grading. This frees up time and energy for actually learning course material!
 - To offer you a chance and incentive to practice self-guided learning and self-assessment of learning. This is a critical professional skill in science and many other fields.
 - To make the dynamics of the relationship between instructor and students less adversarial and more collaborative.
- Throughout the semester, and at the end of the semester, you will be asked to honestly evaluate your progress in the course and your achievement of the learning objectives. These evaluations will be the justification for the grade you earn at the end of the semester.
 - A rubric will be provided for each self-assessment. You must complete these rubrics and turn them in on time. If you do not turn a rubric, I will assign a grade based on your exams and assignments in the traditional manner (see **6.2**).
 - I reserve the right to adjust student grades if the difference between your self-assessed grade and my assessment of your grade is >15% (i.e., ≈ 2 SD of the historical grade distribution in the course or ≈ 1.5 letter grades).

6.2. Grades and assignments

- All exams, including lab exams, are **cumulative**. Later exams will emphasize more recent material but all course material up to that point is considered fair game for an exam.
- Exams and other assignments will be graded within 7 calendar days of the due date.

Item	% of total	Date		Time
Pre-assessment	0%	Wednesday	Aug 16	11:59 PM
Lecture exam 1	10%	Tuesday	Sept 12	11:00 AM – 12:15 PM
Lecture exam 2	10%	Tuesday	Oct 17	11:00 AM – 12:15 PM
Lab practical exam 1	10%	Thursday	Sept 14	9:00 AM – 10:00 AM
Lab practical exam 2	10%	Thursday	Oct 19	9:00 AM – 10:00 AM
Lab practical exam 3	10%	Thursday	Nov 16	9:00 AM – 10:00 AM
Course project	30%	Thursday	Nov 30	11:59 PM
Final exam	20%	Tuesday	Dec 5	10:30 AM – 12:30 PM
Total:		100%		

6.3. Assignment descriptions

- The **pre-assessment** is an ungraded quiz designed to assess student knowledge and skills at the beginning of the semester. Students must complete the pre-assessment in order to be eligible for a course grade other than F.
- **Lecture exams (including the Final Exam)** are designed to evaluate your knowledge and understanding of course material. Some questions will test simple recall while others will require synthesis and application of information. Lecture exams consist of a mix of multiple choice, matching, true-false, and short answer/essay questions.
- **Lab practical exams** test your ability to put theory into practice through identification of organisms, anatomical structures, and interpretation of experimental comparative anatomy data.
- **Course project:** Working with your lab team, you will conduct a literature and lab-based investigation into a topic in comparative anatomy that interests you. A comprehensive assignment guide will be provided early in the semester.

6.4. Letter grade percentage and point ranges

- Final letter grades are assigned based on our assessment (yours and mine) of how well you met the course learning objectives (see 6.1)
- Part of the final exam will be a rubric for assessing your overall performance in the course (because there won't be time for the usual post-exam back-and-forth of assessment).
- Final course grades will be based on the traditional 10% grading scheme ($\geq 90\%$ = A, 80 – 89% = B, etc.), with percentages rounded to the nearest integer.

6.5. Grading policies

6.5.1. Missed exams and assignments

- If you miss a mid-term lecture exam or lab practical exam for an excused reason (see 7), and you provide me with acceptable written documentation for the absence upon request, then your **percentage** score on the Final Exam will be used to replace the missed exam.

6.5.2. Exam review

- The review period for an exam, during which you can request score corrections, is 7 calendar days from the time that exams are returned. No score corrections will be made after this review period.
- Challenges to the content of exam questions must be accompanied by a written explanation of the issue with the question. The explanation should include appropriate documentation (e.g., a recent textbook or journal article citation).

6.5.3. Midterm grades

- A midterm grade will be assigned by the midterm grade due date identified on the Fall 2023 academic calendar: **Tuesday October 3 at 11:59 PM**. This midterm grade is for assessing mid-semester performance prior to the last day to withdraw without academic penalty (**Tuesday October 10 at 11:45 PM**). You may view your midterm grade in Owl Express. *Note that only your final grade will be officially recorded on your academic transcript.*

7. Attendance policies

- Attendance is highly encouraged. This means that “excused absences” apply to exams and assignment deadlines rather than routine class meetings. A sign-in sheet will be used to track attendance.
- Excused absences as referred to in this syllabus include the following reasons:
 - Serious illness of self or a close loved one (requiring the student's absence)
 - Death of a close loved one
 - Travel or other commitment related to official KSU business (including another course)
 - Interviews for graduate or professional programs
 - Civic responsibilities such as military service, jury duty, etc.
 - Closure of the university
 - Other serious issues at the discretion of the instructor
- Appropriate documentation of an excused absence must be provided upon request.
- If you can foresee an absence, please contact me as soon as possible ahead of time so we can make arrangements for assignments, exams, or activities you might miss.

8. Federal, BOR, and KSU Student policies

8.1. General

- Policies for student conduct at KSU are found at [this link](#).

8.2. KSU Academic Integrity Statement

Every KSU student is responsible for upholding the provisions of the [Student Code of Conduct](#), as published in the Undergraduate and Graduate catalogs. Section II of the Student Code of Conduct addresses the University's policy on academic honesty, including provisions regarding plagiarism and

cheating, unauthorized access to University materials, misrepresentation/falsification of University records or academic malicious/intentional misuses of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the University Judiciary Program, which includes either an “Informal” resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct’s minimum one semester suspension requirement.

8.3. Student resources

- KSU Student Resources Link: <https://cia.kennesaw.edu/instructional-resources/syllabusresources.php>

9. Course-specific conduct policies

9.1. General

- Students must abide by the [KSU Student Code of Conduct](#) at all times.
- Use of electronic devices is permitted, under the following conditions:
 - Device use does not disrupt other students or the class (silence your phones!)
 - No electronic devices of any kind may be used during lecture or laboratory exams. Doing so will be considered academic dishonesty (i.e., cheating) and incur penalties as such (see **8.2**).
 - Recording of class is not permitted without the express permission of the instructor.
- Children may accompany parents into the classroom, subject to the same behavioral expectations placed on students.

9.2. Lab safety

- General laboratory safety guidelines are available [here](#).
- Do not eat or drink anything in the lab—no exceptions!
- Smoking, vaping, or use of any tobacco product is prohibited.
- Wash your hands after leaving the lab.
- You must wear appropriate lab attire:
 - **Short-sleeve or long-sleeve shirt.** This means no bare midribs or shoulders. I.e., at least a t-shirt.
 - **Leg coverings that reach your shoes.** Shorts and capri-length pants are not permitted.
 - **Closed-toed shoes.** Sandals, open-toed shoes, and open-heeled shoes are not permitted.
 - **Safety glasses and gloves** must be worn when handling fluid-preserved specimens (KSU provides these).
 - **If you are not dressed appropriately for lab, then you will be required to leave.**
- Know the locations of emergency exits, fire extinguishers, eye wash stations, and the first aid kit.
- Responsible stewardship of shared laboratory equipment and specimens is expected at all times.

9.3. Open lab

- The teaching lab (SC 247) will be available during off-hours so that you can complete dissections, examine specimens, or study with other students.
- Open lab hours are whenever the Science Building is open: M-F 7:30 AM – 11:00 PM and Saturday 7:30 AM – 5:00 PM, **except** when the lab is occupied by a class.
- There is no open lab on Sunday because the Science Building is closed.
- The lab will be closed at 2:00 PM the **day before each lab practical exam** for exam set up.
- **Open access to the teaching lab is a privilege and good stewardship is expected.** This means that each student is expected to maintain the cleanliness, organization, and security of the lab. Issues with lab condition or theft will result in access privileges being revoked.
- Cases of theft or destruction of university property will be referred to the KSU police department.

10. Accommodations

- Any student with a documented disability or medical condition needing academic accommodations of class-related activities or schedules must contact the instructor immediately.
- Written verification from the KSU disabled Student Support Services is required. No requirements exist that accommodations be made prior to completion of this approved University documentation.
- All discussions concerning academic accommodations or underlying conditions will remain confidential.

11. Useful KSU sites

- [Academic calendar](#)
- [Final exam schedule and policies](#)

12. Schedule flexibility

- If the University officially cancels classes on a day or time when we are scheduled to meet, everything will shift back one class meeting (including exams). If that happens, an updated schedule will be posted on D2L as soon as possible.

13. Schedule of topics (tentative)

Week	Days	Lecture topic(s) (Kardong 8 th ed. chapter)	Lab topics (Handouts on D2L)
1	Aug 15 Aug 17	Introduction (1)	No lab
2	Aug 22 Aug 22	The Vertebrate Story (2,3)	Lab 1: Phylogeny and Diversity
3	Aug 29 Aug 31	Vertebrate design (4)	Lab 2: Vertebrate design
4	Sept 5 Sept 7	Integument (6)	Lab 3: Integument
5	Sept 12 Sept 14	T: Lecture exam 1 R: Life history (5)	Lab exam 1
6	Sept 19 Sept 21	Cranial skeleton (7)	Lab 4: Cranial skeleton
7	Sept 26 Sept 28	Postcranial skeleton (8,9)	Lab 5: Postcranial skeleton
8	Oct 3 Oct 5	Muscles (10)	Lab 6: Muscles (dissection)
9	Oct 10 Oct 12	Digestion (13)	Lab 7: Internal anatomy 1 (dissection)
10	Oct 17 Oct 19	T: Lecture exam 2 R: Respiration (11)	Lab exam 2
11	Oct 24 Oct 26	Circulation (12)	Lab 8: Circulation (dissection)
12	Oct 31 Nov 2	Urogenital (14)	Lab 9: Internal anatomy 2 (dissection)
13	Nov 7 Nov 9	Nervous system (16)	Lab 10: Nervous/sensory (dissection)
14	Nov 14 Nov 16	Sensory organs (17)	Lab exam 3
15	Nov 21 Nov 23	<i>Thanksgiving Break – No class this week!</i>	
16	Nov 28 Nov 30	T: Conclusions (18) R: Class presentations	<i>No lab this week</i>
17	Dec 5	Tuesday Dec 5: Final exam 10:30 AM – 12:30 PM	