

**Biological Principles (Biology 201)
Course Syllabus - Fall 2004**

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Text

Biology, 6th Edition, by Campbell and Reece (required)
Biology 201 Laboratory Guide Fall 2004 (required)
Photocopy packet of overheads shown during lecture (recommended)

Web Site Resources

Bio 201 Course Website: <http://bates.edu/~ganderso/biology/bio201/>
On-Line Resources: <http://bates.edu/~ganderso/biology/resources/>

Course Meeting Times

Lecture meets MWF 9:30-10:30 am in Carnegie room 204
Laboratories meet W 1-4 pm, Th 8-11 am, or Th 1-4 pm in Carnegie rooms 430-431

Sommer Office Hours

Immediately after lecture to 10:55^{am} (MWF)
Monday 11:00^{am} to 12:30^{pm}
Tuesday 1:00^{pm} to 2:30^{pm}

Exams and Grades

There will be two lecture exams (10/4 and 11/8) plus a non-comprehensive final exam (12/14). The three exams will count for 48% of your course grade. Prior to the exams, review sessions will be scheduled immediately following lecture during the extra time in our 9:30-11:00^{am} course time slot. Concept questions given in lecture will count towards 5% of your final grade. Laboratory consists of several assignments for which the details are given in the Biology 201 Laboratory Guide and will comprise 47% of your final grade. **You must have an average lecture exam score of \$ 50% in order to pass the course regardless of your concept question or laboratory performance.**

Exams and Assignments	% of Final Grade
Exam 1	16%
Exam 2	16%
Exam 3	16%
Lecture Concept Questions	5%
PI-1 lab	10%
PI-2 lab	10%
Diversity Project	10%
Lab Practical	10%
Other Lab Homework	7%

Final Grades

\$90% total points = some kind of A

\$80% total points = some kind of B

\$70% total points = some kind of C

\$60% total points = some kind of D

\$50% total points = F

Lecture Schedule

<u>Date</u>	<u>Topic</u>	<u>Reading</u>
W Sept 8	Course Introduction	
F Sept 10	Origins of Life	chapter 26 pp 510-523
M Sept 13	Cell Membranes & Communication	chapter 8 pp 138-152 chapter 11 pp 197-212
W Sept 15	Cell Cycle (includes mitosis)	chapter 12 pp 215-224
F Sept 17	Cell Cycle Regulation and Cancer	chapter 12 pp 224-229, 368-372
M Sept 20	Meiosis	chapter 13 pp 234-245
W Sept 22	Reproduction	chapter 38 pp 783-790 chapter 46 pp 975-980
F Sept 24	Descriptive Statistics	
M Sept 27	Viruses	chapter 18 pp 328-340
W Sept 29	Prokaryotes	chapter 27 pp 526-542
F Oct 1	Protists and the Evolution of Eukaryotes	chapter 28 pp 545-554
M Oct 4	First Exam	
W Oct 6	Peer Review	handout
F Oct 8	Fungi	chapter 31 pp 616-631
	Origin of Plants	chapter 29 pp 575-584 chapter 30 pp 597-600
M Oct 11	Origin of Animals	chapter 32 pp 633-644
W Oct 13	Mendel and Genetics I	chapter 14 pp 247-266
F Oct 15	Introduction to Probability	
M Oct 18	Mendel and Genetics II	chapter 14 (continued)
	Fall Recess (No Class Oct 20-22)	
M Oct 25	Genes and Chromosomes I	chapter 15 pp 269-284
W Oct 27	Genes and Chromosomes II	chapter 15 (continued)
F Oct 29	DNA	chapter 16 pp 287-294, 299
M Nov 1	Hypothesis Testing and Chi Squared	handout
W Nov 3	From Gene to Phenotype	chapter 17 pp 303-305
F Nov 5	Viral and Bacterial Genetics	chapter 18 pp 340-346

M Nov 8	Second Exam	
W Nov 10	Overview of Evolution	chapter 22 pp 428-442
F Nov 12	Population Genetics	chapter 23 pp 445-461
M Nov 15	Selection	chapter 24 pp 464-481
W Nov 17	Speciation	
F Nov 19	Macroevolution	
Thanksgiving Break (No Class Nov. 22-26)		
M Nov 30	Phylogeny and Systematics	chapter 25 pp 484-505
W Dec 1	Molecular Phylogeny	
F Dec 3	Invertebrate Evolution	chapter 33 pp 646-675
M Dec 6	Vertebrate Evolution	chapter 34 pp 678-706
W Dec 8	Human Origins	chapter 34 pp 707-715
F Dec 10	Course Summary	
T Dec 14	Third Exam (10:30 am)	

Course Philosophy:

This course is designed to give students intending to become science majors an introduction to several topics in Biology which include the origin of life, genetics, evolution, development, systematics and taxonomy. The course won't pretend to cover all of what we know about these topics but will go into considerable depth for each one. Since some of this material will be familiar from your 100 level courses or from high school, we will try and ensure that our coverage is presented at a more sophisticated level. For the biology majors, this course, in conjunction with Ecology (Biology 270) and Cellular and Molecular Biology (Biology s42), will form the "core" of your major.

Central to how this course functions is YOUR PARTICIPATION. The readings are assigned prior to each class. We strongly encourage all students to be an active participant in the classroom (posing questions, participating in discussions, solving problems). Active learning far exceeds passive learning (only listening to lectures and regurgitating content) when success is judged on recall and conceptual understanding.

We will use the PI (Principal Investigator) system in lab. This system is described in great detail in your lab guide and on the web site:

<http://abacus.bates.edu/~ganderso/biology/bio201/>

We will spend a great deal of time talking about, and having you do, scientific journal style writing. The emphasis in lab is on doing real experiments and writing an excellent group lab report. You will have ample opportunity to rewrite your labs if you are willing to put in the effort. Thus, we expect that any student who is willing to put in quality time and effort will be successful in this course. Our job as instructors is to help guide you to that level of success.

Concept Questions:

In order to quickly gauge your level of understanding of ideas and concepts presented in class, we will have question/answer sessions using Hyper-Interactive Teaching Technology. With this system, each student will have a hand-held transmitter (“remote”) with a unique ID number. Approximately 2-3 times per class, after discussing a topic, you will be asked a question designed to explore your understanding of that topic. Using the “remote”, you will answer the question on your own. The distribution of answers will be projected (anonymously) for the class to see. Then, we’ll open a discussion session in which you may discuss your answer with your neighbors and instructor. Finally, we’ll revote (“That’s my final answer!”) and the classes’ distribution of answers will again be projected for all to see. We will then discuss why one or more answers were better choices than others. To encourage reading the textbook and active engagement in the lectures, your answers will be recorded and count towards your final grade. Three points will be given for a correct answer, two points for an incorrect answer, and zero points will be awarded for no answer. Therefore, it is important that you participate even when you don’t know the answer. Given that we are all here to learn, it is always important to participate and be actively engaged in the material!

Plagiarism and Academic Misconduct is Unacceptable

It is the responsibility of each student to read and understand the Bates College Statement on Plagiarism that is published as a handbook and distributed to all incoming students and the Bates College Code of Student Conduct (<http://www.bates.edu/x35306.xml>). Intellectual honesty is of paramount importance in your education and in maintaining the free and open intellectual life of the college. If you do not fully understand what constitutes plagiarism, please see an instructor for clarification and check out the Bates College Website on plagiarism: (<http://abacus.bates.edu/pubs/Plagiarism/plagiarism.html>). Individuals or groups committing plagiarism or other academic misconduct will receive no credit for the work in question, may fail the course and will be referred to the Dean of Students for disciplinary action by the College.