

## **IB303 – Anatomy (4 credits)** **Course Syllabus**

**Course Description:** This course will provide an overview of the diversity of body structure in vertebrate animals. The variation in body structure seen amongst vertebrates will be investigated from evolutionary, functional/biomechanical, and human health perspectives through lectures, in-class activities, and laboratory dissections. Through this course, students will develop a better understanding of the vocabulary of anatomy, the structural design of vertebrates, a basic understanding of the biomechanical underpinnings of these structures and how vertebrate structure, phylogenetic history and function combine to create the diversity of forms seen in nature.

**SLO:** 1) Analyze similarities and differences between the anatomy of various vertebrate groups. 2) Trace the evolution of certain anatomical structures through evolution and hypothesize what evolutionary drivers led to the diversity of structures seen. 3) Apply simple models to biological phenomena such as basic lever models, models of muscle contraction and models of fluid flow through biological pipes.

**Prerequisites:** IB150, or consent of instructor.

**Requirements met:** IB major, upper level lab course.

**Professors:** Dr. Philip Anderson  
Office Location: Vivarium 202A, Office Hours: Varies by semester  
Email: andersps@illinois.edu

**Lab Instructor:** Joanne Manaster  
Office Location: NHB 2006B,  
Email: joannema@illinois.edu

**Teaching Assistants:** Vary by semester

**Lecture:** Bevier Hall, Rm 166. MWF 11:00-11:50AM

**Labs:** Natural History Building, Rm 4002. 1 day a week/3 hours, NOTE: labs will require the dissection of preserved cat tissues. There is no way to complete the course successfully without dissection.

**Lecture Exams:** There will be two exams. Each exam will be worth 20% of the final grade. Exams will not be cumulative. There will be no final exam. No use of cell phones, PDAs, digital music players or other personal electronics is allowed in the lecture room during exams. Use of electronic devices during an exam may be construed as a violation of the student code of conduct.

**Final Project:** There will be a final group project due on the last day of class accounting for 20% of the final grade (the equivalent of one lecture exam). The project will involve creating an outline for a unit in an anatomy course on a subject of the students' choosing. Several potential subjects will be provided by the instructor, but students can choose an original topic as well with instructor's approval. The final five lecture periods of the course will be reserved for working on this project. A 1 page project proposal (worth 10pts) will due earlier in the semester to ensure that all students have a group and an approved topic for the project. The final project will be due the Monday after classes end (Dec. 16<sup>th</sup>).

**In-class activities:** These will occur during lecture time, and will take the form of discussions and relevant exercises to help us investigate questions in anatomy. Some of the in-class activities will have assignments that are graded which may require time outside of class.

**Lab practicals:** There will be four lab practicals worth 10 pts, 20 pts, 35 pts and 35 pts respectively. Practical will not be cumulative. There will be no final practical. No use of cell phones, PDAs, digital music players or other personal electronics is allowed in the lab room during exams. Use of electronic devices during an exam may be construed as a violation of the student code of conduct. There are no alternatives to participating directly in the activities involving dissection.

### **Lab Quizzes**

- Worth 50 points total (5 points for each of 10 lab sessions)
- Available on Moodle to be taken BEFORE the class to ensure you are prepared to engage with the material in the lab.
- Except for week 1, all quizzes will be available from the prior Thursday at noon to 8am Tuesday the week of the lab.

### **Lab Participation**

Worth 50 points total, (5 points each for 10 lab sessions), you earn points for doing the following:

- Attending the class
- Remaining for 90 minutes to 3 hours.
- Having all supplies and safety gear.
- Participating in dissection.
- Assisting with clean up.

**Contesting Grades:** If you feel that your assignment or exam has been graded inappropriately, you are welcome to contest grades via a written statement within one week of receiving the graded assignment. To contest a grade, you must submit a written statement (preferably via email) of what you believe was graded incorrectly and why the grade should be altered. No oral contesting of grades will be considered, nor will we consider any contest of grades submitted after one week. Note, that contesting a grade means the item in question will be completely regraded, which may result in a lower grade overall.

### **Final Grade Breakdown:**

Exam 1	100pts
Exam 2	100pts
Final Project	100pts
Project Proposal	10pts
In-class activities	30pts
iClicker participation	10pts
Lab Practical 1	10pts
Lab Practical 2	20pts
Lab Practical 3	35pts
Lab Practical 4	35pts
Lab quizzes (cumulative)	50pts
Lab participation	50pts
<b>Total</b>	<b>550 pts</b>

### **Course Grading Philosophy**

1) I do not 'curve' individual exams or assignments. Instead, I will assign grade cut off points based on the distribution of student point totals at the end of the semester.

2) I use the standard 90, 80, 70, 60% scores as starting cutoff points for A, B, C, and D grades, respectively. Depending on the distribution of points at the end of the semester I **may** drop the cut off points slightly (e.g., 88% might become the A cut off) but **I will not raise** the cut-offs.

3) I will use the iClicker to evaluate student comprehension during lectures and in group exercises. iClicker responses, will be used to assess attendance and participation and be worth 10pts. To get those 10pts, student will need to attend and answer iClicker questions for at least 75% of the lectures. It is your responsibility to bring your iClicker to lecture. We have no mechanism to account for missed iClicker responses.

### Course Calendar (Fall 2018)

Week	Date	Day	Unit	Topic	
1	8/26	Monday	Introduction	Introduction to course and themes	
	8/28	Wednesday		History of Vertebrate Life/Development	
	8/30	Friday		Biomechanics and function	
	LAB			CAT SKELETON, Quiz 1	
2	9/2	Monday	NO CLASS - Holiday		
	9/4	Wednesday	Skeletal System	Cranial structure/Evolution	
	9/6	Friday		Post cranial structure/evolution	
	LAB			LAB PRACTICAL 1 (10pts)	
3	9/9	Monday		Function lecture: Bending and Breaking	
3	9/11	Wednesday		Exercise/Discussion: Limb bone alterations	
	9/13	Friday		Skeleton: Human health	
	LAB			CAT SKINNING, Quiz 2	
	4	9/16		Monday	Muscles
9/18		Wednesday	Muscle Function		
9/20		Friday	Muscles: Comparative Trends		
LAB			CAT MUSCLE 1, Quiz 3		
5	9/23	Monday		Muscles: Human health	
	9/25	Wednesday		Cardiovascular system	Blood vessels and the mechanics of fluids in pipes
	9/27	Friday		Evolution of the circulatory system	
	LAB			CAT MUSCLE 2, Quiz 4	
6	9/30	Monday		Heart anatomy and evolution	
	10/2	Wednesday		Exercise/Discussion: HHMI cardio lab	
	10/4	Friday		Cardiovascular: Human health	
	LAB			LAB PRACTICAL 2 (20 pts)	
7	10/7	Monday		Review Day	
	10/9	Wednesday		EXAM 1	
	10/11	Friday		Respiratory System	Function lecture (respiration vs ventilation)
	LAB			CAT Cardio (Thoracic), Quiz 5	
8	10/14	Monday		Exercise/Discussion: Build a respiratory system	
	10/16	Wednesday		Anatomy and evolution of respiratory system	
	10/18	Friday		Respiratory: Human health	
	LAB			CAT RESPIRATORY, Quiz 6	
9	10/21	Monday	Digestive System	Anatomy and evolution of the buccal cavity	

	10/23	Wednesday		Anatomy and evolution of the Alimentary cavity
	10/25	Friday		Exercise/Discussion: Feeding styles
	LAB			CAT DIGESTIVE, Quiz 7
10	10/28	Monday		Digestive: Human health
	10/30	Wednesday	Urogenital System	Anatomy and evolution of kidneys/related organs
	11/1	Friday		Anatomy and Evolution of the Reproductive system
	LAB			LAB PRACTICAL 3 (35 pts)
11	11/4	Monday		Biomechanics of Sex
	11/6	Wednesday		Reproduction: Human health
	11/8	Friday	Nervous System	Anatomy and evolution of the PNS
	LAB			CAT Cardio (Abdominal), Quiz 8
12	11/11	Monday		Anatomy and evolution of the CNS
	11/13	Wednesday		Biomechanics
	11/15	Friday		Nervous system: Human health
	LAB			CAT UROGENITAL/REPRODUCTIVE, Quiz 9
13	11/18	Monday		Review Day
	11/20	Wednesday		EXAM 2
	11/22	Friday	Group Project	FINAL PROJECT WORK DAY
	LAB			CAT NERVOUS SYSTEM, Quiz 10
14	11/25	Thanksgiving		
	11/27	Thanksgiving		
	11/29	Thanksgiving		
15	12/2	Monday		FINAL PROJECT WORK DAY
	12/4	Wednesday		FINAL PROJECT WORK DAY
	12/6	Friday		FINAL PROJECT WORK DAY
	LAB			LAB PRACTICAL 4 (35pts)
16	12/9	Monday		FINAL PROJECT WORK DAY
	12/11	Wednesday		FINAL PROJECT WORK DAY

**Textbook:** There is no textbook for this course. Any required readings for a lecture will be posted on the moodle site as a pdf. Students who desire supplementary reading for further detail can access the following textbook:

*Kardong KV 2014. Vertebrates: Comparative Anatomy, Function, Evolution, 7<sup>th</sup> ed.*

Note that the in-class exams will be based on the lecture and assigned readings alone, Kardong 2014 is suggested purely as a supplement and is not required. Several copies are on hold for the class at the ACES Library and available for purchase from the bookstore.

**Course Website:** We will be using Moodle as our course website. As an enrolled student, you will have access to the course from your Moodle dashboard. It is also accessible here: <https://learn.illinois.edu/course/view.php?id=30267>. If you do not have access, contact your TA immediately.

What you will find on Moodle:

- The syllabi for lecture and lab

- Updates from the instructors and TAs.
- Resources, lecture notes and handouts.
- Course gradebook

### **Attendance Policies:**

**ATTENDANCE AT LECTURE IS REQUIRED.** Exam material will be derived from lecture material. Therefore, there is no substitute for regular lecture attendance. If attendance is not possible, it is the responsibility of the student (i.e., YOUR responsibility) to contact the instructors or TA's to arrange for any materials distributed in class. If you miss a lecture, you should contact another student in the class to obtain lecture notes.

**ATTENDANCE IN LAB IS REQUIRED.** You must attend your lab section and ONLY your lab section. Completion of lab activities will be essential to your success on lab practicals.

**YOU WILL NOT BE PERMITTED** to make up exams or practicals if missed, unless you notify the instructors or TAs of your absence and bring a note from McKinley for illness excuses. For non-illness excuses, you must notify the instructors or TA of your absence at least ONE WEEK ahead of time. Rescheduling exams and practicals is entirely at the discretion of the instructors. Make up exams and practicals will ALWAYS differ from the regular exam, and may be in a different format than the regularly scheduled exam (i.e., written or oral exam). Make up practicals are especially difficult to schedule, and as such will be oral exams if made up.

**Course Policies:** All students are assumed to have read and understood the "Code of Policies and Regulations Applying to All Students," University of Illinois, and will be expected to act accordingly. The Code is available online at: <http://www.admin.uiuc.edu/policy/code/index.html>

**Academic Integrity:** According to the Student Code, 'It is the responsibility of each student to refrain from infractions of academic integrity, from conduct that may lead to suspicion of such infractions, and from conduct that aids others in such infractions.' Please know that it is my responsibility as an instructor to uphold the academic integrity policy of the University, which can be found here: [http://studentcode.illinois.edu/article1\\_part4\\_1-401.html](http://studentcode.illinois.edu/article1_part4_1-401.html)

**Disabilities and Religious Observances:** Please contact your instructors or TAs during the first week of classes to make requests for disability accommodations or observation of religious holidays.

To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES you may visit 1207 S. Oak St., Champaign, call 333-4603 (V/TTY), or e-mail a message to [disability@illinois.edu](mailto:disability@illinois.edu)

To obtain waivers for student athlete (cheerleader, marching band, etc.) activities, submit your documentation in person during the first week of class.

## Emergency response recommendations

The Department of Homeland Security and the University of Illinois at Urbana-Champaign Office of Campus Emergency Planning recommend the following three responses to any emergency on campus: **RUN > HIDE > FIGHT**

**ONLY FOLLOW THESE ACTIONS IF SAFE TO DO SO.** When in doubt, follow your instincts—you are your own best advocate!

---

### RUN

Action taken to leave an area for personal safety.

- Take the time now to learn the different ways to leave your building **BEFORE** there is an emergency.
- Evacuations are mandatory for fire alarms and when directed by authorities. **No exceptions!**
- Evacuate immediately. Pull manual fire alarm to prompt a response for others to evacuate.
- Take critical personal items only (keys, purse, and outerwear) and close doors behind you.
- Assist those who need help, but carefully consider whether you may put yourself at risk.
- Look for **EXIT** signs indicating potential egress/escape routes.
- If you are not able to evacuate, go to an Area of Rescue Assistance.
- Evacuate to Evacuation Assembly Area and remain until additional instructions are given.
- Alert authorities to those who may need assistance.
- Do not re-enter building until informed by emergency response personnel that it is safe to return.

#### ACTIVE THREAT:

- If it is safe to do so run out of the building. Get as far away as possible. Do not go to the Evacuation Assembly Area.
- 

### HIDE

Action taken to seek immediate shelter indoors when emergency conditions do not warrant or allow evacuation, such as for severe weather.

- Take the time now to learn the different ways to seek shelter within your building **BEFORE** there is an emergency.
- If you are outside, proceed to the nearest protective building.
- If sheltering-in-place due to severe weather, proceed to the identified Storm Refuge Area or to the lowest, most interior area of the building away from windows or hazardous equipment or materials.

#### ACTIVE THREAT:

- Lock or barricade your area.
  - Get to a place where the threat cannot see you.
  - Place cell phones on **silent**.
  - Do not make any noise.
  - Do not come out until you receive an Illini-Alert advising you it is safe.
- 

### FIGHT

Action taken as a last resort to increase your odds for survival.

#### ACTIVE THREAT:

- If you cannot run away safely or cannot hide, **be prepared to fight with anything available to increase your odds for survival.**
-