

Biology 13 Cells and Organisms - Syllabus Fall 2011

Class Meetings in Cohen Auditorium Mon. 9:30-10:20 am Tues. 10:30-11:20 am Thurs. 10:30-11:20 am	Recitation (optional – but HIGHLY RECOMMENDED) Barnum 008 Monday 4:40-5:30 pm
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Course Professors:

Dr. Kelly McLaughlin (course coordinator 2011) email kelly.mclaughlin@tufts.edu
Dr. Mitch McVey email mitch.mcvey@tufts.edu
Dr. Juliet Fuhrman email juliet.fuhrman@tufts.edu

Laboratory Coordinator:

Dr. Michelle Gaudette email michelle.gaudette@tufts.edu

Study Group Director:

Dr. Susan Koegel email susan.koegel@tufts.edu

Textbook (author Scott Freeman): Biological Science + MasteringBiology Access Kit, 4E
(access to the online system called MasteringBiology is REQUIRED in order to complete graded online problem sets. Since these are graded, the access code must be new and cannot be purchased “used”.) MB COURSE ID is: **BIO13LTUFTS2011**. It is strongly recommended that students read the assigned material prior to coming to lecture. Note: The publisher (Pearson) uses different images for the textbook cover - the book that you will find at Tufts bookstore has a bird on the cover. If you buy it via another source – it might have a different image. Any 4th edition version of this textbook should contain the same scientific content.

Course goals and objectives: Students will be examined on their knowledge of material covered in lectures, assigned readings, and laboratory activities as well as on their ability to solve problems that are relevant to the course content. Upon completion of the course, you should be able to:

- ◆ Understand and explain the basic principles regarding cell structure and function. This background will serve as a firm basis for more detailed Biology courses for which this course is a prerequisite.
- ◆ Work independently and in collaboration with others to compile, analyze, interpret, and communicate scientific data and ideas.
- ◆ Utilize critical thinking skills developed throughout the semester in both lecture and laboratory. In summative assessments, much of the credit will come from questions requiring that students apply information to new situations in order to reach a conclusion.

Laboratory sessions begin the week of September 12th, 2011. If you know you will need to miss a lab (to observe a religious holiday), you **MUST** get permission to switch into a different lab from the lab coordinator at least one week (and preferably two weeks) prior to the scheduled lab date. **YOU MUST PASS THE LAB IN ORDER TO PASS THIS CLASS.** The laboratory is designed to stress higher-level thinking, particularly in requiring the students to design experiments and evaluate their results. For written assignments the internet-based originality verification system, *Turn-it-in* will be required.

Please note: we will do our best to follow the course syllabus – however, we reserve the right to make modifications as needed during the semester.

LECTURE TOPICS FALL 2011

	DATE	DAY	TOPIC	PROFESSOR	READINGS
	9/6	Tues	Introduction and logistics	KM	---
	9/8	Thurs	Cellular Organization derives from basic chemistry	JF	Ch.1.1, 1.2, 1.5; Ch. 2.1
	9/12	Mon	Chemical Bonds, water, carbon chemistry	JF	Ch.2.2, 2.3, 2.4
	9/13	Tues	Functional Groups, Amino Acids	JF	Ch.3.1, 3.2, 3.3
	9/15	Thurs	Peptide Bonds, Protein Structure	JF	Ch.3.4
	9/19	Mon	Protein Folding; Free energy and Chemical Reactions; Enzymes	JF	Ch.3.5
ADD deadline	9/20	Tues	Lipid Structure and Membrane Properties	JF	Ch.6
	9/22	Thurs	Endomembrane system & the secretory pathway	JF	Ch.7.1, 7.3, 7.4, 7.5
	9/26	Mon	Carbohydrate Structure	JF	Ch.5.1
	9/27	Tues	EXAM 1 (through 9/22) Check TRUNK for location of exam/details		
	9/29	Thurs	Polysaccharides, ECM	JF	Ch. 5.2, 5.3, 8.1
	10/3	Mon	Metabolism: Redox, Energy, and Glycolysis	JF	Ch. 9.1, 9.2, 9.3
	10/4	Tues	Metabolism: TCA cycle and Respiration	JF	Ch. 9.4, 9.5
	10/6	Thurs	ATP synthesis and regulation	JF	Ch. 9.6, 9.7
	10/10	Mon	NO CLASS --- COLUMBUS DAY		
DROP P/F	10/11	Tues	Nucleic acids and DNA packaging	MM	Ch.4 & Ch.14.1
	10/13	Thurs	The cell cycle, mitosis, and checkpoints	MM	Ch.11
	10/17	Mon	DNA synthesis	MM	Ch.14.2, 14.3, 19.2
	10/18	Tues	EXAM 2 (through 10/13) Check TRUNK for location of exam/details		
	10/20	Thurs	DNA replication and repair	MM	Ch.14.4, 14.5
	10/24	Mon	Meiosis	MM	Ch.12.1-12.3
	10/25	Tues	Sex determination and mistakes in meiosis	MM	Ch.12.4
	10/27	Thurs	Mendelian genetics	MM	Ch.13.1-13.3
	10/31	Mon	Sex linkage and pedigrees	MM	Ch. 13.4 through X-linked inheritance, 13.6
	11/1	Tues	Genetic linkage	MM	Ch.13.5 (section on linkage)
	11/3	Thurs	Extending Mendel's rules	MM	Ch.13.5
	11/7	Mon	Genomics and human disease	MM	Ch. 19.4, 19.3
	11/8	Tues	NO CLASS --- TUFTS FRIDAY SCHEDULE		
	11/10	Thurs	EXAM 3 (through 11/7) Check TRUNK for location of exam/details		
	11/14	Mon	More than meets the eye	MM, KM	Reading posted on TRUNK
Fresh DROP	11/15	Tues	How genes work – central dogma	KM	Ch.15
	11/17	Thurs	Making RNA - transcription	KM	Ch.16.1, 16.2
	11/21	Mon	Making protein - translation	KM	Ch. 16.2, 16.3 16.4, 16.5
	11/22	Tues	Basics - regulation of gene expression in prok.	KM	Ch.17.1-17.3
	11/24	Thurs	NO CLASS - THANKSGIVING		
	11/28	Mon	Fine tuning – catabolite repression	KM	Ch.17.4
	11/29	Tues	Reg. of gene expression in euk. (DNA->RNA)	KM	Ch.18.1-18.3; bioskills 9
	12/1	Thurs	Reg. of gene expression in euk. (RNA->protein)	KM	Ch.18.3-18.5
	12/5	Mon	Reg. of gene expression in euk. (protein function)	KM	Ch.18.5
	12/6	Tues	Science and the media: the fact behind the fiction	KM	---
	12/8	Thurs	EXAM 4 (through 12/6) Check TRUNK for location of exam/details		
	12/12	Mon	BIO13L's Greatest Hits	JF, MM, KM	---

Final exam: THURS., December 15, 2011; NOON-2:00pm. Please plan accordingly when making travel plans.

GRADING

In class hour exam #1 (Tuesday, September 27)	160 pts
In class hour exam #2 (Tuesday, October 18)	160 pts
In class hour exam #3 (Thursday, November 10)	160 pts
In class hour exam #4 (Thursday, December 8)	160 pts
MasteringBiology problem sets (online)	90 pts
MasteringBiology Pretests (online)	50 pts
Final Exam (Thursday, December 15, NOON - 2:00pm) Do NOT schedule any travel plans that will conflict	210 pts
Laboratory Note: you MUST pass the lab component in order to pass BIO13L	310 pts
TOTAL POINTS* (*to remain fair to all students, no extra credit assignments are allowed for this course)	1300 pts

- ◆ **All students at Tufts University are expected to live up to the highest standards of academic honesty.**
- ◆ **Due to the size of the class – not everyone will take their hourly exams in Cohen. Exam locations will be posted on the course Trunk site prior to each exam.**

NEED ASSISTANCE?

General questions about BIO13?

Dr. Kelly McLaughlin (**course coordinator**)
 office: Dana 017A Tuesday 12:00-1:00pm; Wed. 10:30-11:30am & by appointment
 email: kelly.mclaughlin@tufts.edu

General questions about BIO13 laboratory?

Dr. Michelle Gaudette (**laboratory coordinator**)
 office: Barnum 211 Wed. 1:30-2:30pm, Fri. 2:30-3:30pm & by appointment
 email: michelle.gaudette@tufts.edu

General questions about BIO13 study groups?

Dr. Susan Koegel (**study group director**)
 office: Barnum 109 Tues. 3:00-4:00pm, Wed. 10:30-11:30am & by appointment
 email susan.koegel@tufts.edu

Specific questions about course material?

Please contact the faculty member that taught the material you have questions about.

Professor/section taught	Office location	Email address	Office hours fall 2011
Dr. Juliet Fuhrman (section 1)	Dana 223	juliet.fuhrman@tufts.edu	Tuesday 12:00-1:15pm Thursday 4:30-6:00pm
Dr. Mitch McVey (section 2)	Dana 024A	mitch.mcvey@tufts.edu	Monday 3:30-4:30pm Thursday 12:00-1:00pm
Dr. Kelly McLaughlin (section 3)	Dana 017A	kelly.mclaughlin@tufts.edu	Tuesday 12:00-1:00pm Wed. 10:30-11:30am

Other important resources for BIO13 students:

- 1) **Trunk course website** - <https://trunk.tufts.edu> (requires students log in using their Tufts user name and email password. This class is listed under: BIO-0013-L - CELLS & ORGANISMS W/LAB - Fa11). Course announcements, lecture slides, lab information, practice problems, more practice problems – animations, exam information, interesting links...and more will be posted to this site. This website is designed to provide BIO13L students with additional information. Therefore, it is advised that students check the BIO13L site frequently for announcements and helpful suggestions.
For help using Trunk go to: <http://sites.tufts.edu/trunksupport/common-tasks-getting-started/for-students/>
- 2) **Podcast lecture files** – Sometimes it is nice to be able to go back to a specific lecture and view it for a second time. Therefore, as a courtesy to our students we try and provide a “screen-capture” podcast of each lecture. However, since technology doesn’t always work – having each lecture available on podcast is NOT guaranteed. It is HIGHLY recommended that students attend the lectures and only use the podcasts as a backup. These can be obtained at the following site: <https://spark.uit.tufts.edu> via the following (rss): <http://podcasts.uit.tufts.edu/rss/554/554.rss>. We have also created a link to the lecture podcasts from the course Trunk site.
- 3) **Office hours** - Both faculty and graduate teaching assistants hold office hours each week. Location and times are posted on the BIO13L Trunk site. If you don’t understand something – meeting with faculty and staff can often help clarify any questions...
- 4) **Weekly faculty-review sessions** - Attending the course recitation sessions (Barnum 008, Monday 4:40-5:30pm) provides another great opportunity for students to ask faculty questions about the lecture material. Sessions start September 12, 2011 and end December 12, 2011.
- 5) **Academic Resource Center (ARC) Peer Tutors** (<http://ase.tufts.edu/arc>). If you feel more comfortable working with other students – meeting with the ARC’s team of peer tutors is an excellent option (both scheduled appointments and drop-in hours). The ARC also holds review sessions before exams – times/locations will be posted on the BIO13 Trunk site.
- 6) **BIO13 Study Groups** – BIO13 students will work with ARC tutors in small groups to review and apply material in these problem-solving sessions. Currently, due to class size, the number of students who can participate in Bio13 study groups is limited. More information regarding this opportunity will be presented in class at the beginning of the semester.

MASTERINGBIOLOGY INFORMATION (<http://www.masteringbio.com>)

MasteringBiology (MB) assignments are a graded, **REQUIRED** component of this course. These assignments are designed to provide students with an opportunity to practice answering exam questions and assess whether they understand the lecture material taught each week. After you purchase your access code to MB, the MasteringBiology BIO13 COURSE ID is: **BIO13LTUFTS2011**. You will also need your TUFTS ID# and TUFTS **email account** in order to register for access to the course MB website.

Additional information on MB – including registration information – can be found in a folder labeled ‘2011 MasteringBiology’ located in the **RESOURCES** tab found on the course Trunk website.