Principles of Biology (Biol 101): Fall 2009  
Dr. Kelly Hogan  
MWF 9:00 – 9:50 AM (Section 1)  
Hamilton Hall 100

Instructor:  
Dr. Kelly Hogan  
Kelly_Hogan@unc.edu  
Office phone: 843-6047  
Office hours:  
Mondays 12-1:30, Tuesdays 1-2, and Fridays 12-1

Academic advising questions? See me in from 10-2 on Thursdays by appointment in academic advising in Steele. (Make an appointment through the academic advising website).  
(*If you can’t make it at these times, I am free right after class each day for quick questions and I am willing to discuss things by email or over the phone).

Supplemental Instruction TA:  
Sophia Woo wsophia@email.unc.edu  
Daniel Bobrowski bobrowsk@email.unc.edu  
*SI times/locations: TBA (see blackboard under the SI folder)

TEXT:  
Biology, Concepts and Applications, 7th Edition by Cecie Starr  
Required reading: Particular chapters are required (see course schedule/topics) and you will be expected to have read them for exams. Nowadays, publishers put useful audio study tools, animations, and tutorials on the internet. These "premium" services for our Biol 101 text book are all located at CengageNOW (see the website and password above again to see a trial; first option from the list on the right). These services will come free with the purchase of an ebook or a new textbook. As your instructor, I highly recommend that you use all of these tools. I am excited about how technology is changing the way we think about college textbooks!

COURSE WEBSITE:  
http://blackboard.unc.edu/ (you will need your onyen to log on)  
This site will have postings from my lectures such as outlines, power point slides, old exams, and supplemental material I mention in lecture. I will also post announcements regarding student concerns on this site. It is your responsibility to check it regularly.

SUPPLEMENTAL INSTRUCTION (SI):  
Your SI sessions will be offered 3-4 times a week. Each session will be scheduled for 1 hour. The times and location of these sessions will be posted on blackboard during the first week of class. You are not required to attend SI, but it is highly recommended, since this is your opportunity to get more “one-on-one” attention for this course. Your SI instructor’s contact information is listed above. Be sure to check out the SI folder on blackboard for worksheets and more problems.
COURSE GOALS: Many students like to complain that this is a “weed out” course. Of course this is not true, but why does it have this reputation? Fact: the average grade in this class is in the C range; C is not bad it is average. Yet, many students also earn D’s and F’s in this class. This is absolutely shocking to first year students who have, in the past, received A’s in their high school classes. You are wondering...is there a pre-determined number of students that receive a C, D, or F? Nope. See below to see what grade you need to earn. In theory, if the whole class earns A’s, then the whole class is given A’s. So why don’t all students do as well as they think they will when they walk into class on the first day? My experience tells me that:

1) some students do not have the active learning and studying skills that they should already have at the college level (It often takes these students an exam or two for them to recognize this.)

2) some students do not actually put in the effort that is necessary (even though they may think they are putting in a big effort).

And, this brings me to the goals of my course...

1. This course should prepare you to succeed in future science courses. You should learn how to be an active learner in the lecture hall and you should learn how to actively study. There is no magic formula that works for each student. Some students find they learn best when they write and re-write notes, others need to record the lecture and re-listen, others like to make models and “act out” biological processes. And what if you don’t plan to take any more science classes? Active learning and studying is a skill that is needed for any discipline! You can achieve these goals by attending a “how to study biology workshop” on Sept 15 from 6-7:30 PM in Wilson 107, attending SI regularly (see below), using practice exams, and reading the book. And maybe most important: you should be thoroughly evaluating their exams to see what kinds of questions you are missing (remembering, understanding, applying). I take a special interest in students improving their skills and my office hours are always open (no appointment necessary) to discuss this. Many former students can attest to this.

Amended Bloom’s Taxonomy: developed as a method of classifying educational goals for student performance evaluation. You should think about this as you study for exams and ask yourself, am I using different kinds of thinking?

2. This course should provide you with the basic language and principles of biology. For those of you continuing in biology, this is just the tip of the iceberg. For others, this might be your only biology course! You can achieve this goal by practicing vocabulary and learning the latin/greek roots of words. You can draw slides and label the components. You can find common themes in the chapters we cover, such as how the theory of evolution applies to chapters not specifically about evolution. Thoroughly learning the principles is about making connections between material learned at the beginning, middle, and end of the semester! Repetition is key to building a foundation of knowledge (and that is why you have lecture, a textbook, SI, etc.).

3. This course should excite you about biology. Throughout the semester I hope you will ask yourself and me, why is this relevant to me? Some lessons will be obvious (e.g. how blood flows through your heart). Other lessons are less obvious (e.g. learning the Hardy-Weinberg equation). Early in the semester you will also learn how science is performed. I encourage you think about the content you learn through the semester and continually realize that each sentence in the textbook may represent years of rigorous testing and data collection. I hope that the biology that we learn this semester will cause you to ask more questions. You might even leave with more questions than answers!
EXAMS: There will be three exams given during the regular semester.

The format will be multiple choice, so bring two #2 pencils to the exam. These are not cumulative exams and will only cover the material specified on the course schedule. To see exam scores, log into student central and follow link for “results of machine scored exams”. There will be a final exam given, and it will be cumulative. For all exams, you will need your PID number as identification on your exam sheet. Additionally, you may be asked to verify your identity, so it is required that you bring your one-card to each exam. Failure to produce a one-card if asked may result in a zero on that exam. Test material to study: most questions will come from my lecture, including power point slides. Some questions will also come from the chapter readings that I may not discuss or go through quickly in lecture. Therefore, to succeed in this class, it behooves you to come to all lectures and read required chapters. Your book has a great website with many practice questions…also, see blackboard for Dr. Hogan’s study tips and the last page of this syllabus.

NO MAKE-UP EXAMS! NO EXAMS GIVEN EARLY!
(Your grade will be adjusted based on how many exams you take (see below how grade is determined)

ASSIGNMENTS/HOWework (10% of grade): There will be numerous graded at-home assignments. This is not often the case in a college level biology course, but see goal #1 above and realize that I am trying to help you to succeed. Some assignments are meant to pace you so that you don’t leave all the reading and studying until the few days before the exam (note: this is not high school, and cramming does not work in college—ask upper classmen!). Other assignments are meant to help you with goals #2 and 3; these might include both textbook and non-textbook readings. You will do these assignments on your own without help from anyone through multiple choice questions on blackboard. The assignments and instructions will be posted as we move through the semester. If your homework is not received by the due date you will receive a zero on that assignment. (This component of your grade should not hurt you…it should HELP you, so please do it!!!) In addition to these graded assignments, your “suggested” homework will be to do questions form the end of chapters/book website and worksheets from SI.

HOW IS YOUR GRADE DETERMINED? [Note: there will be no changes to HOW your final average is calculated at the end of the semester...so please don’t ask!] Your final average is calculated:
If you take all three semester examinations:
  The lowest examination grade is dropped and the total for the semester =
  (0.23 x exam) + (0.23 x exam) + (0.44 x final exam) + (0.10 homework average)

If you take any two semester examinations:
  Both the exams you took will count and the total for the semester =
  (0.23 x exam) + (0.23 x exam) + (0.44 x final exam) + (0.10 homework average)

If you take one semester examination:
  The total for the semester =
  (0.23 x exam) + (0.67 x final exam) + (0.10 homework average)

If you take zero semester examinations: (This rarely results in a passing grade—so, don’t plan to do this.)
  The total for the semester =
  (0.90 x final exam) + (0.10 homework average)

Here are the guidelines as to how I will convert your average to a letter grade:
A = or greater than: 92              C+ = or greater than: 70
A- = or greater than: 88              C = or greater than: 64
B+ = or greater than: 84              C- = or greater than: 56
B = or greater than: 80              D = or greater than: 50
B- = or greater than: 76              F is less than: 50
# Fall 2009: Biology 101

## Course Schedule/Topics

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Relevant Readings</th>
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<tbody>
<tr>
<td>W 8/26</td>
<td>Introduction to class and begin the Process of Science</td>
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<tr>
<td>F 8/28</td>
<td>Process of Science cont.</td>
<td>Chapter 1.5-1.8</td>
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<td><em>Chapter 2 is an optional read, it may be useful if you would like a quick review of basic chemistry</em></td>
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### UNIT I: CELL BIOLOGY

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<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Relevant Readings</th>
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<tbody>
<tr>
<td>M 8/31</td>
<td>Macromolecules</td>
<td>Chapter 3</td>
</tr>
<tr>
<td>W 9/2</td>
<td>Macromolecules cont. &amp; begin Cells</td>
<td>Chapters 3 and 4</td>
</tr>
<tr>
<td>F 9/4</td>
<td>Discussion of cells in class</td>
<td>Chapter 4</td>
</tr>
<tr>
<td>M 9/7</td>
<td>NO CLASS: MLK DAY</td>
<td></td>
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<tr>
<td>W 9/9</td>
<td>Membranes</td>
<td>Chapter 5</td>
</tr>
<tr>
<td>F 9/11</td>
<td>Enzymes, Energy and Cellular Respiration</td>
<td>Chapters 5 and 7</td>
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<tr>
<td>M 9/14</td>
<td>Cellular Respiration cont.</td>
<td>Chapter 7</td>
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*Homework 1 due on blackboard (under “assignments”) by Thur 9/3 at 11:55 PM*

**Tuesday 9/15 : “How to Study Biol Workshop” : 6-7:30 PM Wilson 107**

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<tr>
<th>Date</th>
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<th>Relevant Readings</th>
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<tbody>
<tr>
<td>W 9/16</td>
<td>Photosynthesis</td>
<td>Chapter 6 (exclude 6.7)</td>
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*Homework 2 due on blackboard Wed 9/16 at 11:55 PM (some old test questions up to and including cell respiration material)*

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<tr>
<th>Date</th>
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<th>Relevant Readings</th>
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<tbody>
<tr>
<td>F 9/18</td>
<td>Photosynthesis cont.</td>
<td>Chapter 6</td>
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### UNIT II: GENETICS

**M 9/21: EXAM 1 (all material covered in class from 8-26 → 9/18)**

Unless I excluded a section from the book, I will expect that you have read an entire chapter. This means that I may test you on material from the book that I did not discuss much in class. Alternatively, sometimes my lectures have material/images that are not in the book. Be sure to study notes and powerpoints.

<table>
<thead>
<tr>
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<th>Relevant Readings</th>
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<tbody>
<tr>
<td>W 9/23</td>
<td>Active learning discussion and Mitosis/Meiosis</td>
<td>Chapter 8 and 9</td>
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<tr>
<td>F 9/25</td>
<td>Meiosis cont.</td>
<td>Chapter 9</td>
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*Homework 3 is due by 11:55 PM Sunday 9/27 (cancer reading)*

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<tr>
<th>Date</th>
<th>Topic</th>
<th>Relevant Readings</th>
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<tbody>
<tr>
<td>M 9/28</td>
<td>Inheritance and Human Genetics</td>
<td>Chapter 10</td>
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<tr>
<td>W 9/30</td>
<td>Inheritance and Human Genetics</td>
<td>Chapter 10/11 (exclude p. 161-5)</td>
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<tr>
<td>F 10/2</td>
<td>Inheritance and Human Genetics</td>
<td>Chapter 11</td>
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*Homework 4 is due by Sunday 10/4 11:55 PM (genetics problems)*

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<tr>
<th>Date</th>
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<th>Relevant Readings</th>
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<tbody>
<tr>
<td>M 10/5</td>
<td>DNA Structure and Replication</td>
<td>Chapter 12</td>
</tr>
<tr>
<td>W 10/7</td>
<td>Transcription/Translation</td>
<td>Chapter 13</td>
</tr>
<tr>
<td>F 10/9</td>
<td>Translation cont. and begin stem cells</td>
<td>Ch 13, See Blackboard for stem cell reading</td>
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<tr>
<td>M 10/12</td>
<td>Stem cells</td>
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UNIT III: EVOLUTION/DIVERSITY
W 10/14: Processes of evolution Chapter 16.2-3, 17.1-17.8
F 10/16: EXAM II (all material covered in class from 9/23-10/12; i.e. excludes chapter 16/17)
M 10/19: Processes of evolution (cont.) Chapter 17.1-17.8
( last day to drop a class or declare it P/F)
W 10/21: The Origin of Species Chapter 17.9–17.14
F 10/23: FALL BREAK NO CLASS
M 10/26: Origin of Species cont. and begin invertebrate discussion 17.9- 17.14 and18.3-4, Chap.23
Homework 5 is due Tuesday 10/27 by 11:55 PM (based on chap 23)
W 10/28: Invertebrate discussion, begin vertebrates Ch. 23, Ch. 24 (exclude 24.12-13)
F 10/30: Evolution and Diversity of Vertebrates Ch. 24 (exclude 24.12-13)

UNIT IV: ANIMAL STRUCTURE AND FUNCTION
M 11/2: Animal Tissues and Animal Homeostasis Chapter 25.3 and Chapter 29
W 11/4: Digestion Chapter 37.1-37.7, and 37.10
F 11/6: Digestion cont. and begin Respiration Chapter 37.1-37.7; Chapter 36
M 11/9: Respiration Chapter 36
W 11/11: Circulation Chapter 34
Homework 6 is due by Thursday 11/12 by 11:55 PM (blood)
F 11/13: Circulation continued
Read through case study before Monday 11/16
M 11/16: Blood and Case Study Discussion
Homework 7: due Thursday 11/17 by 11:55 PM.(pathophysiology reading and old test questions up to and including respiration material)

UNIT V: PLANT STRUCTURE AND FUNCTION
F 11/20: Plants are not boring!  26.1, 26.6, 26.7,
27.2-27.6, 28.7, 28.8
M 11/23: Exam III (all material from 10/14- 11/18; excludes plants)
W 11/25 and F 11/27: THANKSGIVING BREAK
M 11/30: Plant reproduction In class video

Unit 6: ECOLOGY
F 12/4: Plant Predators In class video
M 12/7: Communities Ch 41
W 12/9: Last class: concluding concepts
You may want to read Chapter 1 again (or for the first time) now, it is a nice overview.

FINAL EXAM (cumulative): Friday Dec. 11th 8-10:30 AM in Hamilton 100; please bring UNC one-card to show photo ID when you leave.
Hints for doing well in this class:

• Read the textbook for each corresponding lecture. Read it either before or after class, but you should be reading throughout the week. (This is college, so you decide what works best for you.)

• **Review your notes multiple times in multiple ways!** The more times you review biology, the better it will stick. 1) read it in the book 2) hear it in class 3) review your notes 4) review all powerpoints 5) make flashcards 6) rewrite outlines 7) teach a friend or 8) explain it to the wall! 9) make up quizzes for yourself or a friend that you can do later.

• **REVIEW YOUR NOTES AFTER EACH CLASS!** How long will this take? Set aside 15 minutes and make this a HABIT!! I guarantee that it will pay off.

• **Attend each lecture, and pay attention.** Drink coffee if necessary! Take good notes to help yourself retain the information. (A good student takes more notes that the instructor writes!)

• Find a classmate or a group of classmates to study with. Talking about material will significantly enhance your learning, and it is a good way to be sure you took comprehensive notes. Don’t rely on your group…you need to study alone before meeting with them!

• **“Reading over your notes” is NOT studying.** You need to “quiz” yourself in some way to see what you are retaining from your “reading”. Have you tried drawing the illustrations? Have you constructed flow charts or concept maps? Have you tried explaining the concept aloud? Have you made paper cutouts and tried acting out the process? Have you compared and contrasted major concepts/processes that you have learned? Have you used the book’s website for quiz questions?

• **Attend SI at least once a week!** One hour will not cut into your social life that much and it will reinforce the material in a way that we don’t always have time for in lecture. Your SI instructor is really creative and has all kinds of tricks and tips. Check it out every week (even if you don’t have any questions!) and always check out the SI folder on blackboard.

• Answer relevant practice questions at the end of each chapter in your book and on the book’s website. Use the assigned homeworks as practice for exams…since they ARE old exams. If you can answer them, you have a good handle of the material.

• **Discuss material and concerns** with me (Dr. Kelly Hogan) during office hours, after class, or by email. I am a really nice person…nobody to be scared of!! But…you need to come see me well in advance of an exam. Come see me after the first exam if you did not do well. What suggestions can I have for you if you wait until you did poorly on all three exams?

• Uphold the honor code. Observing the Honor Code means that during exams, you may not look at another person’s exam; talk to anyone, either in person or by cell phone or email; or use the Internet, another person’s calculator, or any other text or notes. Please report any violations that you observe.

• Get plenty of sleep before an exam! If you have followed my advice, you should be reviewing notes and relaxing the night before an exam.

• Free peer tutoring is available at Dey Hall on Tues and Wed evenings from 6-9 PM. There are not usually too many people there and you can often get one-on-one attention. [http://www.unc.edu/depts/lcweb/](http://www.unc.edu/depts/lcweb/)

• If you feel you need scheduled tutoring and one-on-one attention with a fulltime tutor, don’t wait too long. See Robin Blanton at the Learning Center. She is the biology specialist and is wonderful. She can be contacted at: rcb@email.unc.edu or 962-8012. However, her time fills up fast!