NMSU-GRANTS
SPRING 2007

BIOLOGY 211G/L
CELL AND ORGANISMAL BIOLOGY

Instructor: Dr. Charlotte Otts
Office: MH 111a, 287-6649
Email: cotts@nmsu.edu

Class: MW 9:55 AM—12:35 PM
Room MH 110
January 22 – May 9, 2006

Office Hours: MW 1:30—2:15 PM, 6:30—8:00 PM
TTh 1:30—3:15 PM

Text: Starr, C. 2006. Biology: Concepts and Applications, 6th edition, Brooks/Cole.

Student Success Center: Ms. Sandra Rourke, MH 125
Includes: Education Resource Center
Center for Teaching and Learning
Open Computer Lab

Overview: Biology 211G/L, Cell and Organismal Biology, follows Biology 111G/L, The Natural History of Life (and can follow Biology 101G, Human Biology, or Biology 110G, Contemporary Problems in Biology), and is a 4-credit lecture/discussion/ laboratory course. The classroom component covers the chemistry and biochemistry important in living things, cell membrane structure and function, metabolism, photosynthesis, cellular respiration, DNA structure and function, more advanced genetics, and selected topics within plant structure and function and within animal physiology. A lecture with class discussion will be emphasized. The laboratory component (BIOL 211L) provides practical experience to accompany the discussion. Two current events reports and a research paper with oral report are required.

Expected Outcome: The students will gain an understanding and appreciation of the metabolic processes involved in cellular functions, in current work and research in DNA, and in some details of the structure and function of plants and animals.

Learning Goals: The successful student will:

1. Describe the different biochemicals important in the cell and their functions.
2. Explain the different energetic reactions within plant and animal cells.
3. Describe the current understanding and new research in genetics.
4. Apply this understanding of genetics to current societal concerns.
5. Explain different aspects of plant and animal physiology.
6. Apply the understanding of the principles of cellular biology to practical laboratory questions and explain the results of experiments.
7. Integrate articles on new scientific findings into well-organized written and oral reports.

Prerequisites: Because of the necessity of writing clearly on tests and for the term paper (BIOL 211G is a "G" course), ENGL 111G is required. Because of the strong chemical component in Cell and Organismal Biology, a chemistry course, either CHEM 110G or CHEM 111 is very highly recommended (but may be taken as a co-requisite). Another biology course (BIOL 101G, BIOL 110G, or BIOL 111G), and CS 110G also are very highly recommended. BIOL 211G/L also is recommended before taking for Human Anatomy & Physiology I, BIOL 225, which will be offered in Fall 2007.

Assessment: An evaluation of learning based on classroom techniques and activities (lectures, discussions, films, quizzes, tests, reports, labs, etc) will be integrated into the learning goals described above. Additionally, there will be periodic questions asked that are designed to assess the effectiveness of these classroom techniques. There also will be a pretest and posttest given to assess the class success in learning the major themes of this course. Both types of assessment (your success and direct non-graded questions) will provide feedback to help in the on-going development of teaching techniques and will not be used for grading purposes.

Expectations of Students:

- Attend all scheduled class meetings. Arrive on time and stay for the entire class.
- Call me ahead of time if you have a conflict or problem.
- Try not to leave the classroom except during the break.
- Bring the textbook to all class meetings.
- Download PowerPoints from the class web site and bring to class at the appropriate times and before class begins.
- Be prepared for each class meeting by keeping up with the reading, the re-reading, and identifying questions that you need to ask for clarification.
- Participate appropriately in classroom discussions and lab activities.
- Complete all assignments on time.
- Be responsible for everything covered in each meeting and in the text, even if not present at the class meeting.
- Work for at least 12 hours per week outside of class for Biology 211G.
- Come to see me during office hours or after class if you are not doing as well as you could be doing.
- If there is a problem with me or with this course, come to see me first.

Expectations of Instructor:

- Be on time and well-prepared for each class and lab session.
- Facilitate activities that enhance the students' understanding and appreciation of biology.
- Provide opportunities inside and outside of class for questions and clarification.
- Be available during office hours on a dependable basis.
- Be fair and clear in grading practices and treatment of students.

Evaluation and Grading:

Major tests	40%
Vocabulary quizzes	5%
Labs and lab exercises	20%
Current research reports	10%
Term paper, outline, draft, presentation	20%
Full attendance, participation	5%
Total	100%

A = 90-100%
B = 80-89%
C = 70-79%
D = 60-69%
F = below 60%

Plus/minus modifiers are the upper and lower thirds of each letter grade range.

Class Web Page:

Materials important for your success in Biology 211G/L will be found on the class web page. These materials include the syllabus, a class calendar, instructions for reworking your tests for some grade improvement, the PowerPoints for each chapter, links to an APA style manual, rubrics for grading the currents events reports, the written term paper in all its stages, and term paper presentation, an article from Scientific American, and an outline of that article (as an example of a properly done outline). It is your responsibility to access the web page and print these materials in a timely manner; please, do not leave class or be late to class while printing the PowerPoints, for example.

Testing:

The major tests will include multiple choice, terms, definitions, illustrations, and some short discussion questions. (See the Learning Goals.) Tests may be made up only under extraordinary circumstances (e.g., illness). Please inform me by telephone or email as soon as you know that you will miss the test (i.e., *before* the test if at all possible), and that test *must be made up within the week.* There will be one vocabulary quiz given with each chapter. The quizzes will consist of the definition of a term; you provide the appropriate term, hopefully spelled correctly. The lowest quiz score will be dropped at the end of the semester.

Laboratory Exercises:
Laboratory exercises provide a practical, hands-on addition to your understanding of Cell and Organismal Biology. Lab reports are due at the beginning of the next class after the in-class part of the lab work is finished. There is no lab manual to purchase; lab exercises will be given out ahead of time or on the day of the lab. There generally is no make-up of labs; there will not be time to set up the lab again for students who have been absent and there are very few times during the week when Room 110 is available.

Current Research Reports:
During the semester each student will find two recent full-sized articles on current research in cellular and organismal biology from the magazine Scientific American, make a detailed outline of the information in the article, bring the articles to class, and present orally the information found in the reports. Turn in your outline and a copy of the article. These oral reports should be scheduled within the first half of the semester so that you can find a term paper topic relatively early in the semester and so that we do not have all the oral reports within the same time frame. (Be sure that your Scientific American article is not an online summary; you need the complete article). You may reuse one or both of your current research articles for your term paper. The last day to present your *second* current events report is Wednesday, March 14.

Term Paper: Each student will prepare a research paper on any topic of interest within the broad category of cellular and organismal biology. It must be based on at least 6 current, full-sized (2 or 3 pages at least) reference sources, a mixture of those from an online magazine database (such as *ProQuest or Infotrac*) and from science magazines or journals (such as *Science, Nature, Scientific American, American Scientist, Bioscience, and New Scientist*). Short blurbs count only as extras; encyclopedias may not be used. The paper must consist of at least 1800 – 2200 words, be double-spaced, be written entirely in your own words (no plagiarism and no quotations), and follow the APA format. (See handouts in the library and link on the class web page or follow your English 111G manual for APA style for citations and references). There must be a separate title page and reference page (which is single spaced). Include a xeroxed copy of each reference or article you use. Staple each article and your report separately and enclose everything in a file folder or large clip. The paper must be submitted in three stages—the outline, the draft with articles included, and the final paper with articles again included. The 1-2 page outline of the full paper is due Monday, April 2. A good draft of the full paper (including title page, references, citations, and copies of your articles) is due no later than Monday, April 16 at the beginning of class. I will return the drafts to you the following Wednesday. The final paper (including your first draft and the articles) is due Wednesday, April 25 at the beginning of class. Each student will present an oral report (10 minutes including questions) on his or her research paper; these will take place on Tuesday, May 7, during exam week. (Note: If no draft is received, the "final paper" will be considered your draft and no credit will be given for the final paper).

University Attendance Policy: Students are expected to attend regularly all classes for which they are registered. When the number of absences is excessive and hinders a student's progress—normally, for a 15-week course that would mean ***more than three consecutive absences or five cumulative absences***—the instructor may recommend expulsion from the class.

Based on the recommendation of the instructor, and with the concurrence of the Campus Academic Officer and the Campus Student Services Officer, a student will be dropped for persistent absences or for persistent failure to complete assignments. Similarly, a student may be dropped for behavior that interferes with the educational environment of the class. Any student who has been dropped has the right to appeal through the Student Academic Grievance Policy (see Student Handbook).

I will follow this NMSU rule for Biology 211G/L. If you are absent ***for any reason*** for three consecutive meetings or five cumulative meetings, I may begin the drop procedures. (This really should be <u>your</u> responsibility!) If you miss parts of class meetings, I will begin the drop procedures when your cumulative total has reached the equivalent of five meetings. Notice, that there are not particular types of absences that are excused. Five cumulative absences are more than enough; be sure that you do not use up your absences for non-essential reasons. (I am able to drop you only before the drop date, March 12, 4 pm; after that time I will not be able to help you in this way). Attendance does affect your grade directly and indirectly.

Statement Regarding Academic Misconduct:
Any student found guilty of academic misconduct shall be subject to disciplinary action. Academic misconduct includes, but is not limited to, the following actions:

- CHEATING
- PLAGIARISM
- UNAUTHORIZED POSSESSION OF EXAMINATIONS, RESERVE LIBRARY MATERIALS OR LABORATORY MATERIALS
- UNAUTHORIZED CHANGING OF GRADES ON AN EXAMINATION, INSTRUCTOR'S GRADE BOOK OR GRADE REPORT
- NONDISCLOSURE OR MISREPRESENTATION IN FILLING OUT APPLICATIONS OR OTHER COLLEGE RECORDS

Americans with Disabilities Act (ADA)
If you have, or believe you have, a disability and would benefit from any accommodation(s), you may wish to register with the Student Services Office on the first floor of Martinez Hall. All medical information will be treated confidentially.

After you have registered, please make sure that I receive a copy of the accommodation memorandum from Student Services within the first two weeks of class. It will be your responsibility to inform me or the Office of Student Services (in a timely manner) if the services/accommodations provided are not meeting your needs.
If you have a condition that may affect your ability to exit safely from the premises in an emergency or that may cause an emergency during class, you are encouraged to discuss any concerns with Ms. Irene Lutz, Campus Student Services Officer, at 287-6629, or with me at 287-6649.

Feel free to call Ms.Lutz at the number above or Ms. Angela Velasquez, NMSU EEO/ADA Director, at 505-646-3333 with any questions about the Americans with Disabilities Act (ADA) and/or Section 504 of the Rehabilitation Act of 1973.

Disclaimer: The instructor, at her discretion, may modify this syllabus to meet the needs of the students.

TENTATIVE SEQUENCE OF ACTIVITIES:

Text Chapters	Tentative Lab Exercises
Chapter 2: Life's Chemical Basis (Sections 2.5 and 2.6)	(1) Acids and Bases
Chapter 3: Molecules of Life	(2) Chemistry Models
Chapter 5: How Cells Work	(3) Diffusion and Osmosis (4) Digestion of Carbohydrates
Chapter 6: Where it Starts--Photosynthesis	(5) Photosynthesis
Chapter 7: How Cells Release Chemical Energy	(6) Alcoholic Fermentation
Chapter 12: DNA Structure and Function	
Chapter 13: From DNA to Proteins	(7) DNA and Amino Acid Models
Chapter 15: Studying and Manipulating Genomes	(8) DNA Fingerprinting
Chapter 25: Plant Tissues	(9) Plant tissues
Chapter 26: Plant Nutrition and Transport	(10) Transpiration
Chapter 33: Circulation	(11) TBA
Chapter 38: Animal Reproduction and Development	(12) Film with questions

Tests, lasting approximately 1 or 1½ hours, will be given after every two chapters; dates will be determined during class. Work will continue in class after each test (except the last, which is given during exam week). There will be approximately 2-3 days spent per chapter.

IMPORTANT DATES TO REMEMBER:

Last day to drop a course with a W—March 12, 4 pm
Last day to present the second oral current research report—March 14
Spring Break—March 19-23
Complete outline of term paper due—April 2
Spring Holiday—April 6-7
Good draft of term paper due—April 16, 9:55 am
Final version of term paper due—April 25, 9:55 am
Oral presentations (during exam week)—May 7
Last test (during exam week)—May 9

Note: Class will meet twice during exam week.