BI163 THE CELLULAR BASIS OF LIFE

SECTION C SYLLABUS FALL 2019 COLBY COLLEGE

Lecture times and location

Monday, Wednesday and Friday, 12-12:50 pm, Olin 001

Instructor

Dr. David R. Angelini

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office hours: Tuesday 10:30 am-noon and Thursday 9:00-10:30 am, or by appointment

Course description

This course conducts an examination of cells as the fundamental unit of life. Aspects of evolutionary biology, cell biology, molecular biology, and genetics are reviewed. A major objective is the development of intellectual tools to ask and answer interesting biological questions. The laboratory will allow each student to design and conduct experiments, to analyze and present data, and practice writing in the scientific format. BI163 is the first half of a year-long series introducing the fundamental concept of biology.

A student successfully completing this course will demonstrate an understanding of:

1) the cell as the fundamental structural unit of all living organisms, and
2) the diversity of life, especially as it relates to cellular processes

Required textbook

Biological Science, Scott Freeman, et al., 6th edition. ISBN 9780321976499

You should read the assigned chapters or pages before or immediately after the corresponding class period. Students are encouraged to purchase used copies of the textbook. Any additional readings will be provided via Moodle.

Laboratory

The lab will give you hands-on experience exploring the principles of biology discussed in class. You will learn about the practical aspects of the way that scientists do biology: experimental techniques, proper use of equipment, methods of data analysis, and abundant scientific writing. These concepts serve as a foundation for more advanced courses in the biology major. All aspects of laboratory (communication, assignments, instruction) will be managed by your lab instructor.

Grades

Your grade for BI163 will be based on the lecture (75%) and laboratory (25%) sections of the course. The specifics of your laboratory grade, and a lab syllabus, will be provided by your lab instructor.

Lecture grade components

Exam 1	17%
Exam 2	22%
Exam 3 (final)	26%
Graded assignments/quizzes	10%
Lab grade	25%

Final course grade

> 90%	A (most likely <93 A-, >93 A, A+ for exceptional performance)
80-90%	B (most likely <83 B-, 83-87 B, >87 B+)
70-80%	C (most likely <73 C-, 73-77 C, >77 C+)
60-70%	D (most likely <63 D-, 63-67 D, >67 D+)
< 60%	F

Laboratory attendance

Unexcused absence from the laboratory will result in your being dropped from the course. Please attend the laboratory section assigned to you. Only in the case of a family or medical emergency can you switch to a different laboratory section in a given week, and only with the permission of both lab instructors. Extracurricular activities that conflict with regularly scheduled academic classes are not considered to be emergencies.

Class attendance

Your active engagement with the course will be important to success. Therefore attendance at all class meetings is expected, except in exceptional circumstances. Isolated absences that do not result in late assignments are not a serious issue. Attending a different section of BI163 is not an acceptable way to make up for a missed class. (The other sections may be discussing a completely different topic on any day.) Poor attendance may result in an academic warning and may negatively affect your course grade, at the instructor's discretion. Be aware that classes cannot be missed for an athletic practice. However, if your request is made in advance, I generally allow absences for an athletic competition.

Web content & E-mail

Moodle (http://moodle.colby.edu/) will be the primary electronic method of contact for this course. Announcements and material related to the course will be posted there frequently, so please check the site on a regular basis. On the site you will also find the course syllabus and the schedule of topics, assignments, and PDF files from lecture slides.

Problem Sets

Problem sets will be ungraded. They are meant to familiarize you with the level of knowledge expected and the types of questions you may see on an exam. You will not turn these in, and they are not graded. However, I'm happy to help you work through them.

Exams

There will be three lecture-based exams during the semester, including two mid-term exams and one final comprehensive (cumulative) exam covering the whole semester. These exams will be closed-book, closed-note, individual-effort exams. Leave all electronic devices out of the room. Exams will take place on the following days (note the **evening** times of the first two):

Exam 1	Thursday, October 3	7 pm	Location: TBA
Exam 2	Thursday, November 7	7 pm	Location: TBA
Final Exam	Sunday, December 15	9 am	Location: TBA

Graded Assignments/Quizzes

These will be administered from time to time throughout the semester. They will be announced ahead of time. Outside-of-Class assignments will have a strictly-assigned due date. Quizzes cannot be made up unless arrangements have been made prior to the class period.

Other course policies

- Assignments are not accepted late, except in the case of a valid, compelling and documented justification.
- No individual extra credit assignments will be offered.

Academic Honesty & Consequences for Academic Dishonesty

Honesty, integrity, and personal responsibility are cornerstones of a Colby education and provide the foundation for scholarly inquiry, intellectual discourse, and an open and welcoming campus community. These values are articulated in the Colby Affirmation and are central to this course. Students are expected to demonstrate academic honesty in all aspects of this course. Academic dishonesty includes, but is not limited to: plagiarism (which includes paraphrasing from sources, even with a citation); claiming another's work or a modification of another's work as one's own; buying or attempting to buy papers or other assignments; fabricating information or citations; knowingly assisting others in acts of academic dishonesty; violating clearly stated rules for taking an exam; misrepresentations to faculty within the context of a course; and submitting the same work, including an essay that you wrote, in more than one course. Sanctions for academic dishonesty are assigned by an academic review board and may include failure on the assignment, failure in the course, or suspension or expulsion from the College. For more information on recognizing and avoiding plagiarism, see http://libguides.colby.edu/avoidingplagiarism

Academic support

If you experience difficulty in this course for any reason, a wide range of services are available from the College to support you.

- First, please speak with me early if you are having trouble in the course.
- The Farnham Writing Center offers support for students on basic writing and reading skills.
- The Office of the Dean of Students offers services for students with learning differences. If you suspect you have a learning difference that might require accommodations in this course, please speak with your advising dean.
- Counseling Services (x4460) provided from the Health Center offer professional, confidential consultations regarding family problems, stress, depression, cultural adjustments, concerns with sexuality, alcohol and drug use, trauma and other personal issues.

Sustainability

Environmental degradation is a serious biological and societal issue. Colby is committed to practices that promote sustainable living. To help minimize the environmental impact of this course, I encourage you to buy used books. Minimize paper use by reading slides on a device when possible, rather than printing copies. It is acceptable to take notes on a laptop or tablet during class. If you choose to print, please print double-sided on recycled paper. Multiple slides may be printed to a single sheet. Recycle unnecessary paper after the end of the semester.

BI163 Tentative Course Schedule

Week of	Topic	Readings	Notes
Sept. 4	Introductions; The scientific method	1.6, 1.1-1.2	
	Cell theory; Evolution	1.1-1.6	
Sept. 9	The chemical basis of life	1.3-1.4 (BioSkill 13) 2.1-2.3	
	Energy	2.2-2.3, 2.5 (BioSkill 14); 8.1	
Sept. 16	Protein structure and function	2.3, 8.1; 3.1-3.3	
	Nucleic Acids; Carbohydrates	3.3-3.4; 4.1-4.3; 5.1-5.3	
Sept. 23	Lipids and biological membranes	6.1-6.4	
	Membrane transport; Cell structure	6.3-6.4; 7.1-7.3, 7.6	
Sept. 30	Enzymes	8.1-8.3	Exam 1
	Cellular respiration	8.3-8.5; 9.1-9.2	Thurs 10/3, 7pm
Oct. 7	Gylcolysis; Oxidative phosphorylation	9.3-9.6	
	Fermentation		
Oct. 14	Photosynthesis	10.1-10.3	
Oct. 23	Photosynthesis	10.3-10.4	Fall Break
	Cell division	12.1-12.2	no class 10/21
Oct. 28	Cell cycle control; Cancer	12.3-12.4	
	Hereditary information	4.1-4.3, 15.1	
Nov. 4	DNA replication and repair	15.2-15.3, 15.5	Exam2
			Thurs 11/7, 7pm
Nov. 11	Genes and the Central Dogma	16.1-16.2, 17.1	
	Transcription; RNA processing	17.1-17.2	
Nov. 18	The Genetic Code; Translation	16.3, 17.3-17.5	
Nov. 25	Mutations; Protein processing	16.4, 7.5	Thanksgiving
			no class 11/27-29
Dec. 2	Bacteria and Archaea	26.1-26.3	
	Microbiota	TBD	