

BSC 322
Principles of Cell Biology
Spring 2018

INSTRUCTOR	Dr. J. Valluri Science Hall S370 Phone 696-2409 or leave message on Audix Email: valluri@marshall.edu Office hours: MWF 10 – 12 Noon, T/Th 10 – 11 AM
TEXT BOOK	The World of Cell by Becker/Kleinsmith/Hardin 9 th Edition Laboratory Manual by Dr. Valluri (available at the bookstore)
COURSE TIME	Lecture T/R 8:00 – 9:15 AM (Science Room 374) Lab Meeting Time: W/R 1:00 – 3:50 PM and Fri 12:00 – 2:50 PM (Science Room 381)
OBJECTIVES	To provide students with a broad understanding of the topics that constitutes the recognized 'core' of molecular biological knowledge. Introduce students to the experimental concepts of cellular and molecular biology. Basic biochemistry, macromolecular structure and function, bioenergetics and cell metabolism will be discussed. The laboratory portion of the course is designed to offer you opportunities to apply your knowledge acquired from lecture to experimental approaches that are similar to what is carried out in today's research laboratories.
COURSE DESCRIPTION	Principles of Cell Biology. 4 hrs. A fundamental approach to the principles of cell biology covering the molecular basis of cellular structure and function, and gene regulation. Explores intercellular interactions, molecular interactions with modern cellular and molecular methods. 3 lec-3 lab. (PR: BSC 121 with a grade of C or better; CHM 355 recommended)
LECTURE	Three hourly exams and a final exam will be given during the semester. Hourly exams will include the last lecture before the exam. A review session is scheduled before each exam. Lecture exams will consist primarily of multiple choice, short answer, and true-false questions.
MU ONLINE	Class Notes, Study Guides and Lecture PowerPoints. will be posted on MU ONLINE site. You are expected to consult the class MU ONLINE site regularly for information and announcements about the course.
EXAMS	1. Exam 1 Feb 15 2. Exam 2 Mar 13 3. Exam 3 Apr 12 4. Final May 03 Thursday (8:00 AM – 10:00 AM)
GRADING	3 mid-term exams 100 pts each Final exam 100 pts Lab reports 100 pts

A grade will be given for each exam and final grades will be determined by comparing the student's total points with a cumulative grade scale for the semester. The following is the Grading Scale:

450-500 A
400-449 B
350 -399 C
300- 349 D
Below 300 F

LEARNING OBJECTIVES: Upon successful completion of this course, students will be able to:

1. Understand major biological molecules, and know how they interact at the cellular level.
2. Understand the relationship between form and function, as it relates to biological structure.
3. Understand the processes involved in the transformation of energy in living systems.
4. Describe the general principles of gene organization and expression in both prokaryotic and, eukaryotic organisms.
5. Interpret the outcome of experiments that involve the use of recombinant DNA technology and other common gene analysis techniques.
6. Explain various levels of gene regulation and protein function including signal transduction and cell cycle control.
7. Relate properties of cancerous cells to mutational changes in gene function.

LEARNING OUTCOMES: Upon successful completion of this course, students will be able to:

Students will be able to describe, and explain molecular functions of eukaryotic cells.
Students will be able to critically analyze scientific literature in the field of cell biology.
Students will be able to discuss complex scientific information in a group setting.
Students will be able to identify and explain current experimental methods used in cell biology research.

MAKE-UP EXAMS If you miss an exam you must provide an acceptable excuse within 72 hours of the scheduled time for the exam. If you do not do so, you cannot UNDER ANY CIRCUMSTANCES make-up the missed exam. Make-up exams will only be given in the event of (1) an officially approved university absence, (2) a death in the IMMEDIATE family, or (3) an illness that prevents you from attending class on the scheduled date of the exam (see Marshall University Undergraduate Catalog). In the case of illness, you must provide a note, signed by a physician, stating that you could not be present during the exam period for medical reasons. A note which simply indicated that you were treated by a physician will not constitute an excused absence. If you miss an exam because of fatuous behavior (e.g., over-slept, car break down, etc.), then the only make-up exam that you can take is a comprehensive essay exam which will be given at the end of the semester. To take this exam, you still must provide an excuse within 72 hours.

ATTENDANCE You are expected to attend all lecture and laboratory sessions. Although attendance will not be recorded during lecture sessions, it will be expedient for you to attend regularly. Attendance is taken in the labs, every lab has grades associated with it, and missed labs can only be made up if a university excused absence is granted for that lab. If you miss a Lab session, you cannot make-up the missed lab due to space and equipment constraints. Unfortunately, students often do poorly because of their lack of attendance. You will be able to obtain review materials, study guides, and problem assignments only during the lecture sessions. If you miss a class session, it is YOUR responsibility to obtain all assignments and materials. I cannot allow any disruptive behavior or activity. If you must leave during the class tell me before the class begins. Tardiness and talking in class are strongly discouraged.

UNIVERSITY POLICIES

By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to www.marshall.edu/academic-affairs and clicking on "Marshall University Policies." Or, you can access the policies directly by going to Academic Dishonesty/Excused Absence Policy www.marshall.edu/academic-affairs/policies/.

- 1) Cheating. The term "cheating" includes, but is not limited to:
 - (a) use of any unauthorized assistance in taking quizzes, tests, or examinations;
 - (b) Dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments;
 - (c) the acquisition, without permission, of tests, notes or other academic material belonging to a faculty or staff member of the university;
 - (d) dual submission of a paper or project, or resubmission of a paper or project to a different class without express permission from the instructor(s).
 - (e) any other act designed to give a student an unfair advantage.
- 2) Plagiarism. The term "plagiarism" includes, but is not limited to:

- (a) the knowing or negligent use by paraphrase or direct quotation of the published or unpublished work of another person without full and clear acknowledgement and
- (b) the knowing or negligent unacknowledged use of materials prepared by another person or by an agency engaged in the selling of term papers or other academic materials.

STUDENTS WITH

DISABILITIES: Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304 696-2271 to provide documentation of their disability. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, visit <http://www.marshall.edu/disabled>

DROP DATE: **March 17, Friday.** Last Day to Drop an Individual Course.

PRINCIPLES OF CELL BIOLOGY Spring 2018

PRINCIPLES OF CELL BIOLOGY

1. Introduction to Cell Biology
2. Cells and Organelles
3. The Chemistry of the Cell
4. The Macromolecules of the Cell
5. Bioenergetics: The Flow of Energy in the Cell
6. Enzymes: The Catalysts of Life
7. Membranes: Their Structure, Function, and Chemistry
8. Transport across Membranes: Overcoming the Permeability Barrier
16. The Structural Basis of Cellular Information: DNA, Chromosomes, and Genome Organization
17. DNA Replication, Repair, and Recombination
18. Gene Expression I: The Genetic Code and Transcription
19. Gene Expression II: Protein Synthesis and Sorting
20. Regulation of Gene Expression
21. Molecular Biology Techniques
23. Signal Transduction Mechanisms II: Messengers and Receptors
24. The Cell Cycle
26. Cancer