

INSTRUCTORS:

Marion Sewer, Ph.D. IBB, Room 1313 404 385-4211 marion.sewer@biology.gatech.edu
 Alfred Merrill, Ph.D. IBB, Room 3309 404 385-2842 al.merrill@biology.gatech.edu

Teaching assistant: Ahsan Huda <gth653y@mail.gatech.edu>

COURSE HOURS/LOCATION: MWF 10:05-10:55am, L3 Physics

OFFICE HOURS: No regular office hours are scheduled, but students are **STRONGLY 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	Aug 21st	CLASSES BEGIN
Mon	Sep 4th	OFFICIAL SCHOOL HOLIDAY
Fri	Oct 13th	Last day to withdraw from individual courses with a grade of "W"
Mon-Tue	Oct 16-17th	FALL BREAK
Sun	Oct 29th	Last day to withdraw from school with "W" grades in ALL courses
Thu-Fri	Nov 23-24th	OFFICIAL SCHOOL HOLIDAY
Fri	Dec 8th	LAST DAY OF CLASSES
Mon – Fri	Dec 11-15th	FINALS WEEK

IMPORTANT COURSE DATES

MON	Sep 11th	EXAM 1
MON	Oct 6th	EXAM 2
WED	Oct 30th	EXAM 3
MON	Dec 1st	EXAM 4
MON	Dec 11th 2:50 -5:40	FINAL EXAM CUMULATIVE

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.

BIOL 3340 SYLLABUS

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 ensure that all of the members of the group present orally as well as 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://www.library.gatech.edu/search_locate/electronic_journals.html#

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

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