MCB
(Molecular Biology, Cell Biology, and Biochemistry)
Biol. 213, Spring 2017

Course Description: This course integrates biochemistry, molecular biology, and cell biology to provide a foundation for many of the more specialized courses in the major. Topics include structure and function of proteins, membranes and cell organelles; gene structure, function and regulation; bioenergetics; cell cycle control, signal transduction and genetic engineering. Laboratory exercises highlight the techniques used in cell and molecular biology research and teach experimental design, troubleshooting and critical analysis. Students must register for both lecture and laboratory.

Goals: 1) Learn the basic structure and chemical properties of DNA, RNA, protein, and lipids; learn how these structures contributes to cellular function.
2) Understand how cells synthesize DNA, RNA, and protein, and how cells store and use energy.
3) Understand how cells regulate specific molecules, including their amounts, localization, binding partners, and activities. Understand how such regulation allows a cell to alter its behavior or state.
4) Gain familiarity with methods used to study DNA, RNA and proteins.

Prerequisites: Biology 100 and Chemistry 102 or 103.

Instructor: Laura Romberg A235, 775–8321, laura.romberg@oberlin.edu
Office hours: M, T, W, Th 11 am-12:20 pm

Sign-up on-line: (this link is also available on blackboard)
https://www.google.com/calendar/selfsched?stoken=UVA3cFNRcmlxBSWlHGRIZmFLbHR8ZWQ3ZDc2YTM0NTU2YjjMjg1NTA3OGU0Y2VknNGE4MWI
If you can't make these times, just email me and we will set up another time to meet.

Lecture section: TTh 9:30 a.m. – 10:45 p.m. A154


Many different forms of ECB can be bought or rented, including e-books and loose-leaf versions.
- The international version of the text book is not recommended as it is not identical to the other versions.
- Pictures can be critical to understanding biology. If you get an electronic version of the text, make sure that you take the time to look at the figures as you read.

The science library also has copies of the text book on reserve.

Textbook Resources developed by the publisher: Flashcards, Movies, Quizzes, Other Resources
(These resources were suggested by a previous student and have not been vetted by LR. The text book resources may not prioritize information in exactly the same way that our class does. You should prioritize information and skills to learn based on lecture material and study goals.)

Blackboard: Course materials will be posted on blackboard, including the syllabus, handouts, lecture slides, online problem sets, additional practice problems and answer keys, study goals, illness policy, and other documents as necessary.

Tutors: One-on-one student tutors are available from the Student Academic Services for those who want further help with the material. Please do not hesitate to use this service if you feel you would benefit.
Grading:
The final course grade is a combination of points earned in the lecture and lab.
To pass this course you must earn a C- (70%) or better in the lab portion.

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Lecture</td>
<td>80%</td>
</tr>
<tr>
<td>Lab</td>
<td>20%</td>
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Note that point values in lab do not directly correspond to point values lecture. There are 315 total lab points and 610 lecture points. Thus you need to do some math to calculate your final grade yourself. This course counts for QFR so I know that you can handle the math!

**Lecture point tally**
- 80 pts Online problem sets, 10 @ 10 each, drop the lowest two
- 24 pts Chemical structures quizzes, 3 @ 8 each
- 300 pts Exams, 3 @ 100 pts
- 200 pts Final exam*
- 604 pts

*On the final exam, approximately half of the points will cover new material since Exam III; the remaining points will cover cumulative material from the whole of the semester.*

**Problem sets:**
You will be expected to not just learn new material but also to be able to apply this material to solving problems. Problem sets will give you the opportunity to practice this skill, and they will be assigned regularly in order to allow you to learn throughout the semester rather just than cramming the night before exams. Each exam will contain at least one question that is very similar to one of the problems you have seen previously.

*There will be three forms of problems:*

**In-class problems**
We will regularly have short, in class problem-solving sessions followed by group discussions of the answers. You will be expected to work for the entire allotted time or until you can explain answers for all the problems presented, and you will occasionally be called on to present your answers to the class. Points may be deducted if you do not fully participate in these problem-solving sessions.

**Weekly online problem sets:**
Most weeks, online problem sets will be available on blackboard between 5 p.m. Thurs. and 11:59 pm Sun. They will cover material through that Thursday's lecture. Problems will be multiple choice, but you will also be required to explain your answers. Some points will be awarded for choosing the correct answer, but points will also be awarded simply for presenting complete explanations, whether correct or incorrect.

**HONOR CODE:** Online problem sets are open book and may be discussed with your classmates, but you must participate in problem-solving attempts and your explanations must be written independently and in your own words. Explanations must show an attempt to understand the questions and to use knowledge learned in class.

**Honor code violations include:**
- Evidence that your explanations were not written independently.
- Attempts to get points without showing an indication of having tried the problems.

Problem sets that show either of the above problems will not be available for dropping from the final grade. Evidence of serious honor code violations** will result in your receiving a zero on all problem sets for the entire semester.

**e.g. non-independent write-ups during multiple weeks, copying answers without participating in the problem-solving.**

**Additional practice problems:**
Additional problems and answers will be posted regularly on blackboard. These will not be graded, but it is strongly recommended that you do them soon after the lectures to which they relate rather than leaving them to the night before an exam. Do each problem in earnest before you look at the answer key. Students who look at the answer keys too quickly often are not able to solve similar problems on their own.
Make-up and extension policy:
No make-up exams will be given without PRIOR consent, except in the case of unexpected emergency (e.g., illness with doctor’s note, death in the family). If you become too ill to study during the days leading up to an exam, please contact Prof. Romberg BEFORE the date of the exam. For more details, see illness policy posted on blackboard in course contents / exam materials.

No extensions will be given for problem sets under any circumstances (barring emergencies that are confirmed by the dean's office to interfere with academic work for more than two weeks). You are able to drop two problem sets, so take advantage of that option when you are sick or very busy.

Academic Incompletes:
Requests for academic incompletes must be submitted to Prof. Romberg before Friday, May 5 at 11 am. Academic incomplete requests will only be considered for compelling reasons (evidence of serious personal problems or serious risk of failing the course and previous attempts to address these issues). If you are granted an academic incomplete, the alternative time for you to take the exam is Sunday, May 14 from 2-4 pm.

Classroom and testing accommodations:
Students needing accommodation for tests (e.g. time-and-a-half) should contact both the Student Academics Services Office, http://www.oberlin.edu/learning/, and Prof. Romberg at the start of the semester to ensure that accommodations can be provided in a timely manner.

Honor System:
Exams and quizzes in Biol. 213 are closed book. Exams will be given under the Honor System as described at http://new.oberlin.edu/office/dean-of-students/honor/students.dot.

Online problems are open book and may be discussed with classmates, but your explanations of answers must be written independently and in your own words.

It is a violation of the honor system to look at quizzes, exams, or problem sets from previous years.
Online problem sets and quizzes will be posted on blackboard at 5 pm on the indicated date and available until midnight the following Sunday. Exception: When there is an exam on Thursday, problem sets will be due midnight the following Monday.