

BIO 6010 - MOLECULAR CELL BIOLOGY II
Winter 2017
Instructor: Dr. Lori Pile
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Class meets 10 to 11:15 am Tuesday and Thursday in Room 403 State Hall

Office hours: Thursdays 11:30-12:30 or by appointment

Class Web site: <http://blackboard.wayne.edu> *Lecture notes and additional assigned readings are regularly posted. Please check this site often.*

3 credits (lecture)

Text: Weaver, Molecular Biology, 5th edition
Other useful texts include:
Alberts et al., Molecular Biology of the Cell, 4th edition
Lodish et al., Molecular Cell Biology, 5 or 6th edition

Additional Reading Assignments: PDFs of review and primary literature articles will be posted on Blackboard.

Objectives: Upon completion of this course, students will be able to

- 1) demonstrate an understanding of cell regulation at the molecular level. The focus of this course will be to study genetic mechanisms including: DNA synthesis and repair, and mechanisms of gene and protein expression
- 2) exhibit critical thinking by integrating material from textbooks, review articles and primary literature along with their own observations
- 3) demonstrate comprehension of primary literature related to the topics presented in the course
- 4) design experiments that apply a variety of molecular, cellular, genetic and biochemical approaches to study problems related to molecular biology
- 5) produce focused writing that illustrates understanding of fundamental questions, hypotheses, approaches, and interpretation of observed results that contains proper grammar, formatting and logical flow

Short Assignments: A number of short assignments will be given throughout the semester. The type and value of the assignments will vary. Assignments will include unannounced quizzes at the beginning of class, in class problem sets, and take-home assignments. If the assignment is a take-home assignment, it is due at the beginning of the next class. All together, the short assignments will total 50 points. No make-ups will be given for missed or late assignments.

Writing Assignment: Toward the middle of the semester, you will be given an extended writing assignment. You will critique a paper and determine a series of experiments to follow on from that paper. Details regarding this assignment will be given separately. The paper is due on April 20, the final day of classes. The paper is worth 80 points.

Note on all Writing Assignments: Your written work may be submitted to SafeAssignment for an evaluation of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work, or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in SafeAssignment's restricted access database, solely for the purpose of detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all. Because our goal is to help you learn how to not plagiarize, information on how to avoid plagiarism will be provided in class and on Blackboard.

Exam Format: The three lecture exams and the final will consist of short answer questions, essays and problem sets. **The final is comprehensive.**

Exam Dates:

Exam I	Feb 7
Exam II	Mar 9
Exam III	April 13
FINAL EXAM	May 2 (8:00-10:00 am)

Grading:

Short Assignments	50 points
Writing Assignment	80 points
Exam I	80 points
Exam II	80 points
Exam III	80 points
Final Exam	55 points
TOTAL	425 points

Note: there is no extra credit or extra assignments. Grades will be based solely on the items listed above.

Grading Policy: Grades will be from 0 to 100. Final grades will be calculated using a distribution curve. After each exam, the class grade distribution will be given. At that time, tentative grade scales will be announced. Anyone caught cheating on an exam or the assignments will automatically receive a failing grade for the class. Plagiarism is a form of cheating and therefore subject to the same penalty.

General Policy: 1) Make-up assignments and exams will **NOT** be given except under extremely extenuating circumstances. Missed assignments and exams are scored as a zero.

2) January 23 is the last day to withdraw from the course and retrieve your tuition.

3) February 5 is the last day to withdraw from the course without the instructor's signature. Does not appear on record.

4) February 6 onward, the instructor's signature is required to withdraw from the course. One of the following grades will be assigned:

WP-withdrawal with a passing grade earned to date

WF-withdrawal with a failing grade earned to date

WN-withdrawal never attended, or no graded work to date

5) March 26 is the last day to withdraw from the course.

6) Any special considerations (disabilities, religious holiday conflicts, etc.) must be brought to the attention of the instructor in the first week of classes. If you have a physical or mental impairment that may interfere with your ability to successfully complete the requirements for this course, you may contact Education Accessibility Services (583 Student Center Building, 313.577.1851) to discuss appropriate accommodations on a confidential basis.

7) Conflicts regarding the grading of exams or assignments must be resolved within one week of the return date. The exam or assignment in question must be returned along with a written statement explaining the concern.

8) In the event of a University closure on the day of an exam, the exam will be given during the next regularly schedule lecture period. University closures will be publicized through:

- the University Newline (313) 577-5345*
- WSU Homepage (www.wayne.edu)*
- WSU Pipeline (www.pipeline.wayne.edu)*
- WDET-FM (Public Radio 101.9)
- by other local radio and television stations

* Note: The information on closures and class cancellations is likely to be found at these locations before it is broadcast by local radio and television stations.

9) For any and all issues not covered in this syllabus, refer to the "Student Due Process Policy".

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Lecture Schedule (subject to change)

Session	Date	Lecture Topic	Reading Assignment
1	January 10, T	Molecular Nature of Genes, Gene Fxn	Ch. 2.1-2.4, 3.1
2	January 12, Th	Protein Structure/Function	Ch. 5.1, 25.2, Paper
3	January 17, T	DNA replication, Basic Mechanism	Ch. 20.1-20.2, 21.1, 21.3
4	January 19, Th	DNA replication, Regulation	Review and paper
5	January 24, T	DNA damage and repair	Ch. 20.3, 22.1
6	January 26, Th	DNA damage and repair	Review and paper
7	January 31, T	Genome Organization and Transposition	Ch. 23.1-23.2, 23.4, reviews
8	February 2, Th	Drosophila Genome Sequence	Ch. 5.4, 24.2, Review and paper
9	February 7, T	Exam I (Sessions 1-8)	
10	February 9, Th	Molecular Tools for Studying Genes	Ch. 5.6-5.8, 25.1
11	February 14, T	Eukaryotic RNA Polymerases	Ch. 10.1, review and paper
12	February 16, Th	Eukaryotic RNA Polymerase Promoters	Ch. 10.2, 25.1 review
13	February 21, T	General Transcription Factors	Ch. 11.1-11.3, reviews
14	February 23, Th	Enhancers and Silencers Activators and Repressors	Ch. 10.3, 12.1-12.5, review and paper
15	February 28, T	Activators and Repressors	Papers
16	March 2, Th	Chromatin Structure and Transcription	Ch. 13.1-13.3, reviews
17	March 7, T	Chromosome Organization	Paper
18	March 9, Th	Exam II (Sessions 10-17)	
	March 13-17	Spring break, no class	
19	March 21, T	Histone modification & Chromatin Remodelers	Ch. 13.3, Reviews and paper
20	March 23, Th	Epigenetics	Review and paper
21	March 28, T	Signaling & combinatorial regulation	Ch. 12.6, 13.3, Review & paper
22	March 30, Th	RNA processing I	Ch. 14.1-14.2, review
23	April 4, T	RNA processing	Review and Paper
24	April 6, Th	RNA processing II	Ch. 15.1-15.3, Review
25	April 11, T	Post transcriptional control	Ch. 16.5
26	April 13, Th	Exam III (Sessions 19- 25)	
27	April 18, T	Translation I	Ch. 17.2-17.3, 18.1-18.4
28	April 20, Th	Translation II	Review and Paper
29	May 2, T	FINAL EXAM (8:00-10:00 am)	