

L112 Biological Mechanisms

Syllabus: Summer 2003

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Lecture: Daily: 10:30 – 11:20 in Jordan Hall A106
 Discussion Sections: One hour per week
 Text: *Biology*, Campbell and Reece (6th Ed.)
 One copy on reserve at the Life Sciences Library

Philosophy of this course: The goal of this course is your comprehensive understanding of cellular structure and function. This course is one foundation on which your future biology courses are based and therefore your mastery of its material is essential. Additionally, you will learn critical analysis and scientific thinking, both of which will be used in your later biology and non-biology courses. To these ends, you will be asked to take an *active* role in your learning. You will often be challenged to solve a problem or answer a question without the help of step-by-step guidelines. The purpose of this approach is to make *learning a process* and not a list of information you must memorize to repeat later. You will engage in work as a team member both in lecture and in lab, because communication is one of the best ways to increase your learning. *Be willing to be both a teacher to and learner from your colleagues.* They are counting on you.

Philosophy of the instructors: Our roles are as a facilitator to your learning. We create scenarios in which you explore information and learn individually and collectively. We do not “give” information nor do we know all the answers to your questions. Together we will explore the beauty of cells. We do not give grades; students earn them.

Absences: Attendance in lecture is necessary to fulfill your role of active learner and to achieve mastery of the material. Discussion sections are also required. Exams cannot be made up. Under extreme circumstances, exams can be taken early if you provide us with adequate notice (at least 2 days). It is your responsibility to obtain notes or other course materials from days you are absent.

Assessment: Your learning will be assessed through exams, in-class quizzes, out-of-class written assignments, and both written and oral communications in discussion sections. A tentative point value is as follows:

Activity	Approx. points	Approx. weight	Your score
Exams (2)	100 pts each	15 % each	
Final exam	150 pts	25%	
In Class Accountability (10-15)	3-5 pts each	10%	
Out-Of-Class writing (4)	20 pts each	10%	
Unannounced quizzes	10 pts each	10%	
Discuss sections (8)	10-15 pts each	15%	
TOTAL	~680 pts	100%	

Quizzes and In Class Accountability: Frequently, we will begin class with a quiz on the reading assignments, or ask you to answer a question based on the previous material. For your benefit, you must read your text and/or any other assignments prior to coming to class.

Exams: Exams will cover material from lecture and discussion sections and will consist of multiple choice, short answer, fill-in, and essay questions. The **final exam** is comprehensive and will be administered on the last day of class (Friday August 15).

Discussion Sections: You must attend your discussion section each week. The discussion section activities are designed to help you master the material covered in class and to challenge you to apply this material to new situations. Discussion section work will often be completed in pairs or teams, and frequently, you will present your work to the class. Be prepared to submit your assignment at the end of class each week - late assignments will not be accepted.

Out-of-Class writing. Four times during the summer session, you will be asked to write about biology. For example, these written assignments may ask you to compare your knowledge of class material to the information that is portrayed in the media. Or, you may be asked to comment on the biological processes present in a movie. Each writing assignment will differ, and specific directions will be given to prepare you for each assignment.

Grading (percent scale)

93 – 100 = A	83 – 86 = B	73 – 76 = C	63 – 66 = D
92 – 90 = A-	80 – 82 = B-	70 – 72 = C-	60 – 62 = D-
87 – 89 = B+	77 – 79 = C+	67 – 69 = D+	< 60 = F

Academic dishonesty occurs whenever you represent another person's ideas or written work as your own. Cheating and plagiarism will not be tolerated. Any event of academic dishonesty will result in a failing grade. University policies regarding academic dishonesty as published in the IU catalog will be strictly followed. For full guidelines regarding academic conduct see <http://campuslife.indiana.edu/Code/>

If any students require assistance or appropriate academic accommodations for a disability, please contact the instructors. If you have not already done so, you must establish your eligibility for disability support services through the Office of Disabled Student Services in Franklin Hall 096 (855-7578).

Week	Date	Topics	Chapter	Notes
	20-Jun	Living things, course themes, Biology Bingo		
1	23-Jun	Water, chemistry	2-3	
	24-Jun	Biological molecules	5	
	25-Jun	What makes a cell?, Prokaryotes	7	
	26-Jun	Eukaryotes	7	
	27-Jun	Cellular energy: fermentation	9	
2	30-Jun	Cellular energy: aerobic respiration	9	
	1-Jul	DNA structure	16	
	2-Jul	DNA replication	16	
	3-Jul	Making proteins: transcription	17	Writing Assign. I due
	4-Jul	Making proteins: translation	17	
3	7-Jul	Genetic basis of evolution	13, 16, 23	
	8-Jul	Alternative genetic systems	18	
	9-Jul	Biotechnology	20, 38	
	10-Jul	Exam I		
	11-Jul	Mitosis	12	
4	14-Jul	Life cycles and reproduction	13	
	15-Jul	Meiosis	13	
	16-Jul	Mendelian genetics	14	
	17-Jul	Non-Mendelian genetics	14, 15	Writing Assign. II due
	18-Jul	Photosynthesis	10	
5	21-Jul	Photosynthetic alternatives	10	
	22-Jul	Plant structure	35	
	23-Jul	Development: plants	21, 35	
	24-Jul	Development: animals	21, 47	
	25-Jul	Prokaryotic world	27	
6	28-Jul	Evolution of eukaryotes	28	
	29-Jul	Exam II		
	30-Jul	Fungi	31	
	31-Jul	Fungi	31	Writing Assign. III due
	1-Aug	Invertebrates(?)	33, 40	
7	4-Aug	Animal structure	40	
	5-Aug	Disease and defense	43	
	6-Aug	Sensory systems	49	
	7-Aug	Communication	45	
	8-Aug	Behavioral biology	51	
8	11-Aug	Organisms affect each other	53	
	12-Aug	Ecological biology and adaptations	54	Writing Assign. IV due
	13-Aug	Test preparation		
	14-Aug	Challenge Day		
	15-Aug	Final Exam		