Principles of Biology (Biol 101)

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 (Wilson 104B): *Mondays 1-2:30 and Thursdays 11:30-1:30 in Wilson Hall 104.
*(*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).*
Academic advising questions? See me in from Tuesdays 11:15- 3:15 by appointment in academic advising in Steele. (Make an appointment through the academic advising website).

Supplemental Instruction (SI)* TAs: Daniel Bobrowski bobrowsk@email.unc.edu and
Chelsea Steele steelc@email.unc.edu
**SI times/locations: TBA (see blackboard under the SI folder)*

Tutor and Poll Everywhere TA: Sally Ryu sallyryu@email.unc.edu

TEXT: Biology, Concepts and Applications, 7th Edition by Cecie Starr
Required reading: Particular chapters are required (see course outline for details) and you will be expected to have read them for homework assignments and exams. You may use the ebook if you prefer.

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 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. I suggest you fit one into your schedule early in the semester and attend weekly as if it is a required class. Your SI instructor's contact information is listed above. *Be sure to check out the SI folder on blackboard for worksheets and more problems.*

"MASTERING BIOLOGY" HOMEWORK: (10% of your grade) Homeworks will be due every Sunday and Thursday night by 11:55 PM. It is based on the GUIDED READING QUESTIONS from blackboard. Therefore, you do the reading and fill in the outlines *first*, then answer the homework on Mastering Biology. Some Mastering assignments will take you as little as 15 minutes and others will take over an hour with the animations and short tutorials interspersed in the homework. **It is your responsibility to start it in a timely fashion, so that you finish it by 11:55 PM.** To be safe, assume your clock is 5 minutes slower than the official *Mastering Biology* time. Late homeworks will receive zero credit, even though you can still do them for practice. Do not count on the Mastering program to give an accurate account of how long an assignment will take. These estimates are wildly off! There will be numerous graded at-home assignments. This is not always the case in a college level biology course, but see goal #1 below and realize that I am trying to *help* you to succeed. **See blackboard for how to register for Mastering Biology.com**

PARTICIPATION: Are you required to come to class? Are you required to pay attention? Are you required to discuss biology with your classmates during class? Nope, I cannot make you do any this. But, since this is your education and you want that 4.0 this semester, it behooves you to do all of these things that make you a successful student. I enjoy Facebook too, but put it away and participate in your education! As a reward, you will see some

small bonus incentives on your exams. How will I know you are participating in this LARGE class? You will be using a program called PollEverywhere through your laptop, mobile phone or itouch/ipad. **We'll discuss how to properly register in class. If you do not register, you do not have the opportunity for bonus points.**

WHAT YOU SHOULD BRING TO CLASS EVERY DAY:
1. Outlines from blackboard (either printed or on laptop).
2. Extra blank paper for drawings, notes, activities etc.
3. 3 x 5 index cards (with or without lines)
4. Poll everywhere device: either your cell phone for texting or laptop for web access

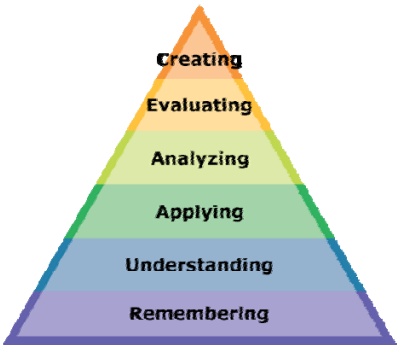
COURSE GOALS: Many students like to complain that this is a "weed out" course. Of course this is not true, but why does it have this reputation? Fact: the average grade in this class is in the C range; C is not *bad* it is *average*. Yet, many students also earn D's and F's in this class. This is absolutely 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" see date below on schedule, 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: chapter reading outlines/homeworks, lecture activities, and power point slides. Therefore, to succeed in this class, it behooves you to take each reading/homework seriously and actively engage in all class discussions. Also, see 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)

All work done in this class must be carried out within the letter and spirit of the UNC Honor Code. You must sign a pledge on all graded work certifying that no unauthorized assistance has been given or received. You are expected to maintain the confidentiality of examinations by divulging no information about any examination to a student who has not yet taken that exam. You are also responsible for consulting with your professors if you are unclear about the meaning of plagiarism or about whether any particular act on your part constitutes plagiarism. Please talk with the professor if you have any questions about how the Honor Code pertains to this course.

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

Course Schedule/Topics

**For each HW assignment, FIRST fill-in the Guided Reading Questions (see outlines on blackboard) based on textbook reading. THEN go to Mastering Biology to do the assignment due by 11:55 PM on Sunday and Thursdays.*

M 1/10: Introduction and begin How Science Works
W 1/12: How Science Works (cont.)
**Chapter 2 is an optional read, it may be useful if you would like a quick review of basic chemistry*
Thursday 1/13 HW- Two assignments: 1) Introduction to Mastering and 2) Macromolecules

UNIT I: CELL BIOLOGY

F 1/14: Macromolecules
Sunday 1/16 HW: Cells
M 1/17: NO CLASS MLK Day
W 1/19 : Macromolecules (cont.)
Thursday 1/20 HW: Membranes
F 1/21: Cells
Sunday 1/23 HW: Enzymes and Energy
M 1/24:Cells cont. and Membranes
W 1/26:Enzymes, Energy and begin Cellular Respiration
Thursday 1/27 HW: Cellular Respiration
F 1/28: Cellular Respiration (cont.)
Sunday 1/30 HW: Photosynthesis
M 1/31: Photosynthesis
W 2/2: Photosynthesis (cont.)
Thursday no HW due-optional practice assignment: Review Exam 1

UNIT II: GENETICS

F 2/4: **EXAM I *(all material covered in class from1/10-2/2)***
Sunday 2/6 HW: Mitosis, Cancer and Meiosis (*be sure to read NYTimes articles too*).
M 2/7: Mitosis and Cancer
W 2/9: Cancer cont. and Meiosis
Wed 2/9: STUDYING BIOLOGY WORKSHOP, 7-8:30 Wilson Hall 107
Thursday 2/10 Observing Patterns in Inherited Traits
F 2/11: Complete Meiosis and begin Inherited Traits
Sunday 2/13 HW:Chromosomes and Human Inheritance
M 2/14: Inherited Traits (cont.)
W 2/16: Chromosomes and Human Inheritance
Thursday 2/17 HW: DNA Structure and Function
F 2/18: DNA Structure and Function
Sunday 2/20 HW: From DNA to Protein
M 2/21: Begin From DNA to Protein
W 2/23: From DNA to Protein (cont.)
Thursday 2/24 HW: Is Stem Cell Research Moving Forward? *(listen/read transcripts from NPR before completing homework).*
F 2/25: Stem Cells
Sunday 2/27 HW: *no HW due (optional HW for Exam 2 prep)*
M 2/28: **EXAM II (*all unit 2 material covered in class from 2/7-2/25*)**

UNIT III: EVOLUTION/DIVERSITY/ECOLOGY

W 3/2: Processes of Evolution

Thursday 3/3 HW Processes of Evolution

F 3/4: Processes of Evolution (cont.)

SPRING BREAK; *Monday March 14= Last day to drop class or declare it pass/fail.*

M 3/14: The Origin of Species

Sunday 3/13 HW extension until Tues 3/15: Origins of Species/Life's Origins

W 3/16: Life's Origins and begin Evolution and Diversity of Vertebrates

Thursday 3/16: Vertebrate Evolution and Diversity

F 3/18: Evolution and Diversity of Vertebrates (cont.)

Sunday 3/20 HW: Populations

M 3/21: Populations

W 3/23: Plant Predators

Thursday 3/24 HW: Interactions within Communities

F 3/25: Communities

UNIT IV: ANIMAL STRUCTURE AND FUNCTION

Sunday 3/27 HW: Animal Tissues

M 3/28: Animal Tissues and Homeostasis

W 3/30: Digestion

Thursday 3/31 HW: Digestion

F 4/1: Digestion (cont.)

Sunday 4/3 HW: Circulation 1

M 4/4: Circulation

W 4/6: Circulation (cont.)

Thursday 4/7 HW: Circulation 2

F 4/8: Circulation (cont.)

Sunday 4/10 HW: no homework, optional assignment for exam III prep

M 4/11: Exam III (all material from 3/2-4/8)

W 4/13: Immunology

Thurs 4/14 HW: Immunology

F 4/15: Immunology (cont.) begin Human Reproduction

Sunday 4/17 HW: Reproduction

UNIT V: Reproduction

M 4/18: Human Reproduction

W 4/20: Reproduction

Thursday 4/21: Plant reproduction (optional)

F 4/22: NO CLASS

M 4/25**:** Plant Reproduction

W 4/27: LAST CLASS!

You may want to read Chapter 1 again (or for the first time) now, it is a nice overview.

FINAL EXAM*: FRIDAY MAY 6: 8-10:30 AM in Hamilton 100;*

please bring UNC one-card to show photo ID when you leave.

(cumulative exam, with a slight emphasis on material since third exam)

Hints for doing well in this class:

- Read the textbook for each corresponding homework. Take your time and be an active reader.
- How to be an active reader? Fill out the "Guided Reading Qs" and add your own notes to them.
- 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 cut-outs 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!)
- 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/
- 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. Schedule appointments through http://learningcenter.unc.edu However, her time fills up fast because she is popular! (http://learningcenter.unc.edu/services/Math%20and%20Science/Biology%20group/view)
- **How to prepare for exam once you think you have reviewed well?** Ttest your knowledge in the style of the exam. 1) Re-do Mastering, do the OPTIONAL assignments on Mastering as they are more challenging and more test-like, and definitely do the previous semester exam on blackboard in test like simulation. Be prepared to take it in a quiet place for 50 minutes. Score it and see how well prepared you are. Then, go through it carefully to understand each question and answer choice. Can you explain why choice C was not correct?