

Instructor: Dr. Pam Steen

Email: pams@usca.edu

Lecture/Lab: MW; 6:00pm-8:40pm; SBDG 108

Office: SBDG 111B

Office Hours: By appointment

Lecture textbook: *Biology*, 8th Ed. by Peter Raven et al.

Laboratory textbook: *Biology 121 Laboratory Manual*, 5th Ed. by Jackson and Yates

Course Credit: Four credit hours

Course Description and Objectives: This class is for both Biology majors and non-majors and will cover basic molecular and cellular biological principles and concepts. The objectives for this course are as follows:

1. Understand, discuss, and use the "scientific method"
2. Understand the characteristics that define "life"
3. Know the major biological molecules and understand their significance in the cell
4. Compare, contrast, and discuss prokaryotic and eukaryotic cells
5. Understand cell signaling and transport
6. Understand energy movement in biological systems
7. Understand cellular reproduction
8. Understand the basics of heredity
9. Understand the structure of DNA and RNA and define the Central Dogma of Life

Grading:

Three Lecture Exams 45% (15% each)

Weekly Lecture Quizzes 5%

Scientific Paper Summary 5%

Laboratory Grade 25%

Final Exam (cumulative) 20%

Grading Scale:

A (90-100%); B+ (86-89%); B (80-85%); C+ (76-79%); C (70-75%); D+ (66-69%); D (60-65); F (0-59%)

Reading: You are expected to read the relevant chapter(s) / sections in both the textbook and laboratory manual prior to coming to lecture and lab.

Electronic Devices: Unless you can be responsible, *do not* bring cell phones into the lecture or laboratory. Ringing cell phones cause an unfair disruption, as does leaving the room to answer silent rings. Please plan to be out of touch during class times.

Disability Statement: If you have a physical, psychological, and/or learning disability which might affect your performance in this 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.

Writing Center: USCA provides a Writing Center located in Room 112 of the Humanities and Social Sciences Building. If you need extra assistance on any writing assignment for this or any other class that you are taking, please try the Writing Center.

Writing Portfolio: Also, remember that written work that you complete for this class can be included in your writing portfolio requirement. For further information on the writing portfolio requirement, please consult your current USCA Bulletin.

Honor Code: Students are expected to abide by the *Academic Code of Conduct* as described in the Student Handbook. Appropriate disciplinary action will be taken if academic integrity is violated. The following honor pledge is to be signed and dated by the student on all exams.

“On my honor as a University of South Carolina at 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.”

Attendance: Attendance will not be taken. However, students are encouraged to be present at all lectures and labs. **There will be no make-up quizzes, labs, or lab reports.**

Weekly Lecture Quizzes: During the semester, 10 weekly quizzes will be given. Beginning week 3, quizzes will be given at the start of class each Monday. They will include lecture material covered the previous week. **Students will not be allowed to make-up missed quizzes.**

Exams: For each exam, students will need to bring a Scantron Sheet, which can be purchased at the bookstore. **Make-up exams will only be allowed for a documented, excusable reason.**

Week	Date	Lecture Schedule of Topics	Chapters
1	Jan. 12 Jan. 14	The Science of Biology The Nature of Molecules	1 2
2	Jan. 19 Jan. 21	(Martin Luther King, Jr. Day - No class) Investigation 1	
3	Jan. 26 Jan. 28	The Chemical Building Blocks of Life PubMed activity / Investigation 1 Write-up	3
4	Feb. 2 Feb. 4	Cell Structure Investigation 2	4
5	Feb. 9 Feb. 11	EXAM I / Membranes Membranes / Investigation 2 Write-up	1-4 / 5 5
6	Feb. 16 Feb. 18	Energy and Metabolism Investigation 3	6
7	Feb. 23 Feb. 25	How Cells Harvest Energy How Cells Harvest Energy / Investigation 3 Write-up	7 7
8	Mar. 2 Mar. 4	Photosynthesis (<u>Article Abstracts are due</u>) Investigation 4	8
9	Mar. 9 & 11	Spring Break! (No Class)	
10	Mar. 16 Mar. 18	Cell Communication / Investigation 4 Write-up EXAM II / Cell Communication	9 5-8 / 9
11	Mar. 25 Mar. 27	How Cells Divide Investigation 5	10
12	Mar. 30 Apr. 1	Sexual Reproduction and Meiosis Sexual Reproduction and Meiosis / Investigation 5 Write-up	11 11
13	Apr. 6 Apr. 8	EXAM III / Patterns of Inheritance Investigation 7 & 8 (<u>Summaries are due at the beginning of class</u>)	9-11 / 12
14	Apr. 13 Apr. 15	Patterns of Inheritance / Chromosomes DNA: The Genetic Material / Investigation 7 & 8 Write-up	12 & 13 14
15	Apr. 20 Apr. 22	DNA: The Genetic Material / Genes and How They Work Genes and How They Work	14 & 15 15
16	Apr. 27	Control of Gene Expression	16
17	May 4	Final Exam at 8pm (Cumulative)	1-16

Week	Date	Laboratory Schedule of Topics	Investigation
1	Jan. 12 & 14	(No lab)	
2	Jan. 19 & 21	Measurement Techniques	1
3	Jan. 26 & 28	Analyze / Write-up Investigation 1 results	
4	Feb. 2 & 4	Organic Molecules in Cells	2
5	Feb. 9 & 11	Analyze / Write-up Investigation 2 results	
6	Feb. 16 & 18	Cell and Microscopy	3
7	Feb. 23 & 25	Analyze / Write-up Investigation 3 results	
8	Mar. 2 & 4	Enzymes	4
9	Mar. 9 & 11	Spring Break! (No lab)	
10	Mar. 16 & 18	Analyze / Write-up Investigation 4 results	
11	Mar. 23 & 25	Photosynthesis	5
12	Mar. 30 & Apr. 1	Analyze / Write-up Investigation 5 results	
13	Apr. 6 & 8	Chi-Square and Mendelian Genetics	7 & 8
14	Apr. 13 & 15	Analyze / Write-up Investigation 7 & 8 results	
15	Apr. 20 & 22	(No Lab)	
16	Apr. 27	April 27 th is the last day of class	

Lab Notebooks: Each student will be required to purchase and maintain a composition-style notebook to use as a laboratory notebook. The laboratory notebook must include a table of contents, and each page must be numbered. For each experiment, include a brief description of the purpose and methods used. In addition, a detailed description of your results and conclusions must be included. Printouts and graphs should be taped into the notebook. **Lab notebooks will be turned in for grading at the end of each laboratory session.**

Lab Manuals: Students should answer the questions in their lab manuals for each investigation. **Lab manuals will be turned in for grading at the end of each laboratory session.**

Lab Reports: Students will have the opportunity to write their lab reports during the assigned write-up sessions. These reports are typically written in groups of 2-3. The format of the lab reports will be presented during each lab. **These reports will be turned in for grading at the end of class. If you don't do the lab, you cannot write a report.**

Lab Quizzes: Lab quizzes will be administered at the beginning of each write-up session for the respective lab.

Laboratory Grading: Lab notebooks (10%), lab manuals (20%), lab quizzes (20%) and lab reports (50%).

Scientific Paper Summary (Due April 8th): Students will choose (1) scientific paper published within the last five years. The topic of the paper chosen must be relevant to human disease. Article abstracts must be approved by **March 2nd**. The instructor will give additional information about this assignment.