

Lecture: T,Th 9:30 - 10:45, Bartlett 362 **Lab:** Thursday 2:00 - 5:00, Rickey 204

Text: Alberts et al, *Essential Cell Biology*, 3^d ed. 2010

Lab manual: Investigation of Cell Biology, Fall 2011

TENTATIVE SCHEDULE OF LECTURE TOPICS

*** You are expected to bring your book to class ***

<u>Lecture Topic</u>	<u>Reading assignments</u>	
Introduction		
Membrane Structure	Chapter 11	<u>Quizzes and Exams</u>
Membrane Transport	Chapter 12	Quiz 9/13
Cytoskeleton	Chapter 17	Exam Tues 9/27 3:00 – 7:00 PM
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Energy Generation	Chapter 14	
Intracellular Transport	Chapter 15	Quiz 10/13
Cell Communication	Chapter 16	Exam Thurs 10/25 3:00 – 7:00 PM
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The Cell Division Cycle	Chapter 18	
Cellular Communities	Chapter 20	Quiz 11/3
Chromosome Structure & topics on DNA	Chapter 5 Chapter 6	Exam Tues 11/15 3:00 – 7:00 PM
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From DNA to Protein	Chapter 7	
Control of Gene Expression	Chapter 8	Quiz 12/6
Gene and Genome Evolution	Chapter 9	
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Final Exam: Wed 12/14 8:30 – 11:00 AM		

Date	Laboratory Exercise
Sep 1	Introduction & Basic Techniques Pipetting & solution making techniques
Sept 8	Histology: tissue resection → embedding Due: Solution calculations
Sept 15	Histology: sectioning → staining
Sept 22	<i>In vitro</i> Culture of B16 Melanoma Cells Discussion of assigned reading
Sept 29	Absorption spectrophotometry and protein measurement Due: Histology Procedures section
Oct 6	Fluorescent Staining of β -actin in B16 Cells
Oct 13	Digital photography & image formatting Due: Abs. Spectrophotometry Results section (and pages 9 & 10)
Oct 20	G-banding of B16 chromosomes
Oct 27	Principles of Electrophoresis and Immunoblotting Due: Introduction section
Nov 3	Electrophoresis & Electroblotting ★★★ Lab will also meet for evening session ★★★ Due: Histology Figures & legends
Nov 10	Immunoblotting of actin
Nov 17	Electrophoresis and Immunoblotting: Discussion of results Due: Electrophoresis & Im Blotting Procedures section
Thanksgiving Break	No lab
Dec 1	Measurement of Photosynthetic Electron Transport Due: Electrophoresis & Im Blotting Results and Discussion sections
Dec 8	<i>Primary article presentation symposium</i> Due: Photosynthesis results (not full lab report)

On-line Class Resources

Class resources, including the **Powerpoint slides** and **Test Question Bank**, can be downloaded from from the Cell Biology Homepage at <http://www.marietta.edu/~spilats/biol309/309index.html>, which also can be accessed through Moodle.

GRADING POLICY

Your final grade will be determined as follows:

	(points subject to change)	
Exams	3 x ~100	~300 points
Final exam		~100
Quizzes	4 x ~ 25	~100
Paper presentation		50
Laboratory grades		~370

		~920

Grading Scale

97 - 100% = A+
93 - 96% = A
90 - 92% = A-
87 - 89% = B+
83 - 86% = B
80 - 82% = B-
77 - 79% = C+
73 - 76% = C
70 - 72% = C-
67 - 69% = D+
63 - 66% = D
60 - 62% = D-
< 60% = F

Late assignments

Late assignments will be penalized 10% per day. Failure to turn in a major assignment may be grounds for a failing grade, at the instructor's discretion.

Attendance

Attendance will be taken in lectures and laboratories. I must be notified at least ONE WEEK in advance if you need to miss an exam, quiz or laboratory due to a field trip, athletic event, etc. Because of the nature of certain laboratory exercises, make-ups may not be possible, and missed labs will result in a 20 pt deduction. You may not be allowed to makeup a quiz or exam if I receive "last minute" notification. There will be no make-ups for unexcused absences. Extraordinary circumstances will be dealt with on an individual basis.

Turnitin.com

The final versions of lab reports must be submitted to turnitin.com by the due date for the assignment.

Class ID= 4159196 Password = Biol3092011

Late submissions to TII.com will be docked 5% per day. All work produced in this course is considered "public" and is used for the purposes of teaching and evaluation. This likely includes the use of your work as a model for future students/courses and the submission of your work to an online plagiarism detection service.

Study Sessions

A schedule of peer led evening Study Sessions will be arranged. These are an excellent opportunity to review course materials and question bank questions before quizzes and exams. You are expected to have worked on question bank materials before coming to study sessions.

Disabilities

Any student needing accommodations due to a documented disability should notify the instructor AND the Academic Resource Center (Andrews Hall, Third Floor, 376-4700) at the beginning of the semester for further instructions.

Academic Dishonesty

Academic dishonesty within the academic community is a very serious matter, because dishonesty destroys the basic trust necessary for a healthy education environment. Academic dishonesty is any treatment or representation of work as if one were fully responsible for it, when it is in fact the work of another person. Academic dishonesty includes cheating, plagiarism, theft, or improper manipulation of laboratory or research data or theft of services. A substantiated case of academic dishonesty may result in disciplinary action, including a '0' on the assignment, a failing grade in the course, or expulsion from the College.

Office Hours

Location: Bartlett Hall Rm 173, ext. 4748

Times: Monday 4:00 PM; Wed. 9:00 AM

email: spilatr@marietta.edu

I will make every effort to be accessible at other times --just drop in.

If I'm busy, we can schedule another time at which we can meet.

Student Expectations

Students assume responsibility for reading assigned material. Students are expected to actively participate in class discussions by asking and answering questions, attend study sessions, and actively pursue a thorough understanding of the material. The subject matter builds upon topics covered in Biol 131, and you will be expected to review fundamentals on your own as necessary.

Course Objectives

Lecture objectives

This course is designed to provide students planning on attending a graduate or medical program with a suitable understanding of the molecular processes and mechanisms of eukaryotic cells. Some of the concepts you should be able to describe after taking this course include:

- characteristics of cell membranes
- structure and function of the cytoskeleton
- processes of energy production
- transport and processing of proteins in cells
- intracellular communication
- molecular regulation of cell division
- multicellular interactions
- DNA and RNA structure and function
- regulation of gene expression
- genome evolution

Lab objectives

The laboratory exercises provide hands-on experiences in modern laboratory techniques used to study cell biology. Some of the methodologies that students should learn include the principles and uses of:

- tissue culture
- protein analysis
- gel electrophoresis
- spectrophotometry
- immunoblot technologies
- histology

Some basic laboratory techniques that students should learn include:

- solution preparation
- use of pH meter
- use of spectrophotometer
- pipetting and weighing
- importance of cleanliness
- precise measurements

Through various assignments and exercises, students will further their ability to read the scientific literature, and interpret and explain results and conclusions. Students also learn how to present data in professional quality figures.