

CHAPMAN UNIVERSITY

Biol. 208
Introduction to Molecular Genetics and Cell Biology
Lecture: M, W, F 11-11:50 AM Demille Hall 101

Spring 2013

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If you are unable to come to my office, you can reach me by phone or by e-mail. **I greatly prefer e-mail to phone calls!**

→ E-MAIL: rowlandg@chapman.edu ←

Office Hours: Mon 9:30-10:30; Tues 1-4; Wed. 1-3

Catalog Description: Principles of molecular genetics with emphasis on molecular biology of DNA, RNA and gene expression; an overview of cellular organelles and their functions.

| Credits: 3 units

| Prerequisites: Completion of Bio 204 or a minimum score of 4 on the AP or IB Biology exams or by petition to the Head of Biology.

Course goals, objectives and learning outcomes:

1. Students will obtain a firm foundation in molecular genetics with an in-depth understanding of the molecular biology of DNA, RNA and proteins.
2. Students will look at the role computational biology techniques play in understanding genetics and then to apply the understanding of genetics to various diseases.
3. Students will become familiar with cellular functions and signaling.
4. When appropriate, students will read a primary journal article with a molecular and/ or cell biology emphasis.
5. Students will demonstrate familiarity with key concepts of molecular and cell biology.

In addition to the above learning outcomes, BIOL 208 allows for introduction or reinforcement of the following Program Learning Outcomes for the B.Sc. in Biology.

Program Learning Outcomes:

1. Students will apply the scientific method to original research.
2. Students will demonstrate familiarity with key concepts of biology.
3. Students will apply quantitative reasoning and analysis to biological science problems.
4. Students will evaluate primary literature.

Course Content Major Study Units:

1. Genes: Structure and Expression
2. Control of Gene Expression in Prokaryotes and Eukaryotes
3. Gene Cloning and Manipulation
4. Genomics and Proteomics
5. Cell Signaling and Signal Transduction

Required Text:

Freeman, Scott, Biological Science V. 1, fourth edition including Mastering Biology Pearson Benjamin Cummings, San Francisco, CA, 2011

Enrichment:

I will post periodically on Blackboard websites containing interactive modules that may enrich your learning. You will be notified via Blackboard announcements.

Classroom conduct:

1. Cell phones are to be silenced during **ALL** class lectures. If I find you texting during a lecture, I will ask you to leave the class for that day. If you bring a cell phone to class on an exam day, it must be left with me and silenced during the exam. Cell phone use during an exam will result in a "0" on the exam.
2. There will not be any bathroom breaks allowed during quizzes or midterms unless it is medically necessary (pre-approved).
3. Laptops for taking notes are allowed. However, if you use your laptop for other activities during class, I'll ask you to leave the class for that day.
4. If you are late to class or leave early, please minimize noise.
5. If you are late to class on a day with a graded activity, you will receive no extra time to finish the activity.
6. On exam days, all items (laptops, backpacks, books, etc) except for pencils and/or pens brought to class must be left in the front of the classroom.

Instructional strategies:

Preclass homework assignments using Mastering Biology online resources for each chapter we study; Lectures, in-class exercises in critical thinking, and small group in-class discussions.

Methods of Evaluation:

There will be 2 midterm exams each worth 20% of the overall grade and one cumulative final exam worth 20% of the overall grade. More emphasis on the final exam will come from the new material. There will be assigned online **pre-chapter** homework using Mastering Biology worth 12% of the overall grade. Each person needs to have their own Mastering Bio account- there will be no exceptions! Makeup exams will only be offered for legitimate reasons pre-approved by me prior to the test, but are discouraged since they will be harder than the original. All exams will be short answer and problem solving (when applicable). There will be one primary journal article critique worth 4% of the overall grade. 24% of the overall grade will come from a total of 6 quizzes. There will be a total of 7 quizzes but the lowest quiz grade will be dropped. **NO makeups will be given for the quizzes since the lowest score will be dropped!!!**

Chapman University Academic Integrity Policy: Chapman University is a community of scholars which emphasizes the mutual responsibility of all members to seek knowledge honestly and in good faith. Students are responsible for doing their own work, and academic dishonesty of any kind will not be tolerated anywhere in the university.

Students with disabilities policy: In compliance with ADA guidelines, students who have any condition, either permanent or temporary, that might affect their ability to perform in this class are encouraged to inform the instructor at the beginning of the term. The University, through the Center for Academic Success, will work with the appropriate faculty member who is asked to provide the accommodations for a student in determining what accommodations are suitable based on the documentation and the individual student needs. The granting of any accommodation will not be retroactive and cannot jeopardize the academic standards or integrity of the course.

Course Outline

<u>Week</u>	<u>Topic</u>	<u>Chapters:</u>	<u>quiz/ midterm</u>
1	how genes work	15	
2	how genes work; group activities related to chapter	15	quiz 1
3	control of gene expression in bacteria	17	
4	control of gene expression in eukaryotes	18	quiz 2
5	control of gene expression in eukaryotes (post transcriptional control)	18	quiz 3
6	analyzing and engineering genes-cloning techniques	19	exam 1
7	analyzing and engineering genes- PCR	19	
8	analyzing and engineered genes-types of sequencing	19	quiz 4
9	spring break		
10	functional genomics and proteomics	20	
11	functional genomics and proteomics	20	quiz 5
12	functional genomics and proteomics	20	exam 2
13	cell Interactions (cell surface and communication with adjacent cells)	8	
14	signal transduction pathways- way for distant cells to communicate	8	quiz 6
15	signal transduction pathways- ways for distant cells to communicate	8	quiz 7
16	Final exam Wed May 15 10:45-1:15		

** It is important that you read the textbook, do the pre-chapter Mastering Biology on-line homework and keep up with the lectures because we will be covering a lot of information in a short period of time!!! The purpose of the homework is to make sure you read the material ahead of time and learn the basic concepts including terminology. The tests and quizzes will **NOT** cover the specific material from the homework. The quizzes and tests will be more challenging!

Point Breakdown for the class

Course Grades (out of 1000 points)

Assignment	points
2 Midterms	400 (200 points per midterm)

quizzes	240 (40 pts per quiz)
mastering biology online homework	120 (20 pts per chapter)
journal article critique	40
cumulative final	200

Accumulation of points totaling 925-1000= A; 895-924= A-; 870-894= B+; 825-869= B; 795-824=B-; 770-794=C+; 725-769=C; 695-724=C-; 670-694- D+; 625-669=D; 595-624=D-; -594 and below= F.

**** When final grades are tabulated, 10 points will be added to each student's total points. This gift of points means grades will not be rounded to the next higher % ****

MasteringBiology®

Dear Student:

In this course you will be using MasteringBiology®, an online tutorial and homework program that accompanies your textbook. *If you have joined a MasteringBiology course before and can still log in:*

Save time by following the guide for joining another course (available from www.masteringbiology.com > Tours & Training > Getting Started) instead of this page.

What You Need:

- ✓ **A valid email address**
- ✓ **A student access code**
(Comes in the Student Access Code Card/Kit that may have been packaged with your new textbook or that may be available separately in your school's bookstore. Otherwise, you can purchase access online at www.masteringbiology.com.)
- ✓ **The ZIP or other postal code for your school: 92866**
- ✓ **A Course ID: MBROWLANDGOLDSMITH60648**

1. Register

- Go to www.masteringbiology.com and click **Students** under **Register**.
- To register using the student access code inside the MasteringBiology Student Access Code Card/Kit, select **Yes, I have an access code**. Click **Continue**.

–OR– *Purchase access online:* Select **No, I need to purchase access online now**. Select your textbook, whether you want access to the eText, and click **Continue**. Follow the on-screen instructions to purchase access using a credit card. The purchase path includes registration, but the process is a bit different from the steps printed here.

- **License Agreement and Privacy Policy:** Click **I Accept** to indicate that you have read and agree to the license agreement and privacy policy.
- Select the appropriate option under “Do you have a Pearson Education account?” Continue to give the requested information until you complete the process. The **Confirmation & Summary** page confirms your registration. This information will also be emailed to you for your records.
- **Did you receive multiple access codes for MasteringBiology and/or Virtual Biology Labs?** Sometimes new books come with more than one student access code card. If you have more than one code, register using all of your codes BEFORE clicking Log In Now. For each additional code that you have, return to <http://www.masteringbiology.com/> and click the **Students** button under Register again. *Important:* Identify the SAME student account each time you register. To do this, answer **Yes** to “Do you have a Pearson account?” Then enter your existing login name and password.

2. Log In

- Go to www.masteringbiology.com.
- Enter your Login Name and Password that you specified during registration and click **Log In**.

3. Join Your Instructor's Course and/or Open Self-Study Resources

Upon first login, you'll be asked to do one or more of the following:

- **Join a Course** by entering the **MasteringBiology Course ID** provided by your instructor. If you don't have a Course ID now, you can return to join the MasteringBiology course later. When you join a course, you may also be asked for a Student ID (follow on-screen instructions).
- **Explore the Study Area** or **Launch Your eText**, if these resources are available for your textbook.

To Access MasteringBiology Again Later

Simply go to www.masteringbiology.com, enter your Login Name and Password, and click **Log In**.

After you have joined a course: You can open any assignments from the **Assignments Due Soon** area or from the **Assignments** page. For self-study, click **eText** or **Study Area**, if these options are available.

Support

Access Customer Support at www.masteringbiology.com/support, where you will find:

- System Requirements
- Answers to Frequently Asked Questions
- Registration Tips & Tricks video
- Additional contact information for Customer Support, including Live Chat