

FUNDAMENTALS OF BIOLOGY II
BIOL 106X, Spring 2006

Instructor: Dr. Diane Wagner
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Lab Coordinator:
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Teaching Assistants:
Emma Betts, ftfb@uaf.edu, 474-1844
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TA office hours and locations will be posted on the website

Text: Campbell, N. A. and Reece, J. B. (2002) Biology, 6th Edition
Benjamin/Cummings, San Francisco

Readings are listed on the schedule. The text will be on reserve in Rasmuson Library.

Lab Manual: You can purchase the Biology 106 lab manual in the bookstore.

Lectures: MWF 9:15 – 10:15 am in Schaibel Auditorium, Bunnell Bldg

Prerequisites:
Chemistry 103X or 105X
Placement in English 111X

Course description and philosophy: Biology 106 is the second semester of the year-long introductory series (Biology 105 and 106) In Biol 106, we focus on what happens inside the organism: the mechanisms that constitute and sustain life. We will explore the chemistry of life and the structure and function of cells and organisms. When you leave the course, you should have a basic understanding of cell biology, gene replication and expression, respiration, photosynthesis, animal physiology, reproduction, and development. You should also leave with a solid understanding of some basic physical and chemical processes that underlie all biological mechanisms.

Biology encompasses an enormous set of subdisciplines. In an introductory course such as this, we must cover a vast range of topics. As a result, we cannot delve into great detail on every topic of interest. One goal of the course is to cover the fundamental concepts, facts, and terms that will allow you to move smoothly to more specialized courses in biology, where you can focus on more specific subdisciplines. Another goal is to expose you to the general challenges of doing science in the laboratory.

Biology is an exciting and dynamic field. New advances in genetics and biotechnology occur at an astonishing pace. More than ever before, there are many careers in which you can contribute to our understanding of how biological systems work. In order to be successful, you need to have a thorough understanding of basic concepts. Is it important for a wildlife biologist to understand photosynthesis? For a doctor to understand evolution? For a geneticist to understand ecology? Yes, on all counts! Every intervention into a biological system – from the wildlife biologist managing moose populations, to the doctor prescribing antibiotics, to the genetic consultant offering advice to would-be parents - has repercussions on many levels of biological organization. A biologist whose view of the field is broad and well-grounded in basic principles is prepared to recognize these implications and make good decisions.

As the science progresses, we sometimes discover that long-held beliefs are incorrect, and we find better models to describe biological phenomena. For this reason, you should approach all scientific material with a critical attitude. Ask yourself how we know, and how you would go about testing the validity of the topics presented in lecture.

Assessment: Your progress in this course will be assessed based on exams, laboratory assignments, and a research project. Exams are designed to measure your understanding of material presented in lecture and laboratories. The final exam draws from all sections of the course and is intended to test your long-term retention of the material. Other assignments allow you to communicate your understanding of biology in a less stressful atmosphere, without the time constraints and pressure of an exam. Problem solving exercises ask you to apply course material in novel ways. Essays are designed to encourage you to integrate biological topics. Laboratory reports and presentations are intended to improve your ability to communicate scientific findings clearly.

Component	Points
Exams (4 @ 100 pts each)	400
Final exam	200
Assignments (problem solving, essays)	100
Laboratory assignments, reports, presentations	300

Grades will be assigned based on the percentage of points you earn in class, as follows:

Grade	% of Total Points
A	90 - 100
B	80 - 89
C	70 - 79
D	60 - 69
F	0 - 59

Late policy and missed exams:

Scheduled absences: If you have a conflict with the exam date, such as an athletic event or travel plans, you must take the exam before you leave. Inform the instructor as soon as possible to schedule an early exam.

Illness: If you are ill on the day of the exam:

1. You must inform the instructor BEFORE the exam begins. Email (ffdw1@uaf.edu) or call (474-5941) before the exam starts. If I am not in, leave a message.
2. The makeup exam must be taken within 48 hours of the original exam. It is your responsibility to follow up and schedule an alternate exam.

Late assignments: In general, late assignments will not be accepted. If for some reason you cannot come to class on a day an assignment is due, you must turn in the assignment before it is due. You can bring assignments to me directly in 307B Bunnell or leave them in my mailbox in 305 Bunnell.

Academic dishonesty: Examples of academic dishonesty include, but are not limited to, cheating on exams or assignments, helping others to cheat on exams or assignments, plagiarizing (using someone else's ideas, words, or graphics without giving them credit), and feigning an illness to delay an exam. Please read the UAF Student Code of Conduct in the UAF Catalog. If you are caught cheating you will receive an F for the class and the case will be presented to the University Disciplinary and Honor Code Committee.

Learning disabilities: If you have a learning disability of any kind, please inform the instructor in the first 2 weeks of class so I can accommodate your needs. Please do not wait until after an exam to make me aware of the issue. If you have not already done so, you should also contact UAF's Center for Health & Counseling (474-7043). If you do not have a documented learning disability but feel that time pressure or cramped quarters has a negative effect on your exam performance, please discuss this with the instructor so we can make accommodations.

Laboratories (Bunnell 302 and 308): Lab exercises expand on lecture material and teach basic skills and methodologies. The exercises in Bio 106 were designed to enhance your understanding of many of the more difficult subjects in the course. Some of the labs require that you ask and answer your own questions about biology; in other words, they involve *doing* science, rather than just reading about it.

Lab attendance is mandatory. There are assignments associated with each lab, and you may not turn in assignments for labs you did not attend. You should expect that questions about lab topics will appear on exams. Many of the lab exercises and projects will be conducted in teams. If you do not attend regularly, you risk placing the quality of other students' work in jeopardy. Ineffective participation as a member of lab team will result in your name being dropped from group assignments and a zero score on that assignment.

If for some reason you cannot attend your regular lab section, you should attend another lab section that week. Contact the TA of the lab you wish to attend to see if there is room for you. If you miss a lab, you forfeit the points associated with lab assignments for that week. TAs will present course announcements and information important to the lab at the beginning of the lab period, so please be on time.

Lab manuals are available in the bookstore.

Course Website: The course website is administered through Blackboard, a standardized web template for college courses located at <http://classes.uaf.edu>. It will take a few days to register you on the course web site. Until then, you can access the site as a guest by clicking the Preview button on the login page. Once I have entered your name on the website course roster, you can log in directly.

Logging on to the Blackboard web site

If you have used Blackboard previously, your old password will still work. (Remember that your Blackboard password is not necessarily the same as your UAF email password! This is a common source of confusion.) If you have forgotten your Blackboard password, follow the instructions on the Blackboard homepage to reset your password.

If you have never used Blackboard before, follow the directions below:

1. Blackboard will not recognize you until you have activated your UAF email account. If you have not used your UAF email yet, use the online email look up form https://ssl.uaf.edu:1917/email_lookup.html) to find your UAF username and activate your account.
2. From the Blackboard homepage, click Login.
3. Enter your UAF username (the first part of your UAF email address, e.g. if your email address is fsxyz@uaf.edu, your user name is fsxyz). If you do not remember your username, you can find it by doing a search on your last name from the Aurora Finger Gateway (<http://www.uaf.edu/cgi-bin/afinger>).
4. Enter your password. The first time you log on, your password will be either your social security number (no dashes) or your 9-digit campus ID number. Try both. If neither works, read the "Problems logging in???" section on the Blackboard homepage.

The website will post important announcements about scheduling, exams, and assignments. You can also check your grades online. Most documents will be posted as PDF files. You will need Adobe Reader to open them. If you do not already have Adobe Reader, it is available free of charge at <http://www.adobe.com/products/acrobat/readstep2.html>. When you are finished using the course web site on a public computer, please be sure to log out.

Schedule: The course schedule is intended to give you a sense for the breadth of material we will cover in the course, and a rough idea when we will cover it. In practice, we may want to spend extra time on particularly interesting or challenging topics as they arise. Be flexible.

Doing well in the course: There is no trick to excelling in Biology 106X. As for any course, regular class attendance and good study habits will help you succeed. Here are some specific suggestions:

- ? Set aside adequate time for study, lab preparation, and reading. Bio 106 is a challenging course that covers a wide range of material quickly. To pass the course, you should plan to invest at least 15 hours per week. Make sure you have adequate time for reading, lab preparation, weekly studying, and consultation with your professor and TA. Don't jeopardize your grades by trying to cram too much into your schedule.
- ? Take responsibility for learning. Your professors can guide and instruct, but ultimately learning is a personal endeavor. No one can make you take an interest in the material, and no one can make you sit in a quiet room studying when you would rather be elsewhere. Whether you succeed or fail in this course, and in college as a whole, is up to you.
- ? Attend lecture. Studies show that students who regularly attend lectures in science courses earn higher grades. Experience tells me that students who attend lecture in Biol 106 earn higher grades than those who do not.
- ? Read the book before you come to lecture. You will retain more of the lecture content if you have already encountered the material in your readings.
- ? Keep up on the reading. Even if you cannot manage to read before you come to class, be sure to read regularly. If you try to assimilate 4 chapters on the day before an exam, it is unlikely that you will retain much of the material.
- ? Review your notes. Don't wait for an exam to review your notes. Set aside time after each lecture to review your notes and compile questions for office hours.
- ? Avoid "cramming" for exams. Learning takes time and repetition. Few people can retain large amounts of newly-encountered material for long enough to do well on exams. Do yourself a favor and establish a schedule that includes regular reading and review.
- ? Use the study guides. The study guides are intended to help you focus your studying on subjects that will appear on the exam.
- ? Discuss and explain. We learn best by teaching! Whenever possible, challenge yourself to explain the course material to others. Studying in groups provides this opportunity. Or, challenge yourself to explain concepts and mechanisms in writing, without using books and notes. Check your notes, then revise.
- ? Relate course material to issues outside class. Make an effort to connect course material to issues you care about. The point of an education is to give you new, critical insight into issues that are important to you by giving you depth of understanding. Use what you learn! If you apply the material to topics of interest to you, you will be much more likely to remember the material when tested.
- ? Come to office hours. As you take and review your notes, write questions in the margins or in a special notebook. Come to instructor or TA office hours regularly to discuss your questions. It's best not to wait until just before an exam to clear up points of confusion.
- ? Complete assignments well and turn them in on time. Don't throw away easily-obtained points!