

Development & Physiology of Organisms (BIOE 20B) Summer 2014

Session 2: meeting 07/28/14 - 08/29/14

Instructor: Norah Saarman (nsaarman@ucsc.edu)

TA: Carla Fresquez (cfresque@ucsc.edu)

1:00-3:45pm MWF Earth & Marine B206

**Dates and types of dissections/demos & quizzes are subject to change.*

	Date	Lecture Time	Topic	Reading	Quizzes	Assignment Due/Demo	Section Activity
Week 1	Mon 7/28	1:00-2:15pm	Logistics, Form & Function, SA/V Ratios, Animal Tissues	Ch 40			No lab, No office hours Monday Office hours start Weds, 4-5pm in Thimann greenhouse
		2:30-3:45pm	Homeostasis, Bioenergetic Strategies, Thermoregulation, Digestion I: Diet Types, Essential Nutrients, Fuels	Ch 40 & 51			
	Weds 7/30	1:00-2:15pm	Digestion II: Regulation of Caloric Intake, Digestion & Absorption; Hormonal Control of Digestion	Ch 51		Fish Dissection Demo: Digestive System*	
		2:30-3:45pm	Osmoregulation, Salt & Water Balance I: Osmosis & Diffusion, Osmoregulatory Challenges Across Habitats	Ch 52		<i>Check your clicker is registered on eCommons</i>	
	Fri 8/1	1:00-2:15pm	Osmoregulation, Salt & Water Balance II: Kidney Function	Ch 52			
2:30-3:45pm		Animal Circulatory Systems I: Types of Circulatory Systems, Anatomy of Closed System	Ch 50				
Week 2	Mon 8/4	1:00-2:15pm	Animal Circulatory Systems II: Blood Pressure & Blood, Oxygen Transport	CH 50	IN CLASS Clicker QUIZ		Lab I: Seymour Center Visits: On your own Mon-Sun 10-5pm - TA has extended OH @ Seymour Center, Thurs 1-3pm Office hours: Mon 11-12pm Mon 4-5pm Weds 4-5pm
		2:30-3:45pm	Animal Respiratory Systems	CH 49		Banana Slug and Mussel Demo: Respiratory Systems*	
	Weds 8/6	1:00-2:15pm	Nervous System I: Types of Nervous Systems, Neuron Structure, Electrochemical Gradient	Ch 45			
		2:30-3:45pm	Nervous System II: Action Potentials, Neurotransmitters, Sympathetic vs. Parasympathetic Systems	Ch 45			
	Fri 8/8	1:00-2:15pm	Endocrine System: Types of hormones, Cellular effects of hormones, Insulin regulation, Hypothalamus, Sex Hormones	Ch 41	IN CLASS Clicker QUIZ		
		2:30-3:45pm	Musculoskeletal Systems: Sliding Filament Theory	Ch 48			
Week 3	Mon 8/11	1:00-2:15pm	Animal Development I: Stages of Development, Differential Gene Expression; Role of Genes in Dev.	Ch 19 & 20.2		Lab I due in class	Exam Review Monday 8/11, 9-11am and 5-7pm Location: EMS B214 Office hours: Mon 11-12pm Mon 4-5pm No office hours Weds.
		2:30-3:45pm	Animal Development II: Pattern Generation, Maternal Effects Genes, Hox Genes, Stem Cells	Ch 19 & 20.2			
	Weds 8/13	1:00-3:45pm	MIDTERM: ANIMAL MATERIAL				
	Fri 8/15	1:00-2:15pm	Animal Development III: Fertilization & Early Development, Germ Layers	Ch 44 & 43.2		Fertilization Demo: Early Development*	
2:30-3:45pm		Animal Development IV: Organogenesis, Extraembryonic membranes, Human Stages of Development	Ch 44				
Week 4	Mon 8/18	1:00-2:15pm	Introduction to Plants, Plant Diversity, Plant Structure & Function, Plant Tissues	Ch 34	IN CLASS Clicker QUIZ	Radiolab Assignment due in class	Lab II: Green House Mon 11-3pm Tues 9-3pm Weds 9-3pm Thurs 9-3pm Fri 9-1pm Office hours: Mon 11-12pm Mon 4-5pm Weds 4-5pm
		2:30-3:45pm	Photosynthesis	Ch 10			
	Weds 8/20	1:00-2:15pm	Water Transport: Water potential, Xylem, Apoplastic/Symplastic Movement, Transpiration-Cohesion-Tension Theory, Stomata Opening/closing, Sugar Transport	Ch 35		Pressure Bomb Demo*	
		2:30-3:45pm	Plant Nutrition: Soil, Cation Exchange, mycorrhizae, N-fixation	Ch 36			
	Fri 8/22	1:00-2:15pm	Plant Growth & Regulation I: Factors regulating plant growth, Detection of light, Tropisms	Ch 37.1 & 37.5	IN CLASS Clicker QUIZ		
		2:30-3:45pm	Plant Growth & Regulation II: Hormones, Acid Growth Hypothesis,	Ch 37.2-37.4			

		Biotech					
Week 5	Mon 8/25	1:00-2:15pm	Plant Disease I: Responses to pathogens gene for gene resistance	Ch 39		Lab II due in class	Exam Review Monday 8/25, 9-11am and 5-7pm Location: EMS B214 Office hours: Mon 11-12pm Mon 4-5pm Weds 4-5pm
		2:30-3:45pm	Plant Disease II: Hypersensitive response: Responses to herbivores, Chemistry	Ch 39			
	Weds 8/27	1:00-2:15pm	Plant Reproduction & Development I: Floral development, Organ identity genes	Ch 38 & 19		Flower Dissection*/ Science Friday Assignment due in class	
		2:30-3:45pm	Plant Reproduction & Development II: Seed & Seedling Development, pollination syndromes	Ch 38		Pollen Tube Demo*/ Time set aside for instructor evaluations. Please bring computer to class, and go to eCommons - Evaluation System tab	
	Fri 8/29	1:00-3:45pm	FINAL: CUMULATIVE (25% from before midterm, 75% from after midterm)				

INSTRUCTORS (EMAIL)

Norah Saarman (nsaarman@ucsc.edu)

Carla Fresquez (cfresque@ucsc.edu)

OFFICE HOURS

Thimann Greenhouse: 11-12pm Mon, 4-5pm Weds

Thimann Greenhouse: 4-5pm Mon/Weds

(or by appointment)

COURSE DESCRIPTION: This course will cover structure and function of plants and animals from the cellular to the organismal level including anatomy, physiology, and development.

OFFICE HOURS: Students are **enthusiastically** encouraged to attend the office hours of your instructor and TA. You are welcome to come with specific questions or to just "talk biology". We will not respond to requests for notes or "what is going to be on the exam." Norah's OH are generally group question and answer periods. If you have a private question/issue to discuss, please contact me ahead of time to make an appointment.

CLASS LOGISTICS/EMAILS: Please refer to eCommons for all class instructions and assignments. You are responsible for attending class and for everything that is said in class, **including any changes made to the syllabus**. Please ensure that you are receiving course emails from eCommons as this is the primary communication tool that will be used. If you have a question about course logistics, check the website, ask a friend, ask a TA, THEN ask the instructor. There are many of you and only one of me!

REQUIRED TEXT: Life – The Science of Biology, 10th Edition (Sadava et al). This is also available as an eBook for lower costs. Renting is also a great option! Check out <http://book.ly/ucsc> (I just found a rental option for \$25 for 90 days). Special Note: The bookstore sells "Life: The Science of Biology, Vol. 3: Plants and Animals, 10th Edition" which includes Chapters 35-52. This smaller volume **does not have required reading from Chapters 10, 19, and 20**. If you choose to buy Vol. 3, you will need to use the copy of the full text on reserve at the Science and Engineering Library to access these chapters. We discourage use of the 9th Edition of the text because page numbers and figures do differ from the 10th Edition. **You are responsible for checking that you are reading and learning the correct material.**

REQUIRED WEB MATERIAL: The website is on eCommons under Bioe 20B.

GRADES: Grades will be calculated as follows:

Midterm (Animals)	30%
Final Exam (Cumulative: 25% Animals + 75% Development and Plants)	40%
Labs & Assignments (2 labs, 2 podcast assignments)	10%
4 in Class Clicker Quizzes	15%
Other Section Assignments & In Class (clicker) Participation	5%

ASSIGNMENTS and LABS: Unless otherwise specified, assignments are due **IN CLASS at the beginning of class** as indicated by the syllabus. You **MUST** write your TA's name on your assignment. Late assignments, including those turned in after class but on the same day, will be docked 10% for each day that it is late.

LAB I - Week of August 4th: You can download the lab on eCommons, and **print it on your own**. You will need to visit the Seymour Center at Long Marine Lab, located at 100 Shaffer Road, Santa Cruz, CA 95060, http://seymourcenter.ucsc.edu/visitor_information.html. UCSC undergraduates are **FREE with valid ID (with summer sticker)**. Hours: Mon-Sun 10am- 5pm. TA, Carla Frequez, will be available to answer questions at the Seymour Center

Thursday 1-3pm. You must complete your **OWN** work and completely answer all the questions to get full credit. You must also get your name checked off when you get to the Seymour Center. They will check your ID in order to check you off the list. Both the assignment and attendance are required to get credit. Late labs will not be accepted. Your lab is **DUE in class on August 11th**.

LAB II - Week of August 18th: You can download the lab on eCommons, and **print it on your own**. You will need to attend section in the Thimann Greenhouse, <http://greenhouse.ucsc.edu>. Hours: Mon 11:00am-3pm, Tues-Thurs 9am-3pm, and Fri 9am-1pm. Jim Velzy, the Greenhouse director, has set out displays that go along with the lab you have printed from eCommons. The UCSC Greenhouse located on the roof of Thimann Labs. Go to the WEST end of the building (the elevator end), and follow the stairs up to the roof. Go through the doorway out onto the roof, and follow the walkway around to the left and into the door, which leads to the lab. **Your lab is DUE either in the provided drop box at the greenhouse, or in class August 25th**.

PODCAST ASSIGNMENTS - Over the course of the class, you will have to listen to the assigned Radiolab and Science Friday podcasts and complete the 2 assignments posted on eCommons. The Radiolab assignment is **due in class August 18th**. The Science Friday assignment is **due in class August 27th**.

CLICKER QUIZZES: The clicker quizzes are study aids and count significantly toward your grade. They are intended to help keep you from falling behind in the material and to help you see where you need to study more. Any material that has been covered up to day of the quiz is fair game **including the reading**. To ensure that your clicker is working, **MAKE SURE TO CHANGE YOUR BATTERIES**. **Missed clicker quizzes cannot be made up**. Lowest score is **NOT** dropped.

iCLICKERS: iClickers are required for this course for every class period. You can purchase your iClicker at the bookstore (ISBN# = 9781464120152). They are \$30.00 used or \$40.00 new. This same clicker will be used by other courses while you are here so you only need to purchase this clicker once. The mobile phone version is not permitted for this course. **NOTE**: Clickers will be used in **every class** AND for clicker quizzes. **Bring your clickers to every class, change your batteries, and bring additional batteries to class**.

Clicker remote registration:

You must have come to class at least once and voted on at least one question in order to complete this registration properly. Once you have responded to a question with your i>clicker remote, go to <http://www.iclicker.com>, and in the top right menu, select "register your remote". Complete the fields with your first name, last name, student ID, and remote ID. Your student ID should be **your student ID**. The remote ID is the series of numbers and sometimes letters found on the bottom of the back of your i>clicker remote.

Forgotten clicker policy:

Please realize that we will be using iclicker in **every class** and clicker points will make up a portion of your final grade. Please remember that it is your responsibility to come prepared to participate with a functioning remote everyday. You get two "free days" which will not count against you for participation. Otherwise each class period counts for 3 points that goes towards your participation grade (5% of your total grade).

Broken/lost clicker policy:

If you have lost or broken your i>clicker remote, you will have to purchase another one. Please email me with your new Remote ID so that I can manually register your new remote.

ACTIVE LEARNING: This class values your participation. In both class and section you will be expected to participate in your learning and the instructor and TAs will incorporate opportunities for you to do so. Scientific data has shown that people learn more effectively when they take an active role in their learning. Coming to class is the first step in taking responsibility for your learning and has the added benefit of reducing the time and effort required to master the material outside of class.

Passive learning strategies include:

- read the text book or lecture notes
- watch video recordings
- make flash cards
- make vocabulary lists
- rewrite your notes in different color inks.

These are all good strategies, but are NOT enough to get you to an "A" in this class. You must also include *Active learning strategies* (next page).

Active learning strategies include:

- draw and labeling diagrams
- stand at a whiteboard and walking someone else through a concept
- participate in class activities (discuss answers to the questions with your neighbor)
- go through the "Working With Data" sections at the end of each chapter with another student (instructors can help you correct your answers during office hours)
- ask "what if" questions in which you challenge your understanding of material by asking what would happen if I perturb the system in a particular way (thought questions in class are examples)
- ask experimental design questions and challenge yourself to understand how an experiment answers a particular question
- ask new scientific questions, and try to figure out if it has ever been tested
- make up sample quizzes for yourself and exchanging them with a classmate
- teach the material to your peers, friends, family, or classmates.

About taking notes: This course is material intensive. The power points will be loaded prior to lectures. The best note taking strategy is to use these to take notes and do not try to copy down everything on a slide. Rather, LISTEN and write down the most important points then review your notes with the book to fill in any gaps.

MSI TUTORING: UCSC offers "Modified Supplemental Instruction"/tutoring for Bioe 20B. This gives students the opportunity to learn together in small groups led by advanced Student Learning Assistants. MSI is guaranteed study/ and earning time facilitated by someone who has already been successful in the class. **Sign up for sessions at this website:** <https://eop.sa.ucsc.edu/OTSS/tutorsignup/> (don't be discouraged by the "Reminder: LSS is not offering tutoring for MSI supported courses", this is meant for regular session students). The schedule for Bioe 20B during Summer Session II is as follows:

- Monday 11:30AM, Social Sciences 2 Room 137
- Tuesday 12PM, Academic Resources Center 202
- Tuesday 1:30PM, Academic Resources Center 202

DRC STUDENTS: Please be sure to introduce yourselves to the instructors (after or before class) **in the first week of class** and let us know how we may facilitate your learning experience. Furthermore, please bring your DRC forms so we can make arrangements for the midterm and final well ahead of schedule. If you wish to use your DRC accommodation for clicker quizzes please contact the instructor **the first week of class**. Accommodation requests the day before or after the clicker quizzes will not be acceptable.

EXAM POLICIES & ACADEMIC INTEGRITY: No exams will be given prior to the specified dates. **No makeup exams will be given**, except in case of serious accident, illness, or death in the family. In such cases **verification will be required**, and instructors must be notified within 24 hours of the exam. **Note on missed classes:** The instructor is not responsible for providing notes should a student miss a class, nor is it acceptable to expect wholesale review of all covered material in office hours should a student miss class.

We embrace communal learning and encourage students to form informal study and discussion groups. However, cheating will lead to a failing grade in the course, or, in less grave cases, to a failing grade on the particular exam or assignment. Cheating includes (but is not restricted to): copying from a classmate's exam with or without their consent, completing work for another student, or turning in a lab assignment (e.g. greenhouse exercise) without actually attending the lab. All cases of cheating will be discussed with the student and then reported to the university for possible additional disciplinary action, according to the university's Policy on Academic Integrity, http://www.ucsc.edu/academics/academic_integrity/undergraduate_students/. If a student is found taking a quiz for another student using their clicker, both students will fail the course and will be referred to the dean for disciplinary action.