

# Development & Physiology of Organisms (BIOE 20B) SUMMER 2015

Instructor: Dr. Robin Dunkin  
1:00 - 4:30pm MW Jack Baskin Auditorium

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

TOPIC/ WEEK	Lecture Date	In Class Topic	Reading	Online Quizzes	Assignment Due	Group Project	Section Activities	
Week 1	MON JUNE 22	Logistics, Form & Function, SA/V Ratios, Animal Tissues	CH 40	Online quiz due by 11pm FRI	<i>Make sure your clicker is registered on iclicker.com</i>	Meet with your group and decide on topic	No Sections	
		Homeostasis, Bioenergetic Strategies, Thermoregulation	CH 40					
		Digestion I: Diet Types, Essential Nutrients, Fuels, Regulation of Caloric Intake	CH 51					
	WED JUNE 24	Digestion II: Digestion & Absorption	CH 51		Metabolism Worksheet DUE	Group Project Topic (due by email to TA by June 29th)		
		Osmoregulation: Osmosis & Diffusion, Kidney Function	CH 52					
Week 2	MON JUNE 29	Animal Circulatory Systems: Form/Fxn of Closed System Blood Pressure, Oxygen Transport	CH 50	Online quiz due by 11pm FRI	The Kidney Worksheet DUE		Material Review	
		Animal Respiratory Systems	CH 49					
		Nervous System: Neuron Structure, Electrochemical Gradient, Action Potentials	CH 45					Graphing and Stats Worksheet DUE
	WED JULY 1	Endocrine System: Types of hormones, Cellular effects of hormones, specific hormone systems	CH 41		Action Potentials Worksheet DUE			Group Project Scientific Article Due to TA
		Musculoskeletal Systems: Sliding Filament Theory	CH 48					
Week 3	MON JULY 6	Animal Development I: Stages of Development, Differential Gene Expression; Role of Genes in Dev.	CH 19 & CH 20.2		Muscles Worksheet DUE		Material Review and Group Project check ins	
		Animal Development II: Pattern Generation, Maternal Effects Genes, Hox Genes, Stem Cells	CH 19 & CH 20.2					
		<b>MIDTERM 1-2:15pm; lecture for remaining class period</b>						
	WED JULY 8	Animal Development III: Fertilization & Early Development, Germ Layers	CH 44 & CH 43.2		Radiolab Extra Credit DUE			Three key points about article emailed to your TA
		Animal Development IV: Organogenesis, Extraembryonic membranes	CH 44					

Week 4	MON JULY 13	Introduction to Plants, Plant Diversity, Plant Structure & Function, Plant Tissues	CH 34	Online quiz due by 11pm	Maternal Effects Genes Worksheet DUE	Greenhouse Visit
		Water Transport I: Water potential, Xylem, Apoplastic/Symplastic Movement	CH 35			
		Water Transport II: Transpiration-Cohesion-Tension Theory, Stomata Opening/closing, Sugar Transport	CH 35			
		Plant Nutrition: Soil, Cation Exchange, Mycorrhizae, N-fixation	CH 36			
		Plant Growth & Regulation I: Factors regulating plant growth, Detection of light, Tropisms	CH 37.1 & 37.5			
Plant Growth & Regulation II: Hormones, Acid Growth Hypothesis, Biotech	CH 37.2-4					
Week 5	MON JULY 20	Photosynthesis	Ch 10	Science Friday Extra Credit Due Auxin Worksheet & Greenhouse Lab DUE	Material Review for Final	
		Plant Reproduction & Development	CH 38			
	WED JULY 22	<b>CUMULATIVE FINAL EXAM 1pm-3pm; GROUP FINAL EXAM 3:15-4:30</b>				

<u>INSTRUCTORS</u>	<u>OFFICE</u>	<u>OFFICE HOURS</u>	<u>EMAIL</u>
Dr. Robin Dunkin	Thimann Labs 387A	10-11 WED	rdunkin@ucsc.edu
Christopher Kan	TBD		chkan@ucsc.edu

#### 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.” Dr. Dunkin’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 the website 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 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!

#### ATTENDANCE:

As this is summer session, each class period is the equivalent of 3 MWF classes. Attendance will be taken with iclickers and will count significantly toward your grade.

#### REQUIRED TEXT AND WEB MATERIAL:

Life – The Science of Biology 10th Edition (Sadava et al). This is also available as an eBook for lower cost. The website is on eCommons under Bioe 20B. Special Note: You may use the 9<sup>th</sup> Edition of the text at your own risk. Some page numbers and figures do differ from the 10<sup>th</sup> Edition. You are responsible for checking that you are reading and learning the correct material.

#### GRADES:

Grades will be calculated as follows:

Midterm	30%
Final Exam (75% after midterm material + 25% prior to midterm)	30%
Final Exam Group Portion	5%
Group Project	15%
Online Quizzes	10%
In Class Participation (clickers, minute papers, group worksheets)	10%

#### GROUP WORK:

In science and in life, working in groups is an important skill. In this class you will have the opportunity to work with and learn from each other and practice this skill. We will be forming groups on day 1 that you will work with throughout the course including in and out of class. You will be working with your group on a project and you will take a portion of your final exam together.

#### ASSIGNMENTS:

Unless otherwise specified, assignments are due **IN CLASS** as indicated by the syllabus. Late assignments, including those turned in after class but on the same day, will be docked 10% for each day that it is late.

All assignments can be found on eCommons.

**GREENHOUSE:** Attend section in Greenhouse (top floor of Thimann Labs) (Allow 1 hr 10min). More information will be given in class. 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 and out onto the roof. Follow the walkway around to the left and into the door, which leads to the lab.  
<http://greenhouse.ucsc.edu>

**EXTRA CREDIT:**

Extra credit is limited to 1% of your total overall grade.

**GRADING SCALE:**

97-100 A+  
93-96 A  
90-92 A-  
87-89 B+  
83-86 B  
80-82 B-  
77-79 C+  
70-76 C  
<69 D  
<59 F

**ONLINE QUIZZES:**

Weekly online quizzes will be given. These will be conducted through eCommons. They are open note/book **BUT NOT GROUP WORK**. These are intended to help you test yourself on the reading and lecture material. Be sure to carefully read the instructions when taking these exams.

**iCLICKERS:** iClickers are required for this course for every class period. You can purchase your iClicker at the bookstore (ISBN# = 9781464120152). 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 quizzes.

**i>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/registration>. 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. i>clicker will be used every day in class, and you are responsible for bringing your remote daily.

**Forgotten clicker policy:**

Please realize that we will be using i>clicker 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 and this will be used to determine your participation 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.

**Other Clicker Notes: Change your batteries and bring additional batteries to class.**

**ACTIVE LEARNING:** This class values your participation. You are expected to participate in your learning and the instructor and TA 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:** reading book or lecture notes, watching the video recordings, making flash cards, making vocabulary lists, rewriting your notes in different color inks. Note – watching the podcasts is NOT a good study strategy – use these ONLY as a review if you missed something.

These are all good but are NOT good enough to get you to an “A” in this class. You must also include *Active learning strategies* (see below).

**Active learning strategies include:** drawing and labeling diagrams, standing at a whiteboard and walking someone else through a concept, asking “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), asking experimental design questions and challenging yourself to understand how an experiment answers a particular question, asking new scientific questions, making up sample quizzes for yourself and exchanging them with a friend, teaching the material to your peers, friends, family, or pet!

**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.**

#### 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. Exams will be coordinated via a Google link sent out by PBSci testing center.

#### 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 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/](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.

#### Major Qualification

**This course is required to declare one or more of the majors in the Division of Physical & Biological Sciences. Your performance in this course may determine your eligibility for a science or math major. For more information on major qualification, please go to:**

**<http://undergrad.pbsci.ucsc.edu/resources/how-to/qualifying-for-a-major.html>**