BSC 120 Principles of Biology Fall 2006

Course description:
4 hrs. Study of basic biological principles common to all organisms through lecture and laboratory activities. Chemistry of life, cell biology, metabolism, heredity, and evolution. Intended for science majors and pre-professional students. 3 lec-2 lab. (PR: at least 21 on Math ACT, or C or better in MTH 121 or higher)

Course Specialized Aims:
- Know the methods of science used in scientific investigation
- Know the structure, behavior, characteristics, and function of biological molecules
- Understand the relationships between form and function at the levels of biological organization
- Comprehend how energy transformations occur and how energy flows through physical environments and living systems
- Understand the unity and diversity of life at the molecular and cellular levels
- Know how heredity is transmitted through generations making possible the continuity of life
- Understand and interrelate knowledge in the biological areas of cell biology, genetics and evolution as they apply to both prokaryotes and eukaryotes

Instructor: Marcia Harrison **Office**: S200A
Phone: 696-4867 **email:** harrison@marshall.edu
Office Hours: 9:00-11:00 a.m. and 5:00-6:00 p.m. Mon and Wed. or by appointment. Feel free to drop by at any time during posted office hours; however people who call ahead for an appointment will be given priority. *An appointment is required if you want to come by outside of posted office hours.*

Instructor: Jeff Kovatch **Office**: S202
Phone: 696-7147 **email:** kovatch@marshall.edu
Office Hours: 12-2 Tuesday; 9-12 on Wed

Classroom: S 374 Lecture **Time:** MWF 8:00 - 8:50 AM
S 210 Lab **Time**: sect 101: M12-1:50 PM; sect 102: M 2-3:50 PM;
sect 103: M 5-6:50 PM; sect 104: T 8-9:50 AM

Texts: Biology, 7th Edition, 2005, Campbell and Reece (required)
Principles of Biology Laboratory Manual. 7th edition, 2004 (required)
A Short Guide to Writing About Biology, 5th edition, 2004, Pechenik (recommended)

Grading: The numerical scores for each exercise will be tallied to determine a gross course score.

Lecture exams	450 points
Lecture work	50 points
Laboratory work	100 points
Total	**600 points**

Grading scale: A = 90 - 100% (540-600 points); B = 80–89% (480-539 points); C = 70–79% (420-489 points); D = 60–69% (360-419 points); F = <60% (359 points or less)

Lecture exams: There will be four exams each contributing 100 points towards your total course grade. Please notify the instructor in advance if you know you will miss an exam. (See Attendance policy.)
Exam 1: Friday, Sept. 8
Exam 2: Friday, Sept. 29

Exam 3: Friday, Oct. 20
Exam 4: Friday, Nov. 10
Exam 5: Monday Dec. 11, 8:00-10:00 am (according to the Fall 2006 exam schedule)

Lecture work: Participation in lecture and weekly quizzes on WebCT-VISTA will count 50 points towards your total grand. Points will be allocated in the following manner:

50 points: 85% grade or higher on the top 10 quizzes and $\leq$ 5 lecture absences
40 points: 80% grade or higher on the top 10 quizzes and $\leq$ 8 lecture absences
30 points: 75% grade or higher on the top 10 quizzes and $\leq$ 10 lecture absences
20 points: 70% grade or higher on the top 10 quizzes and $\leq$ 12 lecture absences
10 points: 65% grade or higher on the top 10 quizzes and $\leq$ 15 lecture absences
0 points: <65% grade or higher on the top 10 quizzes and > 15 lecture absences

Labs: Your laboratory performance will contribute 100 points towards your total course grade. This will be determined from laboratory data analyses and a written report. *A full written research report* will be part of the laboratory component of the course. This report will be presented in proper scientific format for the yeast experiment in the lab. Written instructions and deadlines will be provided by your lab instructor. Students are expected to keep their finished papers on computer disk until the graded copy is returned. ***This paper is required for a passing grade in the laboratory portion of the class***.

Course policies and requirements:

1. *ATTENDANCE POLICY:* Attendance in lectures and laboratory exercises is *required* and will be part of your total grade. You are responsible for any material missed by being absent. Absences from exams or quizzes due to illness, death in the family, or institutional activities will be excused with the appropriate written notification to the instructor. In the case of illness, you must provide a physician's note stating that you could not be present during the exam period for medical reasons. See Marshall University Undergraduate Catalogue - Academic Information for guidelines (online catalog, p. 127, at http://www.marshall.edu/ucomm/catalog/ug_05-07.pdf). This policy will be strictly enforced.

2. *COMPUTER LITERACY*: Course materials, quizzes, and course e-mail are located on WebCT Vista. To access the WebCT Vista login page from the Marshall Homepage (http://www.marshall.edu). Click on WebCT link from the list on the left-hand side of the screen, select "click here to login" in WebCT Vista, again select "click here to login" to reach the login page (http://vista.marshall.edu/webct/entryPage.dowebct). Log-in using your MyMU user name and password. ***If BSC 120 is not listed in WebCT, notify me immediately.*** Additionally, you will be expected to use a word processing program to compose your written report, and Microsoft Office Excel to prepare some of the graphs for lab. Computers with these programs are located on campus in the Drinko Library and in computer labs (unfortunately the Science Bldg. does not have a computer lab). However, the BSC Tutoring Center (Science room 209) has computers and tutors who can assist you if you are experiencing problem. The Tutors are also available to help you with course content and writing.

3. *ACADEMIC ACCOMMODATION*: If you have a learning disability, go immediately to the Help Center (this is expensive), Myers Hall, or Mrs. Sandra Clements (this service is free), PH 117. If you present a diagnosis of the learning disability they have the authority to send a statement of your needed accommodation to the instructor via campus mail. No accommodation can be allowed until this documentation is received and it must be received several days in advance of the exam to allow the professor time to arrange the conditions required.

4. *WITHDRAWAL*: Unfortunately in any large group of students there will be a few performing poorly after a few weeks into the semester. Students should keep the W date clearly in mind. Drop by the W date or otherwise you will remain in the course and receive a grade (probably an F). If you stop

attending you will receive an F. Unfortunately a significant group of freshmen and sometimes upper classmen stop attending and receive an F, which places them immediately on suspension. The road back from suspension is difficult and it is almost impossible to repair your GPA so that you could become eligible for graduate school or professional schools. A word of warning to pre-health care professional students — some institutions do not allow D/F repeats and recalculate all grades earned in the GPA. If you have D/F repeats, professional schools will calculate a GPA lower than the Marshall GPA because they count both the original D or F and the repeated grade. Be very careful that you do not fail to drop a course properly which will result in F. Making this mistake could lead the end of your ambitions.

5. *ACADEMIC DISHONESTY in any form will not be tolerated.* All written assignments, quizzes, and exams are to be independent efforts of each student. Refer to Undergraduate Catalog pages 105-109 (http://www.marshall.edu/ucomm/catalog/ug_05-07.pdf) for definitions of cheating, fabrication/falsification, plagiarism; bribes/favors/treats; and complicity.

6. *STUDENTS RESPONSIBLY: Students are responsible for reading the appropriate material from the textbook*. The student is responsible for reading the text material to help understand the material covered during lecture time. Practice problems are provided in the textbook. Questions about the reading material should be given to the instructor so it can be reviewed in class. *Students are required to stay on task during the lecture and laboratory exercises.* Students may be asked to work in groups during class time, and following protocols in lab. Please concentrate on the material presented. Discussion of the problems in a group is encouraged. If you have completed the assigned task, please help someone else. If you are lost, review the book material, formulate a question, and show the instructor your work.

7. *RECORDS*: Students are required to mark both the exam and answer sheet and return it to the professor at the end of the exam period. Thus, two records of your answers will be retained in case answer sheets disappear during grading at the computer center. Should a question arise concerning grading the *answer sheet will be the official response.* Exams and answer sheets will be kept for one semester or summer term following completion of the course. You may examine these records on WebCT during the semester. After that period the exams will be discarded and kept on an Excel spreadsheet as the official record. *Grades cannot be e-mailed or given over the phone.* You must be present during lecture or lab to collect graded exams and papers.

8. *ELECTRONIC DEVICES:* All electronic devices (calculators, laptop and handheld computers, instant messaging devices, PDAs, cell phones, pagers, data-bank watches, etc.) must be turned off during class.

Class Schedule **Fall 2006**

Week	Dates	Lecture and Lab Topics
1	8/21-8/25	Lab 1. Laboratory Safety Lecture: Course syllabus, Course overview, Chapter 1-Exploring Life Chapter 2-The Chemical Context of Life
2	8/28-9/1	Lab 2. Scientific Analysis Lecture: Chapter 3-Water and the Fitness of the Environment Chapter 4-Carbon the Molecular Diversity of Life Chapter 5-The Structure and Function of Macromolecules (pp 68-77)
3	9/4-9/8	Labor Day Holiday – No Class on Monday 9/4; No labs this week Lecture: Finish lecture coverage and Exam review **9/8: Exam 1**
4	9/11-9/15	Lab 3. Hypothesis Testing: The Scientific Method Lecture: Chapter 5-The Structure and Function of Macromolecules (pp 77-89)

		Chapter 6- A Tour of the Cell Chapter 7- Membrane Structure and Function
5	9/18-9/22	Lab 4. Analysis of Biological Macromolecules Lecture: Chapter 8-An Introduction to Metabolism Chapter 9-Cellular Respiration: Harvesting Chemical Energy
6	9/25-9/29	Lab 5. How Substances Get Into and Out of Cells Lecture: Chapter 10- Photosynthesis Finish lecture material; Exam review **Exam 2 (Friday - 9/29)**
7	10/2-10/6	Lab 6. A Microscopic Investigation of Cell Differences and Similarities Lecture: Chapter 11-Cell Communication Chapter 12-The Cell Cycle
8	10/9-10/13	Lab 7. Regulation of Cellular Metabolism Using Yeast as an Experimental System. Week 1: Experimental Design and Measurement Lecture: Chapter 13-Meiosis and Sexual Life Cycles Chapter 14-Mendel and the Gene Idea
9	10/16-10/20	Lab 8. Testing Cellular Metabolism Using Yeast as an Experimental System. Week 2: Testing an Original Hypothesis Lecture: Chapter 15-The Chromosomal Basis of Inheritance Finish lecture material; Exam review **Exam 3 (Friday - 10/20)**
10	10/23-10/27	Lab 9. Considerations, For Being a Successful College Student Lecture: Chapter 16-The Molecular Basis of Inheritance Chapter 17-From Gene to Protein
	10/27	**Last Day to Drop an Individual Course (mid-term grades will be recorded on Oct. 16)**
11	10/30-11/3	Lab 10. Protein Synthesis: Transcription and Translation Lecture: Chapter 18-The Genetics of Viruses and Bacteria Chapter 19- Eukaryotic Genomes: Organization, Regulation, and Evolution
12	11/6-11/10	Lab 11. Mendelian Genetics Lecture: Chapter 20-DNA Technology and Genomics Finish lecture material; Exam review **Exam 4 (Friday - 11/10)**
13	11/13-11/17	Lab 12. Human Genetics and Gene Therapy Lecture: Chapter 21-The Genetic Basis of Development Chapter 22-Descent with Modification: A Darwinian View of Life
	11/20-11/24	**Thanksgiving Break- no classes this week**
15	11/27-12/3	Lab 13. Microevolution: Changes in Gene Frequencies in Populations Lecture: Chapter 23-The Evolution of Populations Chapter 24-The Origin of Species
15	12/4	Lecture: Chapter 25-Phylogeny and Systematics Finish lecture coverage and Exam review
	12/11	**Exam 5:** 8:00-10:00 am S374 (according to the Fall 2006 exam schedule)