

Course Syllabus
General Biology II: Introduction to Molecular and Cellular Biology
Biology 1350 (formerly Biology 1210)
Spring 2015

*This syllabus is, in essence, a contract between me, the instructor, and you, the student.
I have spent a significant amount of time putting it together, and will stick to the information and policies contained within it.
Please spend a significant amount of time reading and understanding it. Thank you!*

Instructor Information:

Nicole J. Huber

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Office Hours: M 12:30 – 1:30 PM, Th 11:00 AM – 12:00 PM, by appointment, and walk-in. If I am in my office, I am usually available. If I am not available in person, e-mail is the best way to contact me.

Course Information:

- This is the lecture component of an integrated lecture-laboratory course that introduces concepts of the structure/function relationships among biological molecules, of cellular metabolism, and of genetics and molecular biology. Open to biology, chemistry, health sciences, and physics secondary education majors only. Approved for the Compass Curriculum requirement Explore – Physical and Natural World.
- Prerequisites: Chem 1301 (formerly 1030) and Biol 1300 (formerly 1200), or consent of the instructor. If you are lacking either of the prerequisites, it is your responsibility to fill in the gaps in your knowledge.
- Meeting Times: M/W 9:25 – 10:40 AM (section 001); M/W 10:50 AM – 12:05 PM (section 002) in Osborne B215
- Credit Hours: 3 credits; concurrent enrollment in the 1-credit lab component of this course, Biology 1360, is strongly recommended.

Major Course Objectives:

Upon successful completion of this course, I hope you will be able to:

- Understand how science both relates to and differs from other academic disciplines; describe the scientific method and how to ‘do science’ through the process of scientific inquiry
- Use scientific knowledge combined with critical thinking to evaluate current societal concerns
- Understand the basic chemical structure underlying the major molecules essential to life, as well as how these chemical properties relate to key cellular processes
- Describe the structures and functions of basic components of cells, especially macromolecules, membranes, and organelles, as well as their specific role in major cellular processes
- Understand how cellular components transform and utilize energy; explain what occurs during cellular respiration and photosynthesis, and why these processes are essential to life
- Explain the major events of the cell cycle; compare and contrast mitosis and meiosis
- Describe how inheritance of traits works in sexual reproduction; understand the basic principles of genetics at an organismal, chromosomal, and molecular level; explain what occurs at a cellular/molecular level during gene expression
- Apply knowledge of basic principles of genetics to solve a variety of genetics problems
- Apply knowledge of basic cell biology to understand current techniques in biotechnology
- Understand the ways in which loss of normal functions within a system can result in various diseases, disorders, and illnesses
- Above all, establish a strong foundation of knowledge that will allow you to keep up with and be competitive within the rapidly growing field of molecular and cellular biology

General Information

This course is designed for biology, chemistry, and selected health sciences majors. While the difficulty level of the course will depend largely upon your academic background and academic abilities in general, the majority of students find the material to be challenging, and have to put in a significant amount of time and effort to succeed. You need to be realistic about how much time you will need to devote to this class, and plan your schedule accordingly.

Required Materials:

1. Access to Mastering Biology online at <http://www.masteringbiology.com>. Access codes can be purchased from the bookstore or directly from the publisher. **The course ID is BIOL1350HUBER.**
2. Access to online course materials on Blackboard at <http://bb.uccs.edu>
3. An e-mail address on record that you check regularly
4. Three 100-question scantrons and a #2 pencil with a good eraser for exams
5. A good attitude, and willingness to work hard

Optional Materials:

- Textbook: This course has been designed around the information in *Campbell Biology* (9th edition) by J.B. Reece *et al.*, Pearson Benjamin Cummings Publishers, 2011. The 10th edition of this text is available in the bookstore and there are several copies (varying editions) on reserve at the library.

Many students have told me they did not need the textbook to succeed in this class. However, if you do not plan to attend class regularly (and pay attention!), I highly recommend that you purchase (and read!) the textbook. It's your decision. ☺

- i>clicker: I assess class participation and attendance through the use of clickers. Clicker points are extra credit. See the 'Extra Credit' section for more details.

Methods of Evaluation

Grading Criteria:

Exams	2 @ 100 points each	= 200 points
	1 @ 130 points	= 130 points
Homework	12 assignments @ 10 points each	= 120 points
		= 450 points total

A	93% +	B	83-86.99%	C	73-76.99%	D	63-66.99%
A-	90-92.99%	B-	80-82.99%	C-	70-72.99%	D-	60-62.99%
B+	87-89.99%	C+	77-79.99%	D+	67-69.99%	F	below 60%

Exams:

Exam questions are based off the material from lectures, homework, and in-class activities. If you attend class and pay attention, and do a good job on the homework, there will be no surprises on the exams. Although some questions are simple factual recall, many will require you to demonstrate an in-depth understanding of the material and apply concepts discussed in class to novel scenarios. Plan to study for this level of comprehension.

Each unit exam focuses specifically on the material from that unit; however, all the exams are 'cumulative' in the sense that most scientific knowledge builds on prior knowledge. After the first exam, each subsequent exam assumes you have retained knowledge of prior course content and can apply it to new material. **Cell phones must be OFF and in plain sight during exams. ANY use of your cell phone or any other device during exams is strictly prohibited, and will have severe consequences.**

Homework:

There are 15 homework assignments throughout the semester; the 12 highest grades count. Homework is due on Friday nights by 11:59 PM. Late assignments will not receive any credit. Refer to the Mastering Biology calendar for exact due dates for each assignment.

Extra Credit:

I use clicker questions to assess student learning and encourage participation. A maximum of five points per unit (15 points total) of extra credit will be available from clicker questions. Points will be awarded as follows:

- For each question, an incorrect response will receive 1 point; a correct response will receive 3 points.
- Clicker points will be calculated one time per unit, after the last day of class before the unit exam.
- If you receive 90% or more of the clicker points in a unit, you will receive 5 extra credit points for that unit; 80-89% = 4 points; 70-79% = 3 points; 60-69% = 2 points; 50-59% = 1 point.

Aside from clicker points, I may occasionally grant extra credit opportunities to the entire class, but I do not offer any extra credit on an individual basis.

Miscellaneous Information and Policies

Reviewing Exams:

Exams are part multiple choice and part 'open response' (fill-in-the-blank, short answer, short essay, etc.). I do not return the multiple choice portion of the exam to you. However, I strongly encourage you to come by my office and review your exam/scantron. During this time, you may take notes by hand, but **no electronic devices are allowed. This includes laptops and cell phones.** It is best to review your scantron as soon as possible after the exam, before the next exam. Understanding your mistakes will help you avoid making the same mistakes in the future, as well as improve your thought processes and understanding of the material. Being a proficient test-taker is an essential skill in science courses. Fortunately, test-taking, just like any other skill, can be improved with practice and effort.

Contesting a Grade:

I attempt to evaluate your work as objectively as possible. If you believe that your work has been graded unfairly, you have the right to request that it be re-graded. You must state the specific reasons you believe your grade was unfair and submit your re-grade request **within a week** of when I returned your work. Your entire exam and/or assignment will be re-graded and you must accept the new score, even if it is lower than the old one.

Here are some other things that can happen, and how you should deal with them:

- Sometimes I add up points incorrectly. It is your responsibility to go over your work promptly after I have graded it and notify me of any mistakes **within a week**.
- On occasion, the scantron reader will misread your scantron. This can occur if you do not color in the circles adequately, do not fully erase an answer that you have changed, or have extraneous markings on your scantron. Additionally, there are multiple versions of each exam; if you turn your scantron into the wrong pile, it will not be graded using the correct key. Reviewing your scantron promptly after the exam will help you catch any of these problems. Requests for a change of grade due to errors of this nature must be made **before the next exam**.

Make-Up Policies:

Make-up exams will be considered in the event of a **verifiable** and **documented** emergency. You may be given a different version of the exam, and must take it on or before the next day you attend class.

Dropping or Withdrawing:

You are responsible for following and understanding the university's policies regarding deadlines and conditions for adding, dropping, and withdrawing. **The last day to drop this course without special permission is Friday, April 3rd**. I will not sign drop slips after that.

Disruptive Students:

Disruptive students in the academic setting hinder the educational environment. Disruptive student conduct is prohibited by Regent Laws and the *CU-Colorado Springs Students' Rights and Responsibilities: Standards of Conduct*, and will be reported to the Dean of Students. For more information about the *Standards of Conduct*, see the Dean of Students web site at <http://www.uccs.edu/doc/student-conduct/student-classroom-behavior-policy.html>. **Please note that incessant and obnoxious use of your cell phone during lecture is considered disruptive student behavior, as it is distracting to me and those around you.** I will report it to the Dean.

Military Students:

If you are a military student with the potential of being called to military service and/or training during the course of the semester, please contact me no later than the first week of class for discussion. For more information, please see <http://www.uccs.edu/~military/>.

Students with Disabilities:

If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to register with Disability Services and provide them with documentation of your disability. They will work with you to determine what accommodations are appropriate for your situation. To avoid any delay, you should contact Disability Services as soon as possible. Please note that accommodations are not retroactive and disability accommodations cannot be provided until a Faculty Letter has been given to me. **Note that if you receive test-taking accommodations, you must fill out the required paperwork for each exam and turn it in to me at least one week before the exam if you want to ensure that your accommodations are met.** Please contact Disability Services for more information about receiving accommodations at Main Hall, room 105, 719-255-3354 or dservice@uccs.edu.

Academic Honesty:

I strongly encourage you to choose the honest route when it comes to your education. There will be severe consequences for any students caught in an act of academic dishonesty. **You are much better off putting your energy into studying and learning the material than trying to figure out ways to pass exams or complete homework assignments without having to learn anything!** If you choose the dishonest route, not only are you depriving yourself of the valuable education you are paying for and participating in **voluntarily**, but you are also putting your academic career and future in jeopardy. You are responsible for knowing the university's academic honor code, as well as other academic procedures, which are outlined on the UCCS web site at <http://www.uccs.edu/history/research/uccs-policies-on-academic-honesty-and-civility/uccs-academic-honor-code.html>.

General Expectations

There are no formal requirements for class attendance. However, if you do choose to attend class, I ask that you conduct yourself in a manner that contributes to a positive learning environment by doing the following:

- **Turn all electronic devices off** (a cell phone on 'vibrate' is not off ☺), and respect your peers' right to learn by not being rude and/or disruptive by talking throughout class, texting, playing video games on your computer, sleeping, snoring, etc.
- **Make every effort to be on time.** This is common courtesy. Arriving late is disruptive to me and to your peers. You will also miss important announcements and instructions.
- **Participate actively.** Because of the class size and vast amount of material to be covered, the bulk of the course is lecture. However, you should feel free to ask questions and share comments, as it makes class more interesting for everyone (myself included). If there is something you want to say, please speak up!
- **Take responsibility for your own education.** I want to help you to succeed, but I cannot read minds. If you don't understand something, are generally confused, or have any concerns and/or questions about any facet of the class, come talk to me, e-mail me, or do whatever you need to do until you are satisfied.

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Tentative Schedule: Spring 2015

Note: The schedule is subject to change depending on uncontrollable variables and class needs. However, barring any major catastrophic events, exam dates are set in stone. If the university cancels class due to weather or other circumstances on a scheduled test day, the test will occur during the next class meeting.

Unit 1: Chemistry and Introduction to the Cell
 Unit 2: Membranes, Metabolism, and the Cell Cycle
 Unit 3: Genetics and Biotechnology

Lecture outlines with supplemental notes will be provided for each lecture. These will be posted on Blackboard under 'Lecture Outlines and Study Guides.' My PowerPoints are also available on Blackboard, under 'PDF files of PowerPoint Presentations.' I will also provide handouts with supplementary information for many of the class periods. If you have chosen to purchase the text, the chapters from *Campbell Biology* that correspond to the lecture material are noted below.

Date		Lecture Topic(s)	Campbell Biology
January			
21	W	Course introduction	
26	M	Chemistry Water <i>Note: This course assumes a prior knowledge of chemistry. If you do not have the appropriate background in chemistry, it your responsibility to bring yourself up-to-date.</i>	Chapter 2 Chapter 3
28	W	Carbon	Chapter 4
February			
2	M	Large biological molecules	Chapter 5
4	W	Large biological molecules, cont.	Chapter 5
9	M	A tour of the cell	Chapter 6
11	W	Catch up, review, and/or test prep	
16	M	Exam #1: 100 points	
18	W	Membranes	Chapter 7
23	M	Membranes, cont. Metabolism	Chapter 7 Chapter 8
25	W	Cellular respiration <i>Note: Cellular respiration and photosynthesis require a significant amount of time and effort to understand. It is essential that you come to class prepared on these days.</i>	Chapter 9
March			
2	M	Cellular respiration, cont. Photosynthesis	Chapter 9 Chapter 10
4	W	Photosynthesis, cont.	Chapter 10
9	M	Cell cycle	Chapter 12
11	W	Cancer	Chapters 12 and 18
16	M	Catch up, review, and/or test prep	
18	W	Exam #2: 100 points	
<i>Schedule continued on back</i>			

March, cont.			
23	M	<i>Spring Break: no class!</i>	
25	W		
30	M	Meiosis	Chapter 13
April			
1	W	Genetics	Chapter 14
3	F	<i>Last day to drop the course without special permission from the dean</i>	
6	M	Genetics, cont.	Chapter 14
8	W	Chromosomes	Chapter 15
13	M	Chromosomes, cont.	Chapter 15
15	W	DNA replication	Chapter 16
20	M	Gene expression	Chapter 17
22	W	Gene expression, cont.	Chapter 17
27	M	Biotechnology	Chapter 20
29	W	Biotechnology	Chapter 20
May			
4	M	Biotechnology	Chapter 20
6	W	Catch up, review, and/or test prep	
11	M	Section 002 Exam #3: 130 points 10:20 AM – 12:20 PM (Please note that this is a different time than the class usually meets.)	
13	W	Section 001 Exam #3: 130 points 8:00 – 10:00 AM (Please note that this is a different time than the class usually meets.)	