

BIOLOGY 181 General Biology (Majors) I
Spring 2007
Phoenix College
SYLLABUS

Anna Martí-Subirana, Ph. D.
Biology Department

Office: DB- 217
Phone #: (602) 285-7874
e-mail address: ana.marti-subirana@pcmail.maricopa.edu (Please be aware that I do not check my e-mail during weekends or holidays)

Office hours: MW: 9:15–10 AM; TTh: 2:30–3:45 PM; F: 10– 11 AM or by appointment.
Lecture Section: 0468: MW 8 – 9:15 AM, room DB-225.

Lab Sections: 0472, 0478: MW 10 - 12:50 PM.
0476: T 11:30 – 2:20 PM. All lab sections will be held in room DB-108.

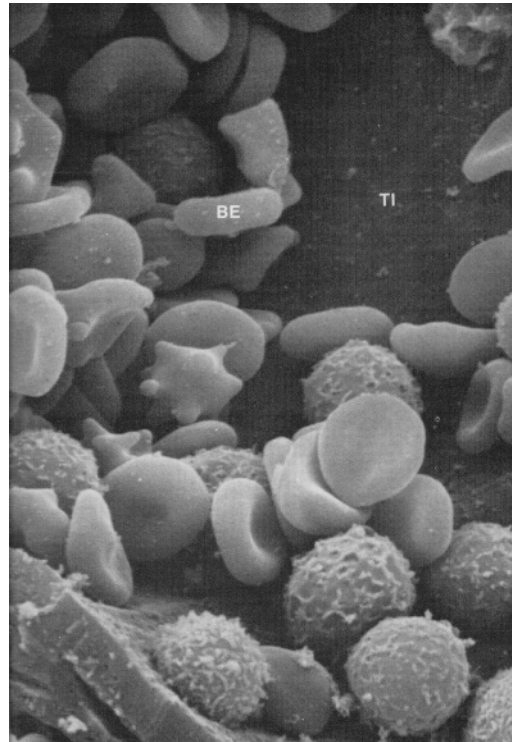
Required Textbook and Lab Manual:

Biology, Campbell & Reece, 7th ed., 2005, Benjamin & Cummings.
Biology 181 Laboratory Manual, furnished by the Biology Department
(Textbook is available at the PC bookstore)

COURSE DESCRIPTION AND REQUIREMENTS

Students will learn principles of structure and function of living things at molecular, cellular, and organismic levels of organization. The Arizona Board of Regents has established as a general guideline that each course should require a student to spend a minimum of two hours in preparation outside the class for every hour spent in class. This time should be devoted to reading, taking chapter notes, writing papers, and studying for tests and quizzes.

COURSE COMPETENCIES



1. Describe and apply the scientific method to solve problems in biological context
2. Describe the characteristics of life
3. Identify the basic parts of atoms and describe how they influence chemical characteristics
4. Analyze the relationships between the structure and functions of the four kinds of organic molecules found in living things
5. Identify the parts of a cell and describe their structure and functions
6. Compare and contrast prokaryotic and eukaryotic cells
7. Describe cellular transport, membrane structure, and membrane functions
8. Describe the laws of thermodynamics, energy processes, and enzymes as they relate to biology
9. Explain the purpose and components of cellular respiration
10. Explain the purpose and components of photosynthesis
11. Describe the biological processes of mitosis, meiosis, DNA duplication, and protein synthesis
12. Compare Mendelian and non-Mendelian genetics and use problem solving to predict the outcome of genetic crosses
13. Describe gene regulation and effectively analyze the various biotechnological applications
14. Describe the genetic basis of development
15. Demonstrate knowledge of laboratory safety skills and procedures
16. Practice principles of scientific method while conducting laboratory activities and experiments
17. Perform laboratory activities using relevant laboratory equipment, chemical reagents, and supplies to observe biological specimens, to measure variables, and to design and conduct experiments
18. Operate light microscopes, prepare wet-mount slides, and use stains
19. Exhibit ability to use pipettes and other volumetric measuring devices, chemical glassware, balances, pH meters or test papers, spectrophotometers, and separation techniques, such as chromatography and electrophoresis to perform activities relevant to other course competencies
20. Develop graphing skills manually and/or by using appropriate computer software
21. Calculate and make molar and/or percent solutions of varying concentrations
22. Analyze and report data generated during laboratory activities and experiments

CLASS FORMAT

The lecture and laboratory are designed to complement each other. Materials and topics are presented in a factual and theoretical format accompanied by an experimental format to demonstrate, verify, and solidify these concepts as well as to stimulate interest and develop the skills necessary for further inquiry.

There will be limited access to the lab outside of the scheduled time allotted and therefore, students should always be prepared and use their time methodically and efficiently. It is required that all lab exercises be thoroughly read before coming to the lab and that as many questions as possible be at least partially answered. There are limited supplies for the course and thus, they should be used by

the student while in the student's possession and made available to others when not in use.

Students are always encouraged and will sometimes be required to form groups both in and outside of the class for the purpose of discussing, and/or reviewing, and forming conclusions concerning the materials covered in the class and laboratory. In addition, it is recommended that students form associations in the lab in order to complete the assignments and experiments in an efficient, thorough, and timely fashion.

LATE ASSIGNMENTS

I will not accept late assignments. All assignments must be completed to pass the course. Assignments will be collected on the due date at the beginning of the class period. Lab work is considered an assignment.

ATTENDANCE

Attendance is mandatory. Attendance will be taken and recorded at every scheduled meeting. Anything beyond an unexcused absence will have an impact on your grade. According to school policy, students are allowed three (3) unexcused lecture absences and one (1) unexcused lab absences. Please be aware that additional absences will result in withdrawal by the instructor.

Absent or late students will lose in-class assignments or lab quizzes. Please make every effort to be in class on time. Habitual tardiness will have the same effect on your grade than unexcused absences.

If an emergency arises and you must be absent, contact me as soon as possible.

WITHDRAWALS

It is the student's responsibility to withdraw from a class. The instructor's signature is required to withdraw. Failure to officially withdraw will result in a failing grade.

EVALUATION

There will be two (2) assignments on material covered in class and from text readings, one (1) resource research assignment, two (2) short papers, four (4) lecture exams, a Genetics Problem Set, and eleven (11) lab quizzes. Students are expected to participate in class discussions and activities. An optional, comprehensive final exam will be given on finals week, which can be used to replace your lowest grade lecture test or to make up a missed exam. Lab quizzes and the comprehensive final exam consist of multiple-choice questions. Lecture assignments may vary in format. Lecture exams include multiple-choice questions as well as short-answer questions.

Missed Lecture Exams: Students who miss an exam will be able to make it up **ONLY if they have contacted me before or on the day of the test (at the latest) with a legitimate reason.** Missed exams can be made-up **ONLY** by taking the comprehensive final exam. **NO EXCEPTIONS.**

Missed Lecture Assignments: Two (2) lecture assignments as well as instructions for the resource research assignment will be given during lecture class on the scheduled days, or in any other form.

There are no make-ups on these assignments.

Missed Lab Quizzes: Eleven (11) multiple-choice lab quizzes will be given promptly at the beginning of the lab period. Lab quizzes will be based on the lab material covered in the preceding lab period and will include a question pertaining to that day lab. **There are no make-ups on missed labs or lab quizzes.**

ACADEMIC MISCONDUCT

Students are expected to behave in an appropriate manner while attending this class. I expect students to be working only on this course during class time. Please avoid class interruptions such as beepers, pagers, and cell phones. Academic Misconduct includes misconduct associated with the classroom and laboratory learning process. Some examples of academic misconduct are cheating, plagiarism, excessive talking, excessive late arrivals, excessive early departures, excessive absences as well as any behavior that disrupts the class. **Cell phones, beepers, and audio devices must be turned off while in class. Text-messaging, music playing or music listening while in class or in lab would be considered disruptive behavior and, as such, will be dealt in accordance with college policies.**

Please see *2006-2007 Phoenix College Catalog* for further information about PC Policies and Regulations.

RESPECT FOR DIVERSITY

Diversity encompasses: age, life experiences, profession, ethnicity, region, nation, lifestyle, social class, learning style, philosophy of life, sexual orientation, religion, personality, mental and physical challenges, customs, values, gender. In this class, anyone with a different perspective or a different angle on reality will be respected. I am committed to fostering a respect for each other's right to think, feel, or act in their own manner.

DISABILITY RESOURCES AND SERVICES

The Disability Support Services (DSS) Office coordinates services which will ensure equal access to college programs for students with disabilities. Services include interpreting for the deaf/hard of hearing, notetaking, reading, scribing, adaptive technology, testing accommodations, alternative text formatting, and special seating arrangements. Some classroom accommodations such as interpreting services, audio taped texts and handouts, enlarged print and brailled materials require preparation time. For this reason, students with disabilities are encouraged to contact the DSS Office prior to registration and provide us with the necessary documentation. All disability-related information provided to DSS remains confidential.

Students who are aware of any physical or non-physical disability that may affect their performance in class are kindly encouraged to inform me during the first week of class, or to contact the Office of Disability Support Services (DSS) in the Learning Center Building (phone # (602) 285-7477 V/TDD) in order to accommodate their specific needs.

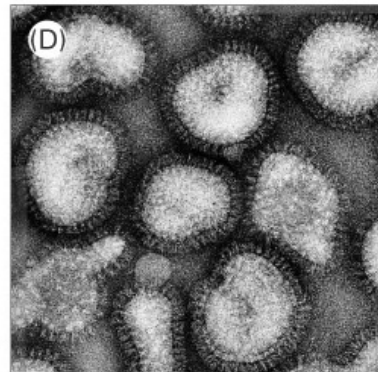
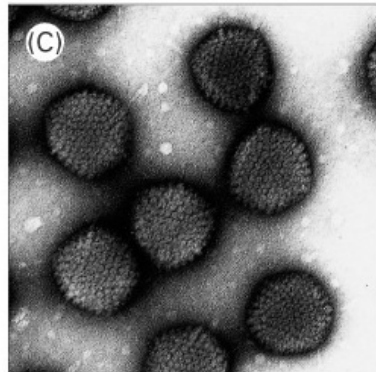
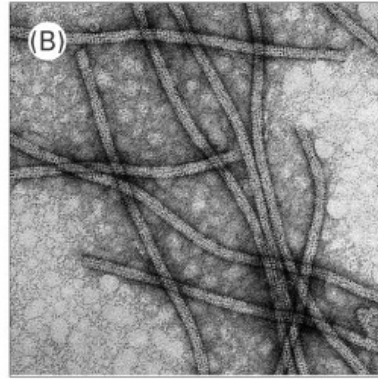
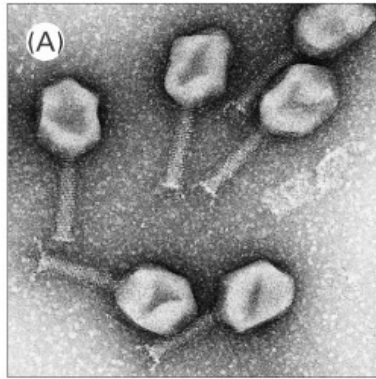
GRADING

- A- 90-100%
- B- 80-89%

C- 70-79%
D- 60-69%
F- below 60%

Lecture Exams (4 at 100 each):	400 points
Lecture Assignments (2 at 25 each):	50 points
Resource Research Assignment:	50 points
Lab Quizzes (11 at 30 each):	330 points
Lab Papers (2 at 50 each):	100 points
Genetics Problem Set:	40 points
TOTAL:	970 points

Please note: The comprehensive final exam is **OPTIONAL** and can be taken to replace your lowest grade lecture test or make up a missed lecture test. The final exam is worth 100 points.



BIOLOGY 181 General Biology (Majors)
Anna Martí-Subirana, Ph. D.

COURSE ITINERARY- Spring 2007

<u>Week</u>	<u>Topics, Readings, Labs, and Assignments</u>
Week 1 (Jan 15 - 19) * January 15	Introduction. Characteristics of Life. The Scientific Method. Atoms. Chemical Bonding. Polarity of Water and pH Excused (Martin Luther King, Jr. Day) <i>Chapter 1, 2, 3</i> <i>There will be no labs on Week 1</i>
Week 2 (Jan 22- 26)	The Atom of Carbon. Macromolecules <i>Chapters 4, 5</i> <i>Lab Title: The Scientific Method</i>
Week 3 (Jan 29 – Feb 2)	Energy and Metabolism. Enzymes <i>Chapter 8</i> <i>Lab Title: Spectrophotometry. Determination of Standard Curves</i> Lab Quiz # 1
Week 4 (Feb 5 - 9) * February 7	Cell Structure and Function <i>Chapter 6</i> <i>Lab Title: Enzymes</i> Lab Quiz # 2 HOOR EXAM # 1 (Chapters 1, 2, 3, 4, 5)
Week 5 (Feb 12 - 16)	Cell Structure and Function (cont.) <i>Chapter 6</i> <i>Lab Title: Continuation of labs 2 and 3: Standard Curves and Guidelines for Writing a Scientific Paper</i> Lab Quiz # 3 (Graphs)
Week 6 (Feb 19 - 23) * February 19	Cell Structure and Function (cont.). Membrane Structure and Function <i>Chapter 7</i> Excused (Presidents' Day) <i>There will be no labs on Week 6</i>

Week 7 (Feb 26 - March 2)	Cellular Respiration <i>Chapter 9</i> <i>Lab Title: Microscopy and Cells</i> Lab Quiz # 4 (Drawings) PAPER # 1 due
Week 8 (March 5 - 9)	Photosynthesis <i>Chapter 10</i> <i>Lab Title: Transport Mechanisms</i> * March 7 HOURLY EXAM # 2 (Chapters 6, 7, 8, 9)
Week 9 (March 12 - 16)	Spring Break
Week 10 (March 19 - 23)	Cell Cycle and Its Regulation. Cell Division. Binary Fission. Mitosis and Meiosis *March 21 RESOURCE RESEARCH ASSIGNMENT due <i>Chapters 12, 13</i> <i>Lab Title: Aerobic Respiration</i> Lab Quiz # 5 Lab Quiz # 6 (Aerobic Respiration)
Week 11 (March 26 - 30)	Mendelian Genetics. Patterns of Inheritance <i>Chapter 14</i> <i>Lab Title: Photosynthetic Pigments and Photosynthesis</i> *March 28 LECTURE ASSIGNMENT # 1
Week 12 (April 2 - 6)	Mendelian Genetics. Patterns of Inheritance (cont.). Human chromosomes <i>Chapters 14, 15</i> <i>Lab Title: Cell Reproduction</i> * April 4 Lab Quiz # 7 (Mitosis) HOURLY EXAM (Chapters 10, 12, 13, 14, 15)
Week 13 (April 9 - 13)	DNA Structure and DNA Duplication <i>Chapter 16</i> <i>Lab Title: Karyotyping</i> Lab Quiz # 8 (Karyotyping) PAPER # 2 due

Week 14 (April 16 - 20)

Protein Synthesis
Chapter 17
Lab Title: Mendelian Genetics in Corn

Week 15 (April 23 - 27)

Protein Synthesis (cont.). Prokaryotic and Eukaryotic
Genomes. DNA Technology
Chapters 17, 18, 19
Lab Title: Bacterial Transformation

Lab Quiz # 9

Lab Quiz # 10 (Bacterial Transformation)

Genetics Problem Set due

LECTURE ASSIGNMENT # 2 (DNA model)

* **April 25**

* **April 25**

Week 16 (April 30 – May 4)

Genetic Basis of Development
Chapter 21
Lab Title: DNA Fingerprinting

Lab Quiz # 11

HOURLY EXAM # 4 (Chapters 16, 17, 21)

* **April 30**

Week 17 (May 7 - 11)

Finals Week

* **May 9, 2007**

FINAL EXAM: 8:00 – 9:50 AM (in DB-225)

There will be absolutely NO exceptions to these times.

*Your instructor reserves the right to revise or rearrange this schedule based upon the needs of the class.

