

## CELL BIOLOGY, BIO201B. (Dr. Hennessey) 2018

**Instructor:** Dr. Todd M. Hennessey

**Office:** H610 Hochstetter Hall      **Phone:** 645 4973

**Office Hours:** M and W, 2:00 to 3:00 or contact me for an appointment

**E-mail address:** thennes@buffalo.edu

**Lectures:** Mon., Wed. and Fri. in Knox 20

**Audio recordings available on the Ublearns site for BIO201B under Video Access**

**Required textbook: Textbook:** "Life: The Science of Biology," 11<sup>th</sup> Edition by Sadava, Hillis, Heller, & Berenbaum. 2017 is *strongly recommended*. The text is available as hard-cover, looseleaf, or e-text, for either purchase or rent. It is also available as a three-volume set, of which only Volume 1 is used in BIO 201. BioPortal Access is not required. (Note that this textbook is used for BIO 200, BIO 201, and BIO 203. For BIO 201 only you can get away the 10<sup>th</sup> Edition of the textbook. Just be aware that some reading assignments may not be completely up-to-date.)

### **Policies:**

No extra credit will be given. The grade is determined from the point total only.

No incompletes will be given unless accompanied by a valid medical excuse (or equivalent) explaining why the work could not be completed.

No make-up exams will be given unless the student produces a valid, written, excuse with a doctor's (MD) signature (or equivalent) explaining why the student missed the exam.

Regrades of exams may be requested in person only up to one week after the exam is returned.

Excused absences must be approved by Dr. Hennessey at least 2 weeks in advance.

**Important Dates:** Spring, 2017

Labs start – Feb. 5

Exam 1 – Feb. 28

Exam 2 – April 11

Final Exam – Thursday, May 17, 3:30 to 6:30 in Knox 20

### **E-mails:**

1. Your e-mails must have the words "BIO201B" in the subject line. We may not respond to e-mails that have "hello" or nothing in the subject line because we may think that they are unwanted e-mails (junk)
2. Write your e-mails with complete sentences and capitalizations. This is not text messaging. Avoid things like, "how R U?" and "hi prof!".
3. Always put your name on your e-mails so I know who you are.

### **Important information regarding section enrollments**

You should be registered for either a hybrid or a traditional lab for this course, depending on your major or intended major. Hybrid labs have 'H' at the end of the section number (e.g. A13H); traditional labs have 'T' (e.g. A04T). For more information, refer to the [BIO 201 labs website](#):

[http://wwwbiology.nsm.buffalo.edu/Bio\\_201\\_Hutson/Bio201\\_Main.html](http://wwwbiology.nsm.buffalo.edu/Bio_201_Hutson/Bio201_Main.html).

## Required Lab Materials

**All lab sections:** A composition book to be used as a lab notebook.

**Students in traditional 'T' labs:** *BIO 201 Lab Manual* 5<sup>th</sup> Edition, Hutson, Hayden McNeil. 2018 (available for purchase at UB Bookstore: ~\$60). You must use the 5<sup>th</sup> Edition or you will not be allowed to participate in lab. Personal protective equipment (PPE) will be provided in lab.

**Students in hybrid 'H' labs:** Access to Late Nite Labs ~\$60 You will learn how to access this *in your first lab meeting* (2<sup>nd</sup> week of the semester). (*Optional:* *BIO 201 Lab Manual*, above) Other information and computer requirements are provided in the lab UB learns site.

## Labs

Labs meet **beginning in the second week of the semester** (see schedule at end of Syllabus). All labs are mandatory and meet at the time, day, and room specified in HUB. More information about lab can be found in the "About BIO201 \_\_\_ Labs" document in your lab UB learns site.

**Quizzes:** Quizzes are given at the beginning of each lab beginning with Lab 1 to ensure that you have read the lab carefully and are prepared to complete the week's lab. Prelab questions are provided to help you prepare for quizzes but are not graded.

**Lab reports:** Most of the lab reports are completed in Microsoft Excel, and all lab reports must be submitted through UB learns. You can download the latest version of Excel from the [UBIT Software Download Site](#).

**Late work:** You will lose 1 point per day a lab report is late (1 pt if up to 24 hrs. late, etc.).

**Lab make-up policy:** **All lab make-ups must be arranged through your TA.** If you know in advance that you will need to miss a lab, you must contact your TA *at least 2 weeks prior* to the lab. If you miss a lab due to a genuine emergency, you must contact your TA *within 24 hours* of the missed lab and provide them with official documentation before the lab can be made up. **Do not contact Dr Hennessey about lab make-ups.**

## Additional Information:

University Grading policies (including policy on incompletes):

<http://undergrad-catalog.buffalo.edu/policies/grading/explanation.shtml>

University Policy on Academic Integrity:

<http://undergrad-catalog.buffalo.edu/policies/course/integrity.shtml>

Accessibility Resources Office (formerly Office of Disability Services):

<http://www.student-affairs.buffalo.edu/ods/>

**Course requirements.** Points will be assigned as follows. Letter grades will be not be assigned until the end of the semester.

Assessment tool	Details	Points
<b>LECTURE</b>		
Exam 1	First set of lectures	165
Exam 2	Second set of lectures	165
Exam 3	Third set of lectures	168
Lecture subtotal		498
<b>LABS</b>		
Quizzes	5 points each, Labs 2-12, drop lowest	40
Lab 1 Worksheet	6 points	6
Lab Reports	8 points each, Labs 2-7, 9-10	64
Lab notebooks	3 points each, Labs 1-9	24
Clean-up for T labs or Pipetting practical for H labs	8 points	8
Lab Final	30 points	30
Lab subtotal		172
<b>Grand total</b>		<b>670</b>

**Exams:** There will be 3 section exams (see the Course Outline for details). All exams will be multiple choice and computer scored. Exam scores may be adjusted (“curved”) if necessary. Exam 1 is on Feb.28 and Exam 2 will be on April 11. The final is on May 17. Every student in BIO201B must take all of these exams without exception. **All of the exam grades will count towards your final grade.** The final totals may also be adjusted “curved” if necessary.

**Grades:** Final grades will be determined from the scale shown below.

603-670	A
581-602	A-
558-580	B+
536-557	B
514-535	B-
491-513	C+
469-490	C
447-468	C-
424-446	D+
402-423	D
Below 402	F

## Lab Schedule

Week	Date	Lab
1	Jan.29 - Feb.2	NO LAB
2	Feb.5 - Feb.9	Lab 1: Designing controlled experiments
3	Feb.12 - Feb.16	Lab 2: Biological Buffers
4	Feb.19 - Feb.23	Lab 3: Microscopy A: Brightfield microscopy
5	Feb.26 - March 2	Lab 4a: Microscopy B: Survey of microscopy
6	March 5 - March 9	Lab 4b: Microscopy B: Hybrid labs meet in Cooke 210
7	March 12 - March 16	Lab 5: pH and Enzyme Activity
<b>March 19 - March 23 SPRING BREAK</b>		
8	March 26 - March 30	Lab 6: Chloroplast isolation and Hill Reaction
9	April 2 - April 6	Lab 7: SDS-PAGE of Chloroplast proteins
10	April 9 - April 13	Lab 8: Genomic DNA Extraction
11	April 16 - April 20	Lab 8: The Transforming Principle
12	April 23 - April 27	Lab 10: Bioinformatics
13	April 30 - May 4	NO LAB: Weather Makeups
14	May 7 - May 11	Lab final

## Computer and Webpage Help

We are not computer experts. We cannot help you with computer or webpage problems. For help with computer issues, see: <http://helpdesk.buffalo.edu/>

You can also visit the help desk. The hours and location are at: <http://cit-helpdesk.buffalo.edu/services/hours.shtml>

# Advice on How to do well in this class:

## What I'd do to get an "A" in BIO201B if I were taking this class:

My underlying assumptions: The book is not the primary source for testable information in BIO201B, the lecture notes are. However, the book is just as necessary for this course as a dictionary is for a foreign language course. How should I prepare and study for BIO201B?

**I. Skim the assigned readings ahead of time.** Don't outline the reading material and don't take notes YET. That's right, don't take notes yet, wait for the lectures to tell you what's important.

A. Only read for what you can understand, skim the reading material. Don't worry if there is material you don't understand.

- B. Think of questions and write them down. Look for the answers during the lectures.  
“Don’t just memorize answers, think of questions.”
- C. Take mental pictures of the pages and the figures.

**II. Attend all of the lectures. Take notes in class.**

- A. Listen and think about the lectures in class instead of taking detailed notes. If you miss some detail, you can get it from:
  - a. Copies of lecture notes on BIO201B UBLearns
  - b. The recorded lectures
  - c. Notes from a “study buddy”, a friend that you study with from class
- B. Listen for main ideas, “big pictures” and “What’s the Point?” concepts. Write down these concepts whenever possible.
- C. Think of questions as you listen. Either ask them in class or write them down. If you write them down, check the book and your notes later to answer them. Write the answer in your notes. In this course, thinking of questions is more effective than memorizing answers.
- D. **KEEP IN MIND THAT THE TOP PRIORITY IN THIS COURSE IS TO UNDERSTAND EVERYTHING IN THE LECTURE MATERIAL. THIS IS A LECTURE COURSE. THE BOOK IS THERE TO HELP YOU TO UNDERSTAND THE LECTURE MATERIAL, NOT THE OTHER WAY AROUND.**

**III. After class:**

- A. Recopy your notes in another notebook. Why?
  - a. You want a neat, orderly and clean notebook
  - b. Recopying helps you to remember the information
  - c. As you copy your notes, you want to look for a number of things:
    - 1. Try to catch the “flow” of the lecture and try to recopy the notes without too many interruptions.
    - 2. As you realize a major concept or important point, write it down and highlight it.
  - d. If there’s something you don’t understand or are unclear about, leave a space to write a clarification in later.
    - 1. Write a question or questions referring to this on a separate piece of paper.
    - 2. Check the book, your notes, other books, other students, etc. to try to find an answer to these questions
    - 3. When you get the answers, put them in the spaces left in your notes **IN A DIFFERENT COLOR TO SHOW IT IS AN ADDITION.**
  - e. Integrate information and write any concepts in your notes in a different color
  - f. Redisplay complex information by making your own new tables and figures to organize your notes.
  - g. Read through organized notes and generate the kind of questions that you might see on the exam. Write these questions on a separate sheet of paper.
    - 1. Try to answer these question yourself, using the book, notes, etc.
    - 2. Bring those that you can’t answer to the TA’s office hours, the help sessions, a study group or to the professor.
- B. Organize a study group of three or more students from the class.
  - 1. Ask each other questions you generate and agree as a group on the answers.
  - 2. Go over questions from the book, old exams, etc.
  - 3. Discuss the syllabus so that you fully understand the rules
  - 4. Talk over major concepts. Ask “What did he mean by...” and “What was the point of...” Don’t ask, “Do we have to know...”
  - 5. Integrate information and look for unifying concepts
  - 6. Anticipate exam questions and answer them
  - 7. Make a list of any questions that the group can’t answer and have a representative bring them to the professor to be answered.
  - 8. For each overhead slide, make sure that you know two things:

- What's the point? Make sure you understand the key concepts.
  - What are the necessary details? Pay attention to detail.
- C. After all of your notes are complete and your questions are answered, re-read the entire reading assignment.
1. **Now take notes** on the reading assignment, paying special attention to topics covered in lecture. The lecture leads you through the reading assignment, not vice-versa.
- D. **Very Important !** Keep up with the information each week. Don't put it off to cram at the end of the section. Understanding new information requires that you understood the previous information. If you don't keep up, you might get confused. If this happens, go back and review the previous information to get back up to speed.

#### IV. Before the exam:

- A. Get a good night's sleep. Don't party the night before an exam.
- B. Put together a summary sheet of information you might forget (like pathways, equations, definitions, key concepts, etc.). You can look at this right before the exam and this will be the last thing you put away before the exam starts
- C. Review your clear, concise and complete notes and summary sheet
- D. Re-read the assigned readings to see if there is anything you missed.
- E. Clarify anything you're not clear on by reading the book, your notes and talking to the professor (by e-mail if necessary).
- F. Look at the exam from the previous year on BIO201B UBLearns and (THIS IS IMPORTANT) use only 50 minutes to answer all of the questions without looking at the answers. When you have answered all of the questions, check your answers and understand why you got each question right (you might have just guessed) and why you got some wrong.

#### V. During the exam:

- A. Get to the exam ahead of time. Don't come late.
- B. Make sure you put your name (last name first) and student number in the right place and fill in the appropriate spaces.
- C. Make sure there is a clock in the room or bring a watch. You always want to know how much time is left.
- D. Do the questions you can answer easily first.
  1. Skip any question that you're spending more than a minute or two on
  2. Circle the question in red before you leave it so you know to come back to it.
- E. Answer the difficult questions last. Realize that you can completely miss one or two answers and still get an "A".
- F. Don't panic. Relax. Don't waste time thinking about anything else but the exam.
- G. When done, check to make sure you have answered all of the questions.

#### VI. After the exam

Check the answer key on BIO201B UBLearns. Make sure you know what you got wrong and why. Also, make sure you understand why each answer was right and why the others were wrong. **THIS IS VERY IMPORTANT.** You may have guessed at one and got it right, without knowing why. Make sure you know why every right choice was right and why every wrong choice was wrong.

Check your notes to see where you went wrong. If something is wrong in your notes, correct it

Add to your notes anything that you learned from the exam (like what you had misconceptions about or what key concepts you missed)

If you don't know why your answer is wrong, speak to the professor IN PERSON to find out why it was counted wrong. Why?

1. You don't want to repeat the same mistake again
2. You may have a misconception of the subject
3. You may learn something
4. You may get more points (that you honestly deserve)

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**Course Objectives**

0 - not covered  
 1 - moderately covered  
 2 - extensively covered

Number	Program Learning Outcome	Depth	Specific Outcome Objectives for Course	Assessment Instrument
1	Provide breadth of knowledge of basic principles and concepts	1	Students will understand the basic information necessary to understand cell biology	Exam 1, 2 and 3
2	Provide depth within specialized areas	2	Students will understand the many different topics covered in this course	Exam 1, 2 and 3
3	Provide an understanding of experimental design and methodology	2	Students will understand how to design and interpret scientific information. Students will get "hands on" experience in labs	Exam 1, 2 and 3
4	Develop approaches for integration of information	2	Throughout the course, students will integrate the information to develop global concepts	Exam 1, 2 and 3
5	Encourage critical thinking and hypothesis building	2	Throughout the course, critical thinking and hypothesis building are key, underlying concepts to be learned	Exam 1, 2 and 3
6	Provide skills in scientific communication	n/a		
7	Provide contemporary information	2	Students will be exposed to contemporary information about Cell Biology throughout the course	Exam 1, 2 and 3
8	Encourage appreciation of scientific values	2	Students will learn to appreciate scientific values throughout the course	

In all of the assignments, 70% mastery = outcome achieved

## Levels of Help in BIO201B

1. **Yourself.** Keep up on the material each week, don't put it off.
  - Your notes, your book, your study partners
  - The Powerpoints on BIO201B UBLeans and audio on the web
  - Old exams you can get from UBLeans
  - Develop self-reliance so that you are teaching yourself. Don't rely too heavily on the TAs and the professor to force feed information to you. Be proactive and take command of your education. We're here to help, but you also must know how to help yourself
  
2. **Undergraduate TAs.** They have had BIO201B from me and received a grade of A. They know what it takes to understand the material and to get a good grade.
  
3. **Graduate TAs.** The Graduate TAs are there to help you with the labs. It is your responsibility to find out their name and e-mail address by attending the first lab.
  
4. **Me.** There are some things that only I can help you with. All of my contact numbers are on the syllabus. You don't have to limit the times you can meet with me to my office hours. If you have an important concern that the TAs can't help you with and you can't come to my office hours, e-mail me to make an appointment and I'll try to meet with you during the time that is best for you.