

Course Syllabus

Comparative Vertebrate Anatomy

Lecture: Tuesday, Thursday 9:00 am - 12:30pm **CBB 110**

Labs: Tuesday, Thursday 1:00 pm - 4:30 pm in **CBB 115**

Teaching Team: Dr. Rita S. Mehta & Jenna Contuchio

Name	Email	Office hours	Office location
Rita Mehta	rmehta2@ucsc.edu	12-1pm T & Th, during labs, or by appointment	CBB 264
Jenna Contuchio	jecontuc@ucsc.edu	During labs or by appointment	CBB 157

Book: Your Inner Fish, by Neil Shubin (Available on Canvas)

Lecture Material: Much of lecture material comes from select chapters from Comparative Anatomy, Function, Evolution. K. Kardong 7th Edition (Chapters 2,3,7, & 8) and original research from the PI's lab or the primary literature. All readings will be provided on CANVAS.

Course Objectives and Goals:

1. Understand basic concepts of evolutionary biology and classification of vertebrates.
2. Become familiar with the form and diversity of the following systems: Skull, axial skeletal, and muscular system
3. Be proficient in anatomical dissection
4. Understand the basic principles of functional morphology; in particular, how form contributes to different feeding and locomotor behaviors.

Week	Date	Lecture	Readings
1	7/30	- Syllabus/Introduction/Approaches to Note-taking/ Studying new Terminology - Origin of Chordates	Chapters 1-2 <u>Your Inner Fish</u>
	8/01	- Survey of Vertebrate Diversity - Quiz #1: Ch 1 and 2 <u>Your Inner Fish</u> - Discuss <u>Your Inner Fish</u> Ch 1 and 2	- Chapters 3-4 <u>Your Inner Fish</u> - Study for exam; Practice Midterm
2	8/06	- Quiz #2: Ch 3 and 4 <u>Your Inner Fish</u> - Discuss <u>Your Inner Fish</u> Ch 3 and 4 - Midterm 1 (8/06-8/07 @ midnight) - Skull Diversity and Feeding (part 1)	Chapters 5-6 <u>Your Inner Fish</u>
	8/08	- Quiz #3: Ch 5 and 6 <u>Your Inner Fish</u> - Skull Diversity and Feeding (part 2)	Chapters 7-8 <u>Your Inner Fish</u>
3	8/13	- Quiz #4: Ch 7 and 8 <u>Your Inner Fish</u> - Discuss <u>Your Inner Fish</u> Ch 7 and 8 - Assignment due: Selection on Fish Skull	- Chapters 9-10 <u>Your Inner Fish</u> - Start reading Standen et al. 2014
	8/15	- Quiz #5: Ch 9 and 10 <u>Your Inner Fish</u> - Discuss <u>Your Inner Fish</u> Ch 9 and 10 - Axial Skeleton/ Appendicular skeleton	- Start reading chapter 11 <u>Your Inner Fish</u> - Reading Standen et al. 2014
4	8/20	- Midterm 2 (8/20-8/21 @ midnight) - Water to Land Transition	- Chapter 11 & Epilogue <u>Your Inner Fish</u> - Reading Standen et al. 2014
	8/22	- Sketch a scientific article - Present article in class - Assignment due: Build a skull	- Studying for final exam
5	8/27	Final exam for lecture material -cumulative exam/ In-person study for lab	
	8/29	Jeopardy in-class game/ Final exam for lab material	

Attendance/Participation: Required for all lectures and laboratories. Students must be punctual to class. Attendance and participation are components in your evaluation. Only rarely are course exams allowed to be made up, and then only with a written medical excuse from your physician. We cannot make up labs in summer session. You are welcome to perform the lab on your own but you will need to find time and organize your own space in order to carry this through. You will be docked up to 10 points for each lab / dissection that is missed.

It is imperative that you come prepared to lecture and laboratory. The laboratory reading assignments should be read **BEFORE** coming to lab. Lab handouts will also be available ahead of time and it is your responsibility **to print these lab handouts before coming to lab.** We will be lenient on the first lab as needed. All of these materials will be on Canvas. If you have to miss lab for any reason that is not a medical emergency, we expect that you will make time to discuss the material you missed with your peers in the course. This could be your lab mate and/ or a friend in the course.

Examinations: Examinations will be provided on CANVAS and exams will be completed on your own time within a designated time frame to cover the appropriate material. All exams will be timed and DRC accommodations can be easily factored into the CANVAS exam times so that students with DRC accommodations may receive the time they need to be successful.

Honor Code: There will be zero tolerance on infractions to the honor code. Please refer to <http://deanofstudents.ucsc.edu/pdf/student-handbook.pdf> (Pay special attention to the following sections: 102.011 Cheating, 102.012 Plagiarism, 102.013 **Furnishing false information in the context of an academic assignment**, 102.014 **Creating an improper academic disadvantage to another student or an improper academic advantage to oneself**, 102.015 **Interference with courses of instruction**, and 102.016 **Theft or damage of intellectual property**).

At the end of the course, students with continually improving grades **will** be given additional consideration. An incomplete grade (I) is given only in accordance with university criteria (see <http://registrar.ucsc.edu/navigator/section4/performance/incomplete%20.html>; if criteria are met, a written contract must be signed both by instructor and student, it is not intended as an escape clause for poor performance).

How to learn anatomy:

Comparative Vertebrate Anatomy is not a course that can be easily learned in a few hours a week. The dissections take time and there is nothing that takes the place of spending the necessary time in the lab as allotted every Tuesday and Thursday.

To successfully learn the principles examined in this course, we encourage you to come to lectures, review your notes, and practice new terminology. In addition, study groups with your fellow students will allow you to further explore the material by teaching each other. Learning biology does not involve osmosis-rather, you must actively review the material from the textbook, lecture, and laboratory. We are also available if you have any questions, concerns, or comments. If you are still unsure on how to study, feel free to contact us. Please refer to the syllabus for our availability.

What is conceptual about anatomy? Understanding muscle attachment, origin, and insertions, how contraction works is all conceptual. Spatial orientation should be somewhat intuitive and will help you understand how movement occurs through the contraction of different muscles. **Terminology is absolutely not conceptual. Terminology is memorization. Terminology is how we will communicate so please learn your terminology.**

Use of Animals

In this class, we will be **dissecting** a number of different animals including a **lamprey, fish, frog, and rat**. We expect that all animals will be dissected properly and respect be given to the animals. We use real animals for dissection because it provides superior learning of form-function compared to models or computer programs. To learn anatomy effectively, you must get your hands dirty (figuratively, we have gloves to keep your hands clean). If you have concerns with the dissections, please come to see me so we can discuss your concerns. Dissection is required and learning this subject matter will be much easier if you work in teams of 2 but make yourself accountable for learning all of the material.

Accessibility: Students with disabilities are encouraged to speak to either or both members of your teaching team about accommodations they may need to produce an accessible learning environment.