

Syllabus: Molecular Medicine (BSC 480/580)

Semester: Fall, 2018

Lecture Location: Room BBSC 102 (Byrd Biotech Science Center)

Lecture Time: Mon/Wed; 2:00-3:15 PM

Instructor: Elmer M. Price, Ph.D.

Office: 241Q Byrd Biotechnology Science Center

Phone: 304-696-3611

Email: pricee@marshall.edu (*Please use the Subject Line: "BSC 480 or 580"*)

Office Hours: Mon/Wed 1:00 – 2:00 **or** by appointment (use email to arrange) **or** just drop by my office or research lab (219 Byrd Biotech Sci. Ctr.) anytime and I'll probably be able to chat.

Course Description: This course focuses on molecular biology as applied to diseases, including molecular mechanisms of cellular dysfunction and therapies based on molecular reagents. Human and veterinary health will be the main focus.

Credit Hours: 3

Prerequisites/Co-requisites: BSC 322 and 324. Also, it is assumed that you remember almost everything from BSC 120, or at least have the old textbook and are willing to review old material.

Course Description

This class entails the study of molecular biology principles underlying health and disease.

Student Learning Outcomes

Course Outcomes	Opportunities to Practice Course Outcome	Course Outcome Assessment(s)
Articulate and describe molecular biological principles common to all cells	In-class discussions and homework	In-class discussions and major presentation
Articulate and describe molecular biological principles in specialized cells	In-class discussions and homework	In-class discussions and major presentation
Discuss the application of molecular biology to select diseases	In-class discussions and homework	In-class discussions and major presentation
Interpret, present and discuss molecular biological solutions to current topics	In-class discussions and homework	In-class discussions and major presentation

Course Objectives

- Understand the themes that run through molecular biology
- Recognize biomolecule structures and functions
- Relate biological form to function and dysfunction
- Integrate molecular pathways into cellular function and dysfunction
- Integrate cellular function into tissue function and dysfunction
- Understand the genetic basis of health and disease
- Gain a working knowledge of state-of-the-art molecular techniques
- Learn how to apply molecular tools to study health and disease

Required Texts

- *None*; Material will be posted on Blackboard or handed out in class. Most of the material will be PDF files of research papers published in the peer reviewed literature.

Lecture Attendance Policy

Attendance is mandatory; a large part (25%) of the final grade will be based on class participation, which will be assessed every class period. Each class period you miss will lower your grade. If you miss 6 lectures, *for any reason*, you will fail the class. Also, the final exam will be based on material presented in class and not available elsewhere.

Cell Phone/Electronics Policy

Irresponsible use of cell phones/electronics will negatively impact the student's daily participation score.

Grading Policy

There will be daily in-class discussions which will contribute significantly to your final grade.

The final grade will be based on THREE components; class participation, major presentation, and final exam. The value of each component is:

In Class Participation: 25%

Major Presentation: 50%

Final Exam: 25%

The Major Presentation is a 50 minute presentation, given by each student.

This will involve the student's detailed presentation of a current scientific research publication from the peer reviewed literature. The paper will not be a review article but a primary/original research publication. The student will be expected to talk for an hour (50 minute presentation plus questions). Half of the final grade in this class will be based on this single and difficult assignment.

The final letter grade will be determined as follows:

A: 90-100%; B: 80-89.4%; C: 70-79.4%; D: 60-69.4%; F: <59.4%

Extra credit does not exist.

University Policies

Please see: <http://www.marshall.edu/academic-affairs/policies/> for Marshall University policies regarding Academic Dishonesty, Academic Dismissal, Academic Forgiveness, Academic Probation and Suspension, Affirmative Action, Excused Absences, Inclement Weather, Sexual Harassment, Students with Disabilities and other important information.

Learning Objectives

The instructor has several objectives for his students during this semester. They are listed below in order of increasing significance to the student's long-term success (in science, in college, and in careers [aka your life]).

1. The gain of simple knowledge, and any student can achieve this modest objective by simply memorizing the material.

2. A more significant objective is the actual comprehension of the material. Does the student actually understand the material, or are they only parroting the material during the tests. One who comprehends the material can answer test questions using information learned in class, even if the exact question was never discussed.

3. In order to use the information learned in class in future years, the student must be capable of applying the knowledge to new events. An ability to apply new knowledge is a sign of creativity that leads to exceptional careers.

4. Finally, the best and brightest have the capacity to synthesize new paradigms, new theories, and new designs that advance their chosen field. Students must learn to create new ideas, design new experiments, and actually perform the work that yields a new information, discoveries, or technologies.

Lecture Schedule

Monday 8/20
 Wednesday 8/22
 (Friday, 8/24, is the last day to drop/add)

Monday 8/27
 Wednesday 8/29

Monday 9/3 Labor Day
 Wednesday 9/5

Monday 9/10
 Wednesday 9/12

Monday 9/17
 Wednesday 9/19

Monday 9/24
 Wednesday 9/26

Monday 10/1
 Wednesday 10/3

Monday 10/8
 Wednesday 10/10

Monday 10/15

Wednesday 10/17

Monday 10/22

Wednesday 10/24

(Friday, 10/26, is the last day to drop course)

Monday 10/29

Wednesday 10/31

Monday 11/5

Wednesday 11/7

Monday 11/12

Wednesday 11/14

Monday 11/19 Thanksgiving Break

Wednesday 11/21 Thanksgiving Break

Monday 11/26

Wednesday 11/28

Monday 11/3

Wednesday 11/5

Monday 11/10 Final Exam 2:00-4:00