

Syllabus/Schedule for Biology 101: Fall 2015
Principles of Biology

Dr. Kelly Hogan

MWF 9:05 – 9:55 AM (Section 1); GSB 100

Instructor: **Dr. Kelly Hogan**
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*SI times/locations: TBA (see Sakai for information)

Biology 101 is an introduction to biology at the college level that is intended to serve both majors and non-majors. It is assumed that students in this class do not have a great deal of practice with biology and that any prior experience is likely to be several years ago. Biol 101 students are expected to take a very active role in their learning by completing readings and homework before and after class and coming to class ready to participate directly with peers and through in-class technology. In this highly structured course, ***we have evidence that every student can achieve if they are motivated to be an active learner!*** A majority of students spend about 4-7 hours per week on this course.

OFFICE HOURS: Don't feel intimidated if you've never been to a professor's office hours. You can come alone or sign-up with a friend. You can come in to talk about the course, study skills, mental health issues, your background, your career, advice for future courses to take, etc. I'm a Carolina First advocate, safe-zone trained (LGBTQ), and an advocate for Covenant students, Chancellor Science Scholars, transfer students, continuing education students, underrepresented minority students, first year students, sophomores, students with silent and physical disabilities, students that require oxygen...ANY student!

I take a special interest in students improving their skills and my office hours are always open to discuss this. Many former students can attest to this.



Check “sign-up” on Sakai menu to reserve a slot (and for any last minute additions/deletions to my hours for each week).

My hours for each week will generally be:

- Mondays 10-11 AM
- Thursdays and Fridays 1:30-2:30

(I may add hours some weeks as my schedule allows or see individuals outside of these hours if necessary; walk-ins welcome but may need to wait.)

Peer support via PIAZZA: I'll have hundreds of students this semester and know I cannot give you all the individual attention you deserve. I'll ask that you become a community of scholars to help answer questions about the course logistics and course content. Piazza is tool that will help us do this and will help you find study buddies. I and the S.I. TAs will be checking in through Piazza occasionally, but it is expected that you will answer each other's questions. I'll be taking notice of students who are engaging here.

REQUIRED TEXT AND REQUIRED ONLINE MODIFIED MASTERING BIOLOGY ACCESS with ebook:

Campbell Biology, Concepts and Connections, 8th Edition by Reece, et al.

You are required to have the package with the ebook. You are not required to have a hard copy of the textbook on top of that. Having a hard-copy of the textbook is your choice. Please see Sakai for details about the different packages so you can spend your money most wisely. If you do not purchase materials via the UNC bookstore pay EXTRA CLOSE attention to the materials you must purchase on your own. Note: there are several hard-copy books on reserve at the Undergraduate Library.

Required reading: Particular chapters are required (see “Guided Reading Questions (GRQs” for specific details). Should you read and answer the GRQs before or after completing Mastering Biology homework assignments? BEFORE!

HOMEWORK VIA MASTERING BIOLOGY (MB): (9% of your grade) Homeworks will be due every Sunday and Thursday night by 11:55 PM. Some assignments will take you as little as 20 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 can be wildly off! There will be numerous graded at-home assignments. See my Goal #1 below and realize that I am trying to *help* you to succeed by giving you these regular assessments. Assignments post about one week before they are due. *Note: These questions are often lower level and not equivalent to exam questions.* They are meant to help you learn/practice. **Register at:** www.pearsonmylabandmastering.com with course ID hogan51577—see Sakai for more details or temporary access.

QUIZZES VIA MASTERING BIOLOGY (9% of your final grade): You will be required to do online timed quizzes in Mastering Biology (MB Quizzes). These are meant to give you practice for answering questions in a timed situation, more predictive of how you might do on an exam than a typical HW. These will be administered via Mastering Biology. Missed quizzes = 0%. Quizzes post only about 3 days before they are due. Note: You must complete once started and you cannot go backwards on these questions. Students registered with ARS may need to contact the professor if accommodations are necessary.

INDIVIDUAL/TEAM QUIZZES (6%) There will be two group quizzes during the semester. This is done in a way that part of your grade is individual and part is your team’s score. Your highest grade from these two quizzes will be counted. There are no-make ups on this and thus, if you miss one of the days, you will simply count the grade you were present for. Students registered with ARS for extra time should be in class for these, and should contact the professor for accommodations if needed.

SAKAI SITE (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/send emails regarding student concerns on this site. *It is your responsibility to check it and your UNC email account daily for any course announcements.*

PARTICIPATION: 10% of your final grade. Most of this 10% will come from Learning Catalytics, but completion of surveys and in class assignments may also be a part of this grade.

Learning Catalytics (LC): 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. This is your education and you want to be a successful UNC student. I enjoy Facebook too, but please put it away and participate in your education! As an incentive, about 10 % of your grade will come from a program called Learning Catalytics (accessed through Mastering Biology) that you use through your laptop or smartphone/tablet. (The smaller the device the easier it will be for you to maneuver on your very small in-class desk. Note: you must have your device connected to UNC-Wifi—be sure to do this for any devices you might use in class before the

first day: <http://help.unc.edu/help/connecting-to-the-unc-network-getting-started/> Please do not email me to tell me you were absent, we will have so many opportunities for participation that missing one or two days in the semester will not affect your grade (I will end up dropping a few points for every student to make accommodations for this for ALL students). Don't forget to review these questions/answers when studying!
Note: these questions are to be done in class, you will receive a zero on this portion of your final grade if you are found to be answering questions from a distant location.

How is LC graded? Many questions will be participation only. Some questions throughout the semester will be graded as correct/incorrect. Thus it behooves you to not only come to class but to also work to get correct answers. A few points will be dropped for all students to accommodate occasional absence, tech problems, athletic travel, lateness, etc.

INDIVIDUAL EXAMS (66% of final grade): There will be three traditional exams given during the regular semester, and a cumulative final exam.

The format will be multiple choice, so bring two #2 pencils to the exam. Only the final exam is cumulative. Each semester exam will only cover the material specified on the course schedule. 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:

GRQs, class outlines, Learning Catalytics questions (log in and review), 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.

THERE ARE NO MAKE-UP EXAMS GIVEN.

Only two of the three semester exams are used in your final grade. Thus, if you miss one exam due to athletics, family issues, medical reasons, I do not need to know about it (but hold onto your excused paperwork in case it is needed later in the semester!)

If you miss two exams, and have sanctioned excuses for missing both exams, please contact the professor.

(Your grade will be adjusted based on how many exams you take (see below how grade is determined))

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 Sakai in the second week of class (rooms cannot be permanently scheduled until two weeks into the semester). 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. Plus, we have data that suggests students that attend score on average half a grade better than peers who don't attend. I suggest you fit one into your schedule early in the semester and attend weekly as if it is a required class. Your SI instructors' contact information is listed above.

WHAT YOU SHOULD BRING TO CLASS EVERY DAY:

1. Outlines from Sakai (either printed or on laptop). *Note: educational research shows that students learn more by handwriting notes, despite how convenient we all feel a laptop is!*

2. Extra blank paper for drawings, notes, activities etc. (or tablet computer for drawing)

3. 3 x 5 index cards to turn in to me during activities (with or without lines, preferably white).

4. A smart-device: either your laptop/ipad/smartphone enabled for UNC wi-fi access (*you may NOT rely on cellular service*)

STUDENT CONCERNS: Many students like to complain that Biol 101 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+/B- range; this is not *bad*-- it is *average*. Yet, 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 for memorizing course material. 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:

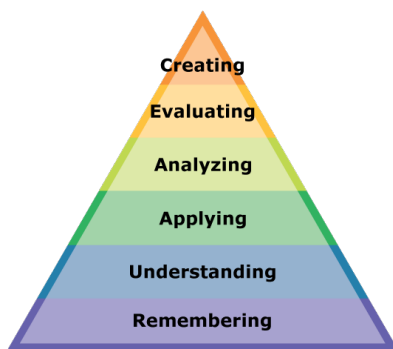
1) Some students do not have the active learning and studying skills that they should already have at the college level (It often takes these students an exam or two for them to recognize this.) We can fix this together.

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). You can fix this if you are honest with yourself.

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. Educational research has shown that students in this course who do reading/ homeworks before class, actively participate in class, and review notes regularly can and will succeed. Feeling underprepared because of your background? The course is designed to equalize your readiness before class—while you may take several hours reading and preparing, another student may need less time. Yet when you get to class, your effort will pay off as we practice these concepts together and you gain confidence in your ability! How do you know you are learning? When you make mistakes and identify what you don't know. Making mistakes is KEY to learning. It makes more sense to make mistakes on homeworks and in-class when the stakes are very low, rather than on an exam, right?

And what if you don't plan to take any more science classes? Active learning and studying are skills needed for any discipline. You can achieve these goals through practice. Most students enter college very skilled at remembering and understanding (Regurgitating memorized information.) True learning will take place, when you are challenged to apply, analyze, evaluate, and synthesize. I will challenge you to do this. You might find this difficult and uncomfortable, but you will be learning!



2. This course should provide you with the concepts and skills that make up the scientific field of biology. For those of you continuing in biology, this is just the tip of the iceberg. For others, this might be your one and only biology course! Our goal will be to touch upon many topics, finding 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! Practice is key to building a foundation of knowledge (and that is why you do Guided Reading notes, Mastering Biology, in-class activities, quizzes, SI, etc.).

Specifically, by the end of the semester you should be able to:

- Identify examples and name FIVE core themes of biology
- Evaluate a scientific study and determine if its design is sound so as to evaluate science around vaccines, GMOs, etc.
- Make conclusions from data and draw graphs and models from data/information given to you.
- Describe the new properties that emerge at each level of hierarchy of life (from small organic molecules through ecosystems and some ways these systems are kept in balance.
- Explain what “food” is and compare and contrast animals and plants in how they obtain and transform the matter and energy.
- Describe the flow of information in various signaling pathways and in the flow from DNA to proteins.
- Explain how life on earth evolved and how adaptations relate to survival, reproduction, and intra- and inter-specific interactions.
- Detail examples of adaptations in the animal body in which “structure fits function” at the cellular and whole body level.

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 more obvious as they relate to health and medicine. 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! I'll continually encourage you to read about biological issues and advances in the popular media. If I succeed in getting you to read some articles on your own, I will be a happy professor!

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 exam grade is dropped and the total for the semester =
(0.22 x exam) + (0.22 x exam) + (0.22 x final exam) + (0.09 homework average) + (0.10 participation score) + (0.09 quiz score) + (0.06 group quiz score)

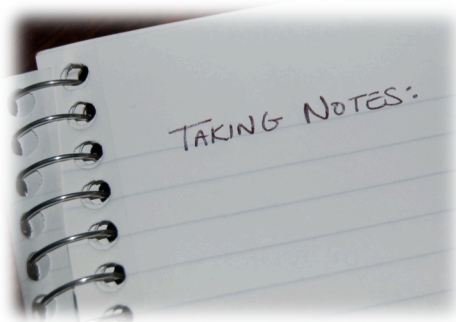
If you take any two semester exams:

Both the exams you took will count and the total for the semester =
(0.22 x exam) + (0.22 x exam) + (0.22 x final exam) + (0.09 homework average) + (0.10 participation score) + (0.09 quiz score) + (0.06 group quiz score)

If you miss more than one semester exam, you will need to have an official exam excuse and will need to contact me about a make-up. Make-up exams will not be identical to the class exam.

Here are the guidelines as to how I will convert your final average to a letter grade:

A = or greater than: 93	C+ = or greater than: 76
A- = or greater than: 90	C = or greater than: 70
B+ = or greater than: 86	C- = or greater than: 63
B = or greater than: 83	D = or greater than: 60
B- = or greater than: 80	F is less than: 60 (or a score of 45% or less on the final exam)



Should you take notes by hand or on the laptop? Research suggests taking notes by hand is the way to go! You will have class outlines that you should print before class and write and draw on. Much of biology is about drawing, so a laptop just won't be useful. Ideally, you will use your smartphone if you have one for Learning Catalytics and not bring a laptop. Powerpoints will only be posted after class.

DIGITAL ETIQUETTE

This course will require you to use your laptop and/or cell phone during class time. While I recognize that you are an excellent multi-tasker, research suggests that your peers are not. Please be respectful of your classmates and restrict your use of digital devices to course content. If we see that you or your peers are distracted, we will ask you to put your devices away or move you to the atrium, and you may forfeit your ability to earn participation points that day. There will be times when you have completed your work or answered a poll question, but your peers have not. We ask that you assist your peers when appropriate or use the time to review your notes while you wait. I understand that your devices connect you to your friends and family (a wonderful thing!) but the classroom should be a place apart, however briefly (even if it seems like an eternity to you), from the outside world and distractions. You will learn more if you concentrate on the course while you are here and your classmates will thank you for not impeding their ability to learn.

Course Schedule/Topics for Discussion

For each assignment, you have a “Guided Reading Assignment” with the same title that you should do **before doing Mastering Homework**. (See your GRQs for the reading assignments). The idea is that Mastering will reinforce what you have independently learned from the reading. If you simply hunt and peck through the text to find the answers without doing the reading, you are missing a large chunk of information I expect you to be familiar with. You are ultimately responsible for information in “Guided Reading” as if these are lectures. Not doing these = missing at least a third or one-half of the course content. Due dates are subject to change (such as with weather) but it is VERY unlikely exam dates would ever change. *Homework assignments are shown in red.* **Late homework assignments = 0%**

CLASS MEETING SCHEDULE and ASSIGNMENTS

Date	Topic	In-class Objectives (<i>tip: use these to study too</i>)
W 8/19	Introduction and Pre-test	Describe course components and make introductions. (Bring a #2 pencil and scantron—purchase at student stores)
<i>Due Thursday 8/20 by 11:55 PM: *Guided Reading Qs (GRQs) + Two Mastering assignments:</i> 1) <i>Introduction to Mastering and</i> 2) <i>Exploring Life and the Process of Science</i> <i>*Guided Reading Questions are not turned in.</i>		
<i>Don't forget to print your Class Outlines and bring to class!!</i>		
F 8/21	The process of Science	Distinguish science from unjustified claims and explain how science is iterative. Describe elements of research design and how they impact scientific findings/conclusions (e.g. identify strengths and weaknesses in research related to bias, sample size, randomization, experimental control) Formulate a testable hypothesis and design a controlled experiment.
--UNIT 1 BIOCHEMISTRY & CELL BIOLOGY--		
<i>Due Sunday 8/23 (by 11:55 PM): GRQs + Macromolecules (on Mastering)</i>		
M 8/24	Macromolecules	Classify polysaccharides based on their structure/function in plants and animals and describe how monomers join to form them. Define lipids and explain their functions and properties in polar or non-polar solvents.
W 8/26	Macromolecules	Draw protein structure and depict the consequence of mutations on normal structure and function. Explain the molecular forces that hold protein structure together and how they can be disrupted. Identify how the human body uses macromolecules from food.
<i>Due Thursday 8/27: GRQs + A tour of the Cell (on Mastering)</i>		
F 8/28	A Tour of the cell	Predict structures of the prokaryotic cell that would be antibiotic targets. Describe how a protein is synthesized and exported from a cell how disease can be caused when this process goes awry. Explain how insulin-producing cells are like dysfunctional factories when a person is diabetic.
<i>Due Sunday 8/30 HW: MB Quiz 1 (timed) and then GRQS + Structure and Function of Membranes</i>		
M 8/31	Cell cont. & Membranes	Interpret experiments about protein production and make conclusions about why protein production is impaired in cystic fibrosis.

Categorize molecules that cross membranes freely and those that do not.
Discriminate between passive transport, active transport, and bulk transport of molecules across a membrane.

W 9/2 Membranes cont. Predict how water will move via osmosis and explain why this is critical to your cells.

Due Thursday 9/3: GRQs+ Cell signaling via hormones

F 9/4 Describe how the two types of chemical signaling mechanisms affecting target cells differently.
Apply the two mechanisms of chemical signaling to insulin signaling and sex hormone signaling.

Sunday 9/6 HW: GRQs + Energy and Enzymes (because of holiday, assignment extended to Tuesday night 9/8)

M 9/7 NO CLASS- HOLIDAY

W 9/9 Energy /Enzymes Explain the importance of enzymes in metabolism and how they are inhibited.
Explain how ATP does work.

Due Thursday 9/10: MB Quiz 2 (timed) and then GRQs and Cellular Respiration

F 9/11 Cellular Respiration Diagram the major stages of aerobic respiration, noting the location in the cell and the inputs and outputs of each stage.
Explain how coenzymes are reduced during respiration and how this contributes to ATP formation.

Due Sunday 9/13 no assignment

M 9/14 Cellular Respiration Explain how a H⁺ gradient and oxygen are both necessary for oxidative phosphorylation.
Describe anaerobic respiration pathways and differentiate them from aerobic pathways.

W 9/16 Individual + Group quiz I Cellular Respiration

Due Thursday 9/17 HW: GRQs +Photosynthesis

F 9/18 Photosynthesis Describe the two parts of photosynthesis and the inputs and outputs of both parts.
Explain what kind of sunlight is used by the plant and why sunlight is necessary.
Explain photophosphorylation in the light reactions of photosynthesis, and describe how photophosphorylation is similar and different from the oxidative phosphorylation in aerobic respiration.
Explain how trees are carbon sinks.
Describe where the mass of a tree comes from and explain how the "mass" is made.

Be sure to do the "practice exam" on Sakai to see a REAL Dr. Hogan exam! Study powerpoints, GRQs, class notes and all your LC questions! Also, check out the dynamic study modules on Mastering and the "Study Area" in Mastering for more Qs.

M 9/21 EXAM 1 All material from Unit 1

--UNIT 2 GENETICS--

Don't forget to print your new class outlines

W 9/23 Cell division, Dev. & Cancer

Recognize/draw the stages of mitosis, contrasting animal and plant cells and explain the consequences of specific stages of mitosis failing.

Describe how cell division plays a role in development.

Due Thursday 9/24: GRQs + Cell division, Development, and cancer

F 9/25 Cancer cont.

Explain how cells know when it is time to divide.

Explain how cancer cells disobey the rules that normal cells follow in the cell cycle and in cell growth.

Explain the significance of a mutated BRCA-1 gene in terms of risks and consequences and the "utility" of a gene test for actionable genes.

Due Sunday 9/27: GRQs + Meiosis

M 9/28 Meiosis

Define haploid, diploid, and homologous chromosomes and be able to calculate the diploid and haploid number when given an illustration of a cell

Draw how variation arises during meiosis from independent orientation at metaphase I.

Calculate the contribution of uniqueness that comes from independent orientation, crossing over, and random fertilization.

W 9/30 Inheritance

Determine the types of gametes that form through independent assortment in a dihybrid and link this to metaphase I of meiosis.

Construct Punnett squares to examine the offspring that arise from independent segregation.

Design genetic crosses that determine if a trait is dominant or to determine an individual's genotype.

Calculate probabilities when given pedigrees.

Due Thursday 10/1: MB Quiz 3 (timed) and then GRQs + Patterns in Inheritance

F 10/2 Inheritance cont.

Calculate probabilities when given pedigrees.

Recognize and/or solve problems that are non-Mendelian variations of inheritance (incomplete dominance, co-dominance, multiple alleles, pleiotropy, and polygenic traits)

Due Sunday 10/4: GRQs + Nondisjunction+ Flow of Genetic Information

M 10/5 Nondisjunction

Describe the consequences of non-disjunction in the sex chromosomes in humans.

Draw non-disjunction in meiosis I or meiosis II and predict the outcome of these events.

Describe some ethical and medical issues arising from Downs Syndrome testing.

Recognize abnormalities and name/describe when given a karyotype.

W 10/7 Flow of Genetic Information

Draw a basic model of DNA, being able to point out where DNA variation is part of the structure.

Name all the components of translation and how they function.

Compare and contrast the processes and outcomes of transcription and translation.

Trace a specific DNA sequence all the way to a protein.

Due Thursday 10/8: MB Quiz 4 (timed)

F 10/9 Flow of Genetic Information

Explain how the protein code is interpreted with tRNA anticodons.
Compare and contrast germline and somatic mutations.

Be sure to do the “practice exam” on Sakai to see a REAL Dr. Hogan exam! Study powerpoints, GRQs, class notes and all your LC questions! Dynamic study modules and “study area” of Mastering.

M 10/12

EXAM 2

All material from Unit 2

--UNIT 3 EVOLUTION & ECOLOGY--

W 10/14

Introduction to Evolution

Distinguish components of the theory of natural selection that are true vs. common misconceptions.
Distinguish creationist, theistic, and naturalistic views and what polls about evolution tell us about Americans and countries worldwide.
Explain what science is and why the study of evolution is a science.

F 10/16

FALL BREAK—NO CLASS

Due Sunday 10/18: GRQs + How Populations Evolve

M 10/19

How Populations Evolve

Explain Darwin’s ideas about natural selection and how his ideas were better understood once combined with Mendel’s work.
Define how microevolution is measured.
Explain the conditions that must be met for non-evolution.
Perform Hardy Weinberg calculations and determine if a population is in HW equilibrium or not.

W 10/21

How Populations Evolve

Explain how genetic drift, mutation, gene flow and natural selection affect allele frequency in a population.
Recognize what form of microevolutionary force is a driving force in examples of evolution.

Due Thursday 10/22: GRQs + Origin of Species

F 10/23

Origin of Species

Explain the uses for the biological species concept of species and its limitations.
Define the conditions that lead to speciation.
Distinguish various reproductive barriers that keep species separate.
Explain how plants diverge into two new species in one generation.

Due Sunday 10/25: MB Quiz 5 (timed) and then GRQs + Common Ancestors + Adaptations

M 10/26

Common ancestors

Construct a phylogenetic tree when given morphological data and a list of organisms.
Hypothesize how dogs may have evolved from a wolf-like ancestor.

W 10/28

Adaptations

Describe the features that helped vertebrates transition from water to land.
Given data about fossils with features of fish and tetrapods, determine the lineage for tetrapod evolution.
State a hypothesis for why humans are hairless, unlike other mammals.

Due Thursday 10/29: GRQs + Population Ecology

F 10/30

Population Ecology

Explain how scientists estimate population size and perform a calculation to estimate student population in our classroom.

Use the exponential growth model to calculate population growth.
Compare and contrast logistic and exponential models of growth.

Due Sunday 11/1: GRQs + Interactions within Communities + The Microbiome

M 11/2 Populations & Communities

Describe what happens to population size, death rates, and birth rates as countries become developed.
Compare ecological footprints and age structure charts between different countries.
Distinguish levels of hierarchy in ecology and which levels include abiotic interactions with organisms.
Name examples of resource partitioning, mutualism, predation, parasitism, and competition and the consequences for each species involved.

W 11/4 The microbiome

Compare/contrast the digestive and metabolic characteristics of germ free and conventionally raised mice.
Explain why the community of microbes that live in our intestines can be considered a second metabolic “organ” for the human host.
Explain how the structure of the community of gut microbes may affect its function.
Using the concept of natural selection and ecological niches, explain why changes in diet may alter the composition and function of the gut microbial community.

--UNIT 4 ANATOMY & PHYSIOLOGY (A & P)--

Due Thursday 11/5 MB Quiz 6 (timed) then GRQs and Homeostasis

F 11/6 Homeostasis

Define homeostasis and explain how homeostasis is maintained.
Give examples of homeostasis in the body and the consequences of imbalance.

Due Sunday 11/8 GRQs and Reproduction part I

M 11/9 Reproduction

Draw spermatogenesis and how it relates to meiosis.
Draw the structure of a sperm and relate it to its function and journey.

W 11/11 Reproduction

Draw oogenesis in a diploid cell and compare and contrast to spermatogenesis.
Explain the purpose of the HPV vaccine.

Due Thursday 11/12 GRQs and Reproduction part II and MB Quiz 7 (timed)

F 11/13 Reproduction

Illustrate how the hormones and anatomy of the reproductive age female change over a month-- with and without pregnancy.
Explain how the pill prevents pregnancy.

Study powerpoints, GRQs, class notes and all your LC questions. Dynamic study modules and “Study area” in Mastering.

M 11/16 EXAM 3

All material from UNIT 3 and UNIT 4 (including reproduction).

W 11/18 Blood

TBA

Due Thursday 11/19 GRQs and Immunity

F 11/20 Immunity

Describe the body’s innate defenses and how they differ from adaptive defenses.

Sunday 11/22, no homework.

M 11/23 Immunity Compare and contrast humoral and cell-mediated immunity.
Explain how the adaptive system's "memory" and "specificity" relate to how flu vaccines work and why someone can't have the chicken pox twice.

W 11/25 ***NO CLASS - HOLIDAY***

M 11/30 Immunity cont. Describe the consequence of not having functional helper T cells.

Study and Review, especially material from earlier in the semester!

W 12/2 Individual + Group quiz II Questions from whole semester

Saturday Dec 5th, 8-10:30 AM Final exam (cumulative, ~70 questions) In GSB 100

<http://registrar.unc.edu/academic-calendar/final-examination-schedule-fall/>

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.
- Practice, Practice, Practice. **Review your course material 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 this will pay off.*
- **Attend each lecture, pay attention, and participate with your classmates.**
- 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! See the Forum on Sakai to find classmates.
- **“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!) Our own research at UNC tells us that the average of students that go to SI perform a half a grade better than the average of students that don’t attend SI.
- Take your Mastering assignments as serious, independent work. Mastering is for you to “master” the material. You only cheat yourself if you do the assignments hunting and pecking for the answers in the book. Read the book and then try to answer from what you know.
- Take old semester exams as practice for each exam. These are posted on Sakai. 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. Why is each choice correct or NOT correct?
- 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.
- <http://magazine.ucla.edu/depts/lifesigns/remember-it-well-how-to-learn-better/>
- 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 the Learning Center by appointment OR at Dey Hall on Tues and Wed evenings from 6-9 PM (no appointment needed). There are not usually too many people at Dey Hall 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! She does group sessions wonderfully too. Bring a friend!

Action Verbs: Ideas for studying material

When studying, try drawing, contrasting, arranging, etc.

What kinds of questions do you have trouble with on quizzes/exams? Knowledge or application?

Type (Level)	Knowledge (1)	Comprehension (1)	Application (2)	Analysis (2)	Synthesis (2)	Evaluation (2)
Bloom's Definition	Remember previously learned information.	Demonstrate an understanding of the facts.	Apply knowledge to actual situations.	Break down objects or ideas into simpler parts and find evidence to support generalizations.	Compile component ideas into a new whole or propose alternative solutions.	Make and defend judgments based on internal evidence or external criteria.
Verbs	<ul style="list-style-type: none"> • Arrange • Define • Describe • Duplicate • Identify • Label • List • Match • Memorize • Name • Order • Outline • Recognize • Relate • Recall • Repeat • Reproduce • Select • State 	<ul style="list-style-type: none"> • Classify • Convert • Defend • Describe • Discuss • Distinguish • Estimate • Explain • Express • Extend • Generalized • Give example(s) • Identify • Indicate • Infer • Locate • Paraphrase • Predict • Recognize • Rewrite • Review • Select • Summarize • Translate 	<ul style="list-style-type: none"> • Apply • Change • Choose • Compute • Demonstrate • Discover • Dramatize • Employ • Illustrate • Interpret • Manipulate • Modify • Operate • Practice • Predict • Prepare • Produce • Relate • Schedule • Show • Sketch • Solve • Use • Write 	<ul style="list-style-type: none"> • Analyze • Appraise • Breakdown • Calculate • Categorize • Compare • Contrast • Criticize • Diagram • Differentiate • Discriminate • Distinguish • Examine • Experiment • Identify • Illustrate • Infer • Model • Outline • Point out • Question • Relate • Select • Separate • Subdivide • Test 	<ul style="list-style-type: none"> • Arrange • Assemble • Categorize • Collect • Combine • Comply • Compose • Construct • Create • Design • Develop • Devise • Explain • Formulate • Generate • Plan • Prepare • Rearrange • Reconstruct • Relate • Reorganize • Revise • Rewrite • Set up • Summarize • Synthesize • Tell • Write 	<ul style="list-style-type: none"> • Appraise • Argue • Assess • Attach • Choose • Compare • Conclude • Contrast • Defend • Describe • Discriminate • Estimate • Evaluate • Explain • Judge • Justify • Interpret • Relate • Predict • Rate • Select • Summarize • Support • Value