

ABIO 121 BIOLOGICAL SCIENCE I

Fall 2008 Syllabus



Instructor: Dr. Jennifer D. Cannon
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Office hours: TTH 4:30-5:30 and by appointment

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* **IMPORTANT:** I will use e-mail as a regular form of communication in this class and I expect that you will as well. You should check your e-mail at least once daily and respond promptly if required.

Lecture and Lab: TTH 6:00-8:40PM in SBDG 107

Required Materials: **Biology**, Eighth Edition, by Raven, Johnson, Losos, Mason, and Singer

Biology 121 Laboratory Manual, Fifth Edition, by Jackson and Yates

Bound laboratory notebook

Course Credit: Four credit hours

Course Description and Objectives: This course is for Biology majors and non-majors and incorporates the *study of biological principles and concepts through the cellular level of organization*. Upon completion of this course students will be expected to

- Define Biology and describe the characteristics that define life.
- Describe the major biological molecules and how they are utilized by cells.
- Describe the structure of prokaryotic and eukaryotic cells and how structure facilitates function.
- Describe how things get in and out of cells and how cells signal each other.
- Describe the flow of energy in biological systems.
- Define the importance of enzymes and how they work.
- Understand cellular reproduction (mitosis and meiosis).
- Understand the basics of heredity and pattern of inheritance.
- Describe the structure of DNA and RNA and define the Central Dogma of Life.
- Understand and use the "scientific method."
- Think critically, be able to analyze data and present it scientifically.

Grading:

Four hourly (lecture) exams	40%
Lecture Quizzes	5%
Scientific Paper Review	5%
Individual Presentations	5%
Participation	5%
Final (comprehensive) exam	15%
Laboratory Grade	25%

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) prior to coming to class. See attached for schedule of Topics/ Chapters to be covered.

Lecture Quizzes: 10 quizzes will be given during the semester. These quizzes will include material covered during class as well as material covered in the assigned reading (Relevant chapter(s) from Biology). Some of these quizzes may be unannounced. In addition, online quizzes may be assigned. These quizzes will be announced at least one week prior to the deadline for their completion. The lowest two quiz grades may be dropped.

Scientific Paper Summary: You will be required to select a biology paper from a primary literature source (i.e. a research article from a scientific journal) published within the last 10 years and write a 1-2 page review. The summary should state the problem addressed in the paper, the hypothesis, the methodology utilized to test the hypothesis, the results, conclusions, and a brief discussion. All summaries must be typed double-spaced and must include a copy (preferably a PDF version) of the first page of the article summarized. The first page of the review/summary should include a full citation of the article using the CSE format. Summaries will be evaluated on the basis of 1) relevance of the article to biology, 2) the format of the citation and inclusion of the first page of the article, and 3) the accuracy and completeness of the summary. The summary is worth 5% of your total grade.

Presentations: At the beginning of the semester, the class will be presented with a list of topics to be covered in the course. Each student must pick one of the topics (for example, the nucleus) and give a short (5-10 minute) presentation on the topic during the lecture period for which the particular topic is relevant (for example, The Cell Structure Lecture). The student may use the textbook and/or any other necessary references. I encourage each of you to be creative in your presentations. In addition, the student will create a question for the lecture examination that covers the assigned topic. The presentation and test question will be worth 5% of your total grade.

Extra Credit: Each student that can provide a current example of biology in the news will be awarded an extra 3 points on his or her lecture exam. The student should e-mail me a copy of the article or provide me with the website or other source where the information was obtained. **I must have documentation.** The student should also be willing to discuss the news with the class. Once a news story has been discussed in class, another student cannot use the story to obtain extra credit. Each student is allowed only one news story for extra credit per exam. The first 5-10 minutes of each class period will be devoted to discussing biology in the news.

Attendance Policy: Attendance will be taken daily. Students will be allowed a total of four unexcused absences from this course. In this regard, the instructor may impose a penalty for absences in excess of four by assigning an "F" for the course. Absences,

neither excused nor unexcused, absolve the student from meeting class assignments. Because of their nature, laboratory exercises cannot be made up. Since the lectures and labs have been incorporated into the same session, it is advisable that you make every effort to attend **all** classes/labs. Exam make-ups will only be allowed for a *documented, excusable reason*. In addition, if you must miss an exam or lab, please contact me **BEFORE** class.

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 written, signed, and dated by the student on all exams and assignments turned into the instructor.

“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.”

ABIO 121 Tentative Lecture/Lab Schedule**Fall 2008**

Date	Topic	Chapter
21-Aug	Introduction/ The Science of Biology	1
26-Aug	The Nature of Molecules	2
27-Aug	Last day to Register/ Change Classes	
28-Aug	Measurement Techniques Laboratory	Investigation 1
2-Sep	The Chemical Building Blocks of Life	3
2-Sep	Write Up Investigation 1	
4-Sep	The Chemical Building Blocks of Life/ Cell Structure	3,4
5-Sep	Last day to apply for December graduation	
9-Sep	Organic Molecules in Cells Lab	Investigation 2
11-Sep	Cell Structure (Planetarium- Journey into the living cell)	4
11-Sep	Review for Exam 1	
16-Sep	Exam 1	1-4
18-Sep	Meet with Reference Librarian	
18-Sep	Write Up Investigation 2	
23-Sep	Cells and Microscopy	Investigation 3
25-Sep	Membranes/ Energy and Metabolism	5,6
25-Sep	Write Up Investigation 3	
30-Sep	How Cells Harvest Energy	7
2-Oct	Photosynthesis	8
2-Oct	Exam 2 Review	
7-Oct	Exam 2	5-8
9-Oct	Fall Break	
14-Oct	Enzyme Lab	Investigation 4
16-Oct	Cell Communication	9
16-Oct	Write Up Investigation 4	
16-Oct	Last day to withdraw or drop without WF	
21-Oct	How Cells Divide	10
23-Oct	Sexual Reproduction and Meiosis	11
28-Oct	Photosynthesis Lab	Investigation 5
30-Oct	Write Up Investigation 5	
30-Oct	Exam 3 Review	
4-Nov	Election Day	
6-Nov	Exam 3	9-11
11-Nov	Patterns of Inheritance/ Chromosomes	12,13
11-Nov	Journal Article Summaries Due	
13-Nov	Chi-Square and Mendelian Genetics Lab	Investigation 7,8
18-Nov	DNA and The Genetic Material	14
18-Nov	Write Up Investigation 7,8	
20-Nov	Genes and How They Work/ Control of Gene Expression	15, 16
25-Nov	Biotechnology	17

25-Nov	Exam 4 Review	
27-Nov	Thanksgiving Holiday	
2-Dec	Exam 4	12-16
4-Dec	Genomics/Proteomics	18
4-Dec	Final Exam Review	
12-Dec	Final Exam	Cumulative

Tentative Lab Schedule

Aug 21	No Lab
Aug 28	Investigation 1: Measurement Techniques
Sep 2	Write Up Investigation 1 / Lab 1 Quiz
Sep 4	Report 1/ Lab manual due
Sep 9	Investigation 2: Organic Molecules in Cells
Sep 18	Write Up Investigation 2 / Lab 2 Quiz
Sep 18	Report 2/ Lab manual due
Sep 23	Investigation 3: Cells and Microscopy
Sep 25	Write Up Investigation 3 / Lab 3 Quiz
Sep 30	Report 3/ Lab manual due
Oct 14	Investigation 4: Enzymes
Oct 16	Write Up Investigation 4 / Lab 4 Quiz
Oct 21	Report 4/ Lab manual due
Oct 28	Investigation 5: Photosynthesis
Oct 30	Write Up Investigation 5 / Lab 5 Quiz
Nov 6	Report 5/ Lab manual due
Nov 13	Investigation 7: Chi-Square Investigation 8: Mendelian Genetics
Nov 18	Write Up Investigation 7 and 8 / Lab 7,8 Quiz
Nov 20	Report 6/ Lab manual due

Lab Notebooks

Each student will be required to purchase and maintain a laboratory notebook. The laboratory notebook should be bound. It should include a table of contents, and each page should be numbered. Each experiment should include a brief description of purpose and methods along with a detailed description of results (including data) and conclusions. Printouts and graphs may be taped into the notebook. The notebook will be checked at the end of each laboratory session. Failure to bring your notebook will result in a 0 for that portion of the lab.

Lab Manuals

Students should answer the questions in their lab manuals at the end of each exercise. Lab manuals will be turned in for grading.

Lab Reports

Students will have the opportunity to write their lab reports during the assigned write up sessions should any questions arise. 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 submitted for grading as indicated on the schedule.

Lab Quizzes

Quizzes will be administered for each laboratory during the write up session for the respective lab.

Lab Grading

Lab notebooks (10%), lab manuals (20%), reports (50%) and lab quizzes (20%)