

The Cellular Basis of Life

Biology 163 B Fall 2011

Professor: Lynn Hannum

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I encourage you talk to me if you have any questions about the lectures or reading material, or concerns about your performance in the course. Email is great for quick questions, but meeting face to face is better for more extensive conversations. The best way for us to have an uninterrupted chat is to make an appointment. It's easy – just email, call, or see me after class to arrange a time to meet.

Course Objectives

The objective of BI 163 is for the students to develop an understanding of:

- 1) the cell as the fundamental structural unit of all living organisms
- 2) the diversity of life, especially as it relates to cellular processes, and
- 3) how evolution is the underlying principle that unifies the entire living world.

Readings

Freeman, Scott. 2011. Biological Science, 4th edition. Prentice Hall, Upper Saddle River, NJ.

Readings from this book will supplement our lectures and discussions. You should read the assigned chapters/sections before the corresponding class period. This is by far the most effective use of the text.

Course web site <http://www.colby.edu/biology/BI163>

This is a shared site for all the BI 163 lecture and lab sections.

Class Sessions

Our class periods will consist of lectures and discussion roughly following the Schedule of Lecture Topics attached. For exams, you will be responsible for all material covered in class.

Because three different instructors teach the three sections of BI 163 independently, you cannot cover a missed class by attending a different section's lecture - they may be talking about something completely different than us that day.

Attendance and Participation

Attendance at all class meetings is mandatory. Unexcused absences will result in a lowering of your overall grade at the instructor's discretion.

Unexcused absence from laboratory will result in you 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 and only with the permission of both lab instructors. Extracurricular activities that conflict with regularly scheduled academic classes are not considered to be emergencies.

Laboratory

The laboratories will give you personal experience with exploring the principles of biology discussed in class and allow you to become familiar with some of the experimental techniques used to address current biological problems. Writing will be an important component of BI163 Lab; you will write several scientific papers over the course of the semester.

The laboratory schedule, all lab handouts and resources are available through the course web site. You are responsible for downloading, printing and reading the handouts before lab. Bring these materials with you to lab, as extra printed copies will NOT be available in lab.

Laboratory Instructors

Scott Guay (Olin 202, ext. 5733, slguay)
Tina Beachy (Olin 302, ext. 5725, tmbeachy)
Lindsey Colby (Olin 304, ext. 5727, lwcolby)
Sarah Gibbs (Olin 305, ext. 5747, scgibbs)

Exams

There will be two mid-term exams during the semester and one final exam during exam week. These exams will be closed book and will be completely individual efforts - no notes may be used, and no assistance of any kind may be acquired from other students during the exam.

“Plagiarism, cheating, and other forms of academic dishonesty are serious offences. The instructor may dismiss the offender from the course with a mark of F and will report the case to the department chair and the dean of students, who may impose other or additional penalties including suspension or expulsion.” (Colby College Catalog)

The first two exams will take place in the **evenings** on the following days:

Exam 1 - Wednesday, October 5 location: TBA
Exam 2 - Wednesday, November 9 location: TBA

The final will be a comprehensive exam over all material covered during the semester.
Final Exam – Wednesday December 14 at 1:30

Grade Calculation:

Lecture (75%):

Assignments – 10%
Exam 1 – 16%
Exam 2 – 21%
Final Exam – 28%

Laboratory (25%):

Specifics of the laboratory grade
will be provided by your lab
instructor

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Tentative Schedule of Lecture Topics

<u>Topic</u>	<u>Reading from Freeman</u>
Introduction	
Cell theory, germ theory, and the classification of organisms	Chapter 1 (1.1, 1.2, 1.4)
A very quick overview of cell structure	Chapter 7 (7.1, 7.2)
Cell components and structure	
Biomolecules: basic chemistry	Chapter 2
proteins	Chapter 3
carbohydrates	Chapter 5
lipids	Chapter 6 (6.1)
nucleic acids	
Membranes	Chapter 6
Cytoskeleton	Chapter 7 (7.6)
Cell – cell interactions	Chapter 8
DNA to protein	
From nucleic acids to genes	Chapters 4, 15
DNA replication, mutation, and repair	Chapter 14
Cell division and the cell cycle	Chapter 11
Transcription and translation	Chapter 16
Synthesis and movement of proteins	Chapter 7 (7.4, 7.5)
It all takes energy	
Cellular respiration and fermentation	Chapter 9
Photosynthesis	Chapter 10
Microbes and more	
Bacteria	Chapter 28
Viruses	Chapter 35
