

BIO 2141/4145
Molecular Genetics
Spring, 2007

Dr. Julia Lee
Science Center Room 227
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Office hours: MTF 10-11am; MW 1-2pm

Text Book:

Genes VIII by Benjamin Lewin, 2004. (Earlier editions are not acceptable)
Lab Manual: 3-ring binder with protocols and data pad. Pick up at SC 205

Syllabus:

From the textbook, we will cover materials in the following chapters in the order listed:

1. Genes are DNA
5. Messenger RNA
6. Protein synthesis
7. Using the genetic code
9. Transcription
21. Promoters and enhancers
10. The operon
11. Regulatory circuits
12. Phage strategies
22. Activating transcription
24. Nuclear splicing
13. The replicon
14. DNA replication
15. Recombination and repair
16. Transposons
19. Chromosomes
20. Nucleosomes
23. Regulating transcription

Course Description and Objectives:

In this course, we will examine the structure and function of the genetic material at the molecular level. We will study the processes of replication, transcription, and translation. We will dissect various mechanisms by which these processes are regulated as well as controlled for fidelity and variability. We will compare the structures and functions of genetic material in different organisms, particularly between prokaryotes and eukaryotes. In the laboratory component of the course, we will learn some basic molecular biology techniques and the practice of maintaining a laboratory notebook.

Course objectives will be met by exams, unannounced quizzes, and lab work.

Research Paper and Presentation:

Each student will be required submit an original research paper on a topic to be assigned during the first week of class. The paper must be 3 – 5 pages in length (7 – 9 pages for students in the graduate section), not including figures or references. If you choose a genetic disorder for your topic, you must discuss the molecular mechanisms of the disease, not just describe the symptoms. You are required to incorporate at

least eight references from recent (last 5 years) review and primary journal articles (excluding your text book, websites, and layman publications). This paper is due on **Wednesday, April 16th**. Please submit hard copies only. If you e-mail it to me as an attachment, I will promptly delete your message. I will be happy to read completed drafts until April 4th. Please talk to me if you have any questions about a journal article, citations, or contents of your paper.

Citations. Make sure your citations are properly formatted. Use the *Molecular and Cellular Biology* journal as a reference. You must embed your references throughout your text rather than just list them at the end of your paper. Come talk to me if you have questions about this.

Figures. Draw figures and diagrams if you believe they can help you better explain an idea or concept. However, you must include figure legends so that without reading the text, your figures can be understood on their own. You must refer to them from your text. If you modify or adapt a figure from any sources, be sure to cite!

Grades:

Three exams: 15% each

Final exam: 20%

Quizzes: 15% total

Lab: 20%

Letter grades are assigned as follows (%):

A 93-100	B+ 87-89	C+ 77-79	D+ 67-69
A- 90-92	B 83-86	C 73-76	D 60-66
	B- 80-82	C- 70-72	F <59

Attendance and Honesty Policy:

Attendance is required for each lecture. No make-up quizzes will be given, no exceptions. If you must miss an exam, you must contact me as soon as possible to arrange a time to take the exam **BEFORE** the scheduled date. Otherwise, your final exam grade will be the score for your missed exam. The St. Joseph's University Honesty Policy will be strictly adhered. Plagiarism will not be tolerated and will result in disciplinary actions. Please see me if you have questions or concerns regarding citations or references. During in-class exams and quizzes, electronic devices are prohibited; this includes the various forms of MP3 players, laptops, cell phones, PDAs, blackberries, etc.

Students with disabilities:

For those who have a documented learning, physical or psychological disability who are requesting reasonable academic adjustments, you are encouraged to contact Services for Students with Disabilities, Room 113, Science Center, 610-660-1774 or 610-660-1620 early in the semester. It is important to discuss instructional needs and accommodations with your professor early in the semester. All requests for extended-timed testing must be discussed with me at a minimum of one week prior to the date of each exam.