Biology 114: Integrating Concepts in Biology II
Fall 2016

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Class meeting time and location: M-W-F 1:30-2:20, Studio D (Library)

Laboratory time and location: Section A: Thursdays, 8:15-10:55, Watson 119
Section B: Thursdays, 1:40-4:20, Watson 119

Electronic Resources: There is a Moodle page (moodle.davidson.edu) set up for this course. Check Moodle frequently for assignments, readings, news, and updates on the course schedule. Moodle is your best source for up-to-date information on this class.

Office hours: Tuesdays, 12:15-2:00
Wednesdays, 2:30-4:30
I’m always happy to make time to meet with you outside of these hours, but even for office hours, I recommend that you let me know when you’d like to come so that I can reserve time for you. If I’m in my office you’re welcome to ask if I’m available to talk.

Text: The required text for this course is an electronic textbook, Integrating Concepts in Biology, by Drs. Malcolm Campbell, Laurie Heyer, and Chris Paradise (all Davidson professors). Please use the following link to purchase this book so that you can be included in this course’s section of the publisher’s web page:


Because this is an online textbook it’s not available anywhere else. The price is $35.

Learning Technologies in this Class: Access to a computer is required for this class, both at home and during class itself. If you have a laptop, please bring it with you to class. If you do not have access to one, laptops are available for your use in our classroom (Studio D).

In this class we will be using a “blended learning” technology called Echo360. You will access my lecture slides and take quizzes and in-class activities via Echo360. Echo 360 also lets you take electronic notes, ask questions during or outside of class, and view and listen to recordings of each of our classes. I’ll explain our use of Echo360 in more detail during the first week of class.
COURSE OVERVIEW

Description: Biology 114 is an introduction to major biological patterns and processes, with a focus on those that occur at and above the organismal level (in organisms, in populations, and in ecosystems). Across these different scales of organization we’ll be focusing on several “big ideas of biology”: how biological information is stored and transmitted, how evolution occurs, cells as the fundamental unit of life, homeostasis, and emergent properties.

Note: Although this course has a “II” after it, it is NOT the second course in a sequence. This class is perfectly appropriate as a first biology class at Davidson.

This course is not about memorizing lists of biological facts, but about becoming proficient with the science of biology. Our focus is on how we know what we know about the major themes of biology. To this end, you will work through some of the same data that led to our current understanding of evolution, how climate change effects species, and how diseases work. Rather than being told what we know, you will be creating this knowledge for yourself. The end result will be a broad and thorough understanding of not just biological principles, but most importantly how we know what we know about biology.

This leads to my explanation for why this course might be helpful for you, regardless of your future major or career. First, much of the natural world, on which we depend for food, water, and many natural resources, is the product of biology. Our health and well-being is the product of biological interactions at all levels of organization, including with the world around us. Many of our most challenging social, economic, and political issues and debates focus on issues that are, at their foundation, biological in nature. Having a working knowledge of biology is directly relevant to many of these transdisciplinary issues.

Second, we need more people in the world who know how to evaluate evidence using logic and reason, answer questions using data, and figure out ways to objectively address seemingly intractable problems. Practice with the scientific process can help with each of these, and this kind of practice is a major focus of this course.

Ultimate Learning Goal: By the end of this course, you should be able to apply the scientific method, data analysis, knowledge of biological processes, and critical thought to evaluate questions, issues, and conflicts about biology. In short, my goal is for you to acquire a working knowledge of the science of biology.

Specific Learning Outcomes: After completing the course, you should be able to:

1) Describe the importance of the “big ideas” and recurring themes of biology (biological information, evolution, cells, homeostasis, and emergent properties) and critically analyze the scientific support for these ideas

2) Evaluate biological data to address predictions and hypotheses and answer scientific questions

3) Synthesize the results of scientific studies to inform your views on ethical, legal, and social issues
4) Design scientific studies to address questions about the nature of biological processes
5) Apply skills of scientific exploration including critical thought, data collection and analysis, quantitative analysis, and communication of complex information

ASSIGNMENTS AND ASSESSMENT (i.e., “grades”)
I aim for the assessments in this class to be meaningful measures of your learning. This semester I’m trying something new and will allow students to re-do major assessments. This is not to provide you with the opportunity to improve your grade (although that will be a side effect), but rather to give you the opportunity to revisit the material that you had the most trouble with. These re-dos are optional. I’ll discuss them further before our first review test.

Grading Breakdown:
Reviews (3, each closed-everything and take-home) 45% (15% each)
Final exam (closed-everything, take-home, during finals) 20%
Laboratory work (presentations, reports, and other assignments) 20%
Participation and preparation (see notes below), quizzes, and other assignments 15%

Letter Grades:
A 94% and above C+ 77-79.9%  
A- 90-93.9% C 73-76.9%  
B+ 87-89.9% C- 70-72.9%  
B 83-86.9% D+ 67-69.9%  
B- 80-82.9% D 60-66.9%  
F 0-59.9%

Reviews and Final Exams: The dates for the reviews are shown in the tentative semester schedule. These will be take-home, closed-everything tests. The final exam will follow the same format and all reviews and exams will be cumulative. I will give you additional detail on the nature of these reviews ahead of time.

Participation and Preparation: This course will require a large amount of participation, both as an individual and during group work. I have a formal expectation that everyone in this class will participate, which requires that each student comes to class prepared and ready to be engaged. If you don’t do the assigned out-of-work class, you will not be able to effectively participate in class. Your classmates and I will notice this and it will be reflected in your grade. I’ll be keeping track of your engagement and participation in the course through various means.

I also expect that you do your best to communicate clearly, respectfully, and professionally in all of your in-class and electronic communications with each other and with me.

Quizzes: To help motivate you to come to class prepared, there will sometimes be short quizzes at the start of each class period or during class. If you are not present for the quiz you will receive no credit for the quiz on that day.
GENERAL POLICIES
Attendance and Timeliness: It is important that you are present and on-time for all class
sessions and fully engaged. In short, if you are not present, you will receive credit for neither
participation nor quizzes. However, we are all human (and busy), so please let me know in
advance if you have to miss a class for any reason so that we can work around your absence.

Please arrive before class is scheduled to begin. As a wise somebody once said, “Early is on
time.”

Honor Code: In my personal view, the power of the Honor Code is as a reminder to not make
bad choices in moments of weakness. This is one of the most important skills you can learn.

As with everything you do academically at Davidson, the Honor Code
(http://www.davidson.edu/about/distinctly-davidson/honor-code) applies to all of your conduct and
work in this course. The only reason we can have take-home exams is because of this code.
You are required to not cheat on the exams and to report to me or the Dean of Students any
violations you observe or hear about.

I encourage group work and collaboration in this course, but graded assignments must
substantively be YOUR work, unless otherwise noted. Please ask me if you are ever unsure of
whether collaboration is acceptable for a particular task.

ACCOMMODATIONS FOR STUDENTS AND RELEVANY COLLEGE RESOURCES
I do not want there to be any unreasonable barriers to your learning in this class and it is the
policy and practice of the College to create inclusive learning environments, regardless of
student learning differences or disabilities. You are welcome to contact Nance Longworth
(nalongworth@davidson.edu) in the Office of Academic Access and Disability Resources for
assistance with determining what accommodations may be appropriate. Further information
can be found here: http://www.davidson.edu/academics/academic-support/access-and-disabilities-
resources

Religious Observances: Please look carefully at the syllabus during the first week of class. If any
of the assignments conflict with a major religious holiday for your faith, then please let me
know. I will make every effort to make the necessary accommodations.

Math & Science Center: The Math & Science Center (MSC) offers free assistance to students in
all areas of math and science, with a focus on the introductory courses. Trained and highly
qualified peers hold one-on-one and small-group tutoring sessions on a drop-in basis or by
appointment, as well as timely recap sessions ahead of scheduled reviews. Emphasis is placed
on thinking critically, understanding concepts, making connections, and communicating
effectively, not just getting correct answers. In addition, students can start or join a study
group and use the MSC as a group or individual study space. Located in the Center for Teaching
& Learning (CTL) on the first floor of the College Library, drop-in hours are Sunday through
Thursday, 8-11 PM, and Sunday, Tuesday, Thursday, 4-6 PM, beginning Sunday, August 28.
Appointments are available at other times. For more information, visit http://www.davidson.edu/offices/ctl/students/math-science-and-economics-center, or contact Dr. Mark Barsoum (mabarsoum@davidson.edu or ext. 2796).

**Writing Center:** The Writing Center provides a wide range of support to improve the writing skills of Davidson College students. In the Writing Center, trained peer tutors will work with students at any stage in the writing process- from prewriting to fine-tuning a finished draft- for assignments in classes across the curriculum or for personal projects such as cover letters. Our mission is to help students develop strategies for writing effectively in every situation. For more information, visit http://sites.davidson.edu/ctl/students/tutoring/writing-center/ or call 704-894-2294.

**Speaking Center:** The Speaking Center offers the services of trained student tutors to support speaking across the curriculum. At any point of the process, from selecting a topic to delivering the speech, the Center can assist students in learning to speak and speaking to learn. No appointment is necessary; tutors see students on a first-come, first-served basis. http://sites.davidson.edu/ctl/students/tutoring/speaking-center/, or call 704-894-2294.

**Scientific Literature:** There will be times in this course where you will need to access the scientific literature. The E.H. Little Library has information literacy librarians that can assist or consult with you on literature searches, database utilization, research methods, and general information-seeking. Drop by or visit https://www.davidson.edu/library/services/information-literacy-and-library-instruction

**Personal Challenges and Counseling:** Davidson College has a counseling center that offers free counseling to Davidson students (http://www.davidson.edu/student-life/health-and-counseling/counseling). In addition, Davidson is committed to providing support for students who have experience sexual misconduct and strongly encourages students to report any incident. All college services are available, regardless of whether a student intends to file a formal complaint. You can find out more about Davidson’s sexual misconduct policy and resources here: http://www.davidson.edu/offices/dean-of-students/sexual-misconduct