

Instructor: Dr. William H. Jackson
Office: SBDG 201A
Telephone: 641-3601
Lecture: TTh, 8:00AM – 9:15AM in SBDG 200
Credit: Three semester hours
Information: <http://www.usca.edu/biogeno/faculty/Jackson/Jackson.asp>

Office Hours: By appointment
Email: Billj@usca.edu
Text: **The Cell, A Molecular Approach, 3rd Ed.**
by Cooper and Hausman

Course Description: A study of the principles of eukaryotic cellular and molecular biology. Three lecture hours per week.

Course Objectives: This course is designed to provide students the concepts and underlying principles of cellular and molecular biology. Its primary emphasis will be on the fundamental processes of eukaryotic cell biology. Upon completion of this course students will be expected to

1. Describe the basic properties of eukaryotic cells;
2. List and describe the function of each of the major biological molecules;
3. Describe DNA replication, repair, and expression;
4. Discuss the nature of gene regulation;
5. Describe the processes of protein synthesis, processing, and regulation;
6. Discuss the nature of cell signaling;
7. Discuss regulation of the cell cycle
8. Discuss the development and causes of cancer.
9. Describe the function of tumor suppressor genes and protooncogenes

Attendance Policy: Students should refer to the USCA Student Handbook regarding the number of absences permitted. In this regard, the instructor may impose a penalty for absences in excess of 25% of regularly scheduled class meetings by assigning an “F” for the course. Absences, *neither excused nor unexcused*, absolve the student from meeting class assignments. Exam make-ups will only be allowed for a *documented, excusable* reason. Quizzes cannot be made up.

Disability Statement: If you have a physical, psychological, and/or learning disability, which might affect your performance in class, please contact the Office of Disability Services, 126A B&E (803) 641-3609, as soon as possible. The Disability Services Office will determine appropriate accommodations based on medical documentation.

Methods of Presentation and Evaluation: Information will be presented through lectures and class discussion using appropriate visual aids. There will be three 1-hour exams and a comprehensive final exam. Quizzes will be used to gauge weekly student progress and generally cover the previous 1-2 week’s material. Students will be required to complete five critiques of the primary literature in cellular/molecular biology. The nature of the papers will be dependent on the review topic (see below). Each report should be one page long (double-spaced) and provide a summary of the work with appropriate referencing. Extreme care should be taken to avoid plagiarism.

Review and Poster. Twenty percent of your final grade will be from a semester research paper reviewing an assigned topic in cellular/molecular. The student will conduct a literature search and prepare a written report on their topic. This report should provide information on all aspects of the topic. The report should be double-spaced and include appropriate visual aids and a bibliography. The paper must have at least ten references, none of which can be a web site. Figures obtained from a web site and used in the paper are acceptable and should be credited in the figure legend (not in the bibliography). The majority of references should be from research journals as can be found in the National Library of Medicine database Medline (<http://www.nlm.nih.gov>); however relevant texts are acceptable (one text for every ten sources). The paper should be written in the format of a scientific paper and provide a review of the current literature. A completed bibliography is due midterm, **September 21, 2006**; the first draft on **October 12, 2006**; the final paper on **October 27, 2006**. The first draft will be peer-reviewed by a member of the class and returned with appropriate comments to the writer. The revised final version will be presented to the instructor along with the critiqued first draft. The research poster will be derived from the review paper. A PowerPoint template will be provided for poster design. Posters are due on **November 16, 2006**. A poster session will be held the last day of class, **December 7, 2006** in the Science Building.

Traditional exams will be used to evaluate student progress in the class. Quizzes will be used to gauge weekly student progress and will cover the previous week's material. The total points gained on all quizzes (relative to total possible points) will be used in the final evaluation. Students will be evaluated on their performance in the class as shown below. In addition students will be responsible for completing a number of on-line timed quizzes offered throughout the semester via Blackboard. The date of each quiz will be announced one week prior to the time of availability. Each quiz will be available for one week during which time the student can take the quiz as many times as they wish. These are mastery quizzes, so the object is to receive a perfect score. Each covers specific material in particular chapters of the text, therefore the student should be familiar with the material prior to taking the on-line quiz.

Description	Percentage	Points	Comments
Three one-hour exams	45%	450	15% each
Review and poster	25%	250	Assigned topic
Final Exam	10%	100	Comprehensive
Written reports	10%	100	Assigned topic, 20 points each
Weekly quizzes	10%	100	Covering the previous 1-2 weeks material

Letter grades will be assigned as follows: A>90%; B>80%; C>65%; D>50%; F<50%.

You will be expected to endorse the USCA HONOR PLEDGE on every assignment: 'On my honor as a University of South Carolina Aiken student, I have neither given nor received any unauthorized aid on this assignment/examination. To the best of my knowledge, I am not in violation of academic honesty'.

TENTATIVE LECTURE SCHEDULE

DATE	WEEK	TOPIC	CHAPTERS
Aug 24	1	An Overview of Cells and Cell Research	1
Aug 29	2	The Organization and Sequences of Cellular Genomes	4
Aug 31		The Organization and Sequences of Cellular Genomes	4
Sep 5	3	Replication, Maintenance, and Rearrangement of Genomic DNA	5
Sep 7		Exam I	1-4
Sep 12	4	Replication, Maintenance, and Rearrangement of Genomic DNA	5
Sep 14		Replication, Maintenance, and Rearrangement of Genomic DNA	5
Sep 19	5	RNA Synthesis and Processing	6
Sep 21		RNA Synthesis and Processing	6
Sep 26	6	RNA Synthesis and Processing	6
Sep 28		Protein Synthesis, Processing, and Regulation	7
Oct 3	7	Exam II	5-6
Oct 5		Protein Synthesis, Processing, and Regulation	7
Oct 10	8	Protein Synthesis, Processing, and Regulation	7
Oct 12		Protein Synthesis, Processing, and Regulation	7
Oct 17	9	Protein Sorting and Transport	9
Oct 19		Fall Break – No Classes	
Oct 24	10	Proteins Sorting and Transport	9
Oct 26		Protein Sorting and Transport	9
Oct 31	11	Cell Signaling	13
Nov 2		Cell Signaling	13
Nov 7	12	Election Day – No Classes	7-9
Nov 9		Exam III	13
Nov 14	13	Cell Signaling	13
Nov 16		The Cell Cycle	14
Nov 21	14	The Cell Cycle	14
Nov 23		Thanksgiving Holiday – No Classes	14
Nov 28	15	The Cell Cycle	15
Nov 30		Cancer	
Dec 4	16	Cancer	15
Dec 7		Poster Session, Location TBA	
Dec 12		FINAL EXAM; 8 AM	Comprehensive