

INSTRUCTORS:

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COURSE HOURS/LOCATION: MWF 10:05-10:55am, L1205 ES&T

OFFICE HOURS: No regular office hours are scheduled, but students are encouraged to meet with the instructors when needed by arranging a time via e-mail.

COURSE DESCRIPTION: Modern cell biology is a unifying discipline that combines genetics, biochemistry, and molecular biology with traditional morphological descriptions to study how cells function at the molecular level. This course will introduce students to the dynamic relationship between the structure of cellular organelles and the numerous biochemical reactions that are necessary for cell growth and survival with an emphasis on eukaryotic cells. The **FORMAT** of the course will consist of class lectures, which primarily draw on information found in the textbook, and for those taking the laboratory, exercises that illustrate some commonly-used research techniques and their application during a semester-long research project. In addition, students will be required to participate in analysis of assigned research articles, including a **GROUP ORAL PRESENTATION** or a **WRITTEN SYNOPSIS/ANALYSIS/CRITIQUE**. It is estimated that **1-2 hours** will be required outside of class to prepare for EACH lecture, and each research paper will require additional hours of study/preparation.

TEXTBOOK: Lodish H., Berk A., Matsudaira P., Kaiser, C.A., Krieger, M., Scott, M. P., Zipursky S.L. and Darnell J. 2003. *Molecular Cell Biology, 5th Ed.* W.H Freeman and Company
 And research papers assigned in class.

IMPORTANT GEORGIA TECH DATES

Mon	Jan 8	CLASSES BEGIN
Mon	Jan 15	OFFICIAL SCHOOL HOLIDAY
Fri	Mar 2	Last day to withdraw from individual courses with a grade of "W"
Wed	Mar 16	Last day to WITHDRAW from school with "W" grade
Mon-Fri	Mar 19-23	SPRING BREAK
Fri	Apr 27	LAST DAY OF CLASSES
Mon – Fri	Apr 30 - May 4	FINALS WEEK

IMPORTANT COURSE DATES

FRI	Jan 26	EXAM 1
FRI	Feb 23	EXAM 2
FRI	Mar 16	EXAM 3
FRI	Apr 20	EXAM 4
MON	Apr 30 2:50 -5:40	CUMULATIVE FINAL EXAM

BIOL 3340 SYLLABUS

Additional information:

All students are required to adhere to the Georgia Tech Academic Honor Code (www.honor.gatech.edu). This includes, but is not limited to, the following issues that pertain to the oral and written critiques, mnemonic tools, and exams for this class:

1. Plagiarism is not allowed. Plagiarizing is defined by Webster's as "to steal and pass off (the ideas or words of another) as one's own; use (another's production) without crediting the source."

In simpler terms: When you use any phrases, sentences, etc. verbatim from another source, they must be identified by quotation marks and citation of the source. In scientific writing, it is generally preferable to rephrase information from other sources and cite the source rather than use the same text, even when you offset the text with quotation marks. When you show diagrams, models and other materials that are not your own, the sources must also be identified.

These rules apply both to published information and information that you might receive from another student, website, previous class report, etc.

Plagiarization will be dealt with according to the GT Academic Honor Code.

2. Students are encouraged to collaborate in some aspects of the preparation of oral and written critiques, such as the early stages where you are achieving an understanding of the assigned papers; however, the final critiques must be written by each student alone.

For team oral presentations, students may collaborate in all aspects of the work, indeed, it is expected that all will contribute equally to the final product and that they will share the single grade that is awarded for the ppt presentation. Students may use copyrighted figures, etc. from publications in the ppt presentation if appropriate citations are given because the ppt will only be posted on access restricted WebCt website. However, if the team uses multiple copies of any copyrighted items (such as the pdf file of a copyrighted article), each student shown download their own copy from the Georgia Tech library website rather than for one student to distribute the pdf.

In the event the assigned paper has been used by a previous class, students are not allowed to use any of the ppt slides in whole or part that were prepared by the other class.

3. Unless specifically identified as group work; quizzes, tests, take-home-tests, homework, etc. are to be completed alone.

4. For Quizzes/Tests: Cheating off of another person's test or quiz is unethical and unacceptable. Cheating off of anyone else's work is a direct violation of the GT Academic Honor Code, and will be dealt with accordingly.

5. Because the exams for this course change every semester, students may use old tests as study tools.

For any questions involving these or any other Academic Honor Code issues, please consult the professors, teaching assistant, or www.honor.gatech.edu.

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EVALUATION CRITERIA:

Exams: 80%

There will be FOUR lecture exams and one FINAL EXAM (see exam schedule above); each exam is worth 20% of the final grade. **Your lowest LECTURE EXAM score will be dropped.** All lecture exams will be closed book and will consist of multiple-choice and short answer questions. **NO Make-up exams will be given so you should try to take all exams in case you miss one due to illness.**

NOTE: THE FINAL EXAM (20%) IS MANDATORY AND CANNOT BE DROPPED!

Student Presentations and Participation: 20%

The class will be divided into five groups (the first two will be the students taking the 12-3 pm lab, students taking the 3-6 pm lab). Students in each group have the option of preparing a group oral presentation/critique of the assigned research paper or individually to prepare a written critique. The oral presentation should be presented in PowerPoint, and must be timed to finish in 30 to 35 min to allow time for questions and discussion. The first page of the ppt file for the presentation should give the names of all of the students in the group and the statement that: "The preparers of this presentation agree that it can be posted on WebCT for use by other students in the class only. None of the material may be reproduced or used for other purposes because it may be covered under copyrights from the original sources." The page with the students' names will be removed before the ppt file is posted on WebCT. A single grade will be assigned for the entire group, so the group should prepare and rehearse it early (in the rare event that a member of a group is having difficulty with his/her portion of the presentation, and the others need to help). At the discretion of the instructor and in consultation with the oral presenters, the oral presentation may be conducted as a debate to increase class interest and participation.

For the students who decide to prepare a written report, they will prepare a 2 page analysis/critique of some aspect of the paper (for examples: Was one of the methods used incorrectly? Did the authors misinterpret the data in a figure or table? Did the authors overlook an important paper already in the literature that would have affected their conclusions?). These students are expected to provide documentation for their comments from the scientific literature (in a bibliography with 3-6 references from the peer-reviewed research literature) and will be expected to participate in the question and answer period for the oral presentation. Additional instructions about the critique will be provided in class.

USEFUL REFERENCES:

Link to online journals via the Georgia Tech library: <http://findit.library.gatech.edu/>
Link to literature search resource, NLM Gateway: <http://gateway.nlm.nih.gov/gw/Cmd>
Link to useful online cell biology resource: <http://www.cellbio.com>
US government web site for science: <http://science.gov/>
Link to the website for Lodish textbook: <http://bcs.whfreeman.com/lodish5e/default.asp>

CLASS CONTACTS: We suggest you obtain contact information from a few of your classmates in case you are absent from class and may obtain class notes and information from these contacts.

	NAME	PHONE	EMAIL
1			
2			
3			

**BIOL 3340 SYLLABUS
COURSE OUTLINE**

Class #	DAY	DATE	Chap	LECTURE TOPIC	Lecturer
1	MON	Jan 8	1 & 2	Introduction & Chemical Foundations	AM
2	WED	Jan 10	3	Protein Structure and Function	AM
3	FRI	Jan 12	4	Basic Molecular Genetic Mechanisms	AM
	MON	Jan 15		OFFICIAL SCHOOL HOLIDAY	
4	WED	Jan 17	5	Biomembranes and Cell Architecture	AM
5	FRI	Jan 19		Tools used in analysis of research literature	AM
6	MON	Jan 22	6	Integrating Cells into Tissues	AM
7	WED	Jan 24	7	Transport of Ions & Small Molecules Across Membranes	AM
8	FRI	Jan 26		EXAM 1 (Chap. 1-6)	
9	MON	Jan 29	8	Cell Energetics	AM
10	WED	Jan 31	9	Molecular Genetic Techniques and Genomics	MS
11	FRI	Feb 2	9	Molecular Genetic Techniques and Genomics	MS
12	MON	Feb 5		FIRST STUDENT PRESENTATION	
13	WED	Feb 7	10	Molecular Structure of Genes and Chromosomes	MS
14	FRI	Feb 9	11	Transcriptional Control of Gene Expression	MS
15	MON	Feb 12		SECOND STUDENT PRESENTATION	
16	WED	Feb 14	11	Transcriptional Control of Gene Expression	MS
17	FRI	Feb 16	12	Post-transcriptional Gene Control and Nuclear Transport	MS
18	MON	Feb 19		THIRD STUDENT PRESENTATION	
19	WED	Feb 21	13	Signaling at the Cell Surface	MS
20	FRI	Feb 23		EXAM 2 (Chap 7-12 & Student Presentations 1-3)	
21	MON	Feb 26	13	Signaling at the Cell Surface	MS
22	WED	Feb 28	13,14	Signaling Pathways That Control Gene Activity	MS
23	FRI	Mar 2	14,15	Integrating Signals and Gene Controls	MS
24	MON	Mar 5	16	Moving Proteins into Membranes and Organelles	AM
25	WED	Mar 7		FOURTH STUDENT PRESENTATION	
26	FRI	Mar 9		FIFTH STUDENT PRESENTATION	
27	MON	Mar 12	17	Vesicular Traffic, Secretion, and Endocytosis	MS
28	WED	Mar 14	17	Vesicular Traffic, Secretion, and Endocytosis	MS
29	FRI	Mar 16		EXAM 3 (Chap. 13-17 & Student Presentations 4&5)	
	M-F	Mar 19-23		SPRING BREAK	
30	MON	Mar 26	18	Metabolism and Movement of Lipids	AM
31	WED	Mar 28	18	Metabolism and Movement of Lipids	AM
32	FRI	Mar 30		SIXTH STUDENT PRESENTATION	
33	MON	Apr 2	19	Microfilaments and Intermediate Filaments	AM
34	WED	Apr 4	19	Microfilaments and Intermediate Filaments	AM
35	FRI	Apr 6		SEVENTH STUDENT PRESENTATION	
36	MON	Apr 9	20	Cytoskeleton II: Microtubules	AM
37	WED	Apr 11	20	Cytoskeleton II: Microtubules	AM
38	FRI	Apr 13		EIGHTH STUDENT PRESENTATION	
39	MON	Apr 16	21	Regulating the Eukaryotic Cell Cycle	MS
40	WED	Apr 18	21	Regulating the Eukaryotic Cell Cycle	MS
41	FRI	Apr 20		EXAM 4 (Chap. 18-20 & Student Presentations 6-8)	
42	MON	Apr 23	22	Cell Birth, Lineage, and Death	MS
43	WED	Apr 25	23	Cancer	AM
44	FRI	Apr 27	23	Cancer	AM
	MON	Apr 30		FINAL EXAM (2:50 - 5:40 pm) 25%: Chap. 21-23 75%: Questions from the rest of the semester	