Hagerstown Community College
OFFICIAL MASTER SYLLABUS DOCUMENT

COURSE: BIO 201 – Cell Biology; 4 Credits
INSTRUCTOR: Dr. Kristen Lennon
TERM: Spring 2018

COURSE DESCRIPTION: This course is a rigorous detailed study of cell structure and function at the molecular level with a special emphasis on the technology and instrumentation required to study the complex processes within the small volume of space in a eukaryotic cell. Topics include cellular evolution, enzymes and biochemical pathways, plasma membrane structure and function, cytoplasmic membrane systems, cytoskeleton and cell motility, gene expression and control, cell signaling and signal transduction, cancer and immunology. Laboratory fee required. 45 hours of lecture and 45 hours of lab.

TEXTBOOK: *The Cell: A Molecular Approach*, 7th ed. By G. M. Cooper & R. E. Hausman. Published by Sinauer. ISBN-13: 978-1605352909 (hard cover) or 978-1605355405 (paperback).

STUDENT LEARNING OUTCOMES:

1. Apply a basic core of scientific and quantitative knowledge to enhance understanding of cell structure and function at the molecular level.
2. Develop and maintain a notebook of laboratory records.
3. Utilize laboratory skills to enhance understanding of cell structure and function while participating in a group environment.

COURSE CONTENT OBJECTIVES:

1. Build on the fundamental concepts of cell structure and function from previous study to include:
    a. the relationship between molecular structure and function.
    b. the dynamic character of cellular organelles.
    c. the use of chemical energy in running cellular activities.
    d. ensuring accurate macromolecular biosynthesis.
    e. unity and diversity at the macromolecular and cellular levels and the relationship to adaptation through time.
    f. homeostatic mechanisms that regulate cellular activity.
2. Relate experimental processes and evidence to the knowledge of cell structure and function that is being learned.
3. Relate the molecular and sub-cellular components of a cell to a framework of heredity and evolution.
4. Integrate classical research findings to current hands-on experiences with the latest biotechnology and information technology.

LAB OBJECTIVES:

1. Finding and reading primary literature.
2. Effective scientific communication: written and oral.

3. Experimental design and data analysis.
4. Cell biology lab skills, including microscopy, solution preparation, and cell culture.

TOTAL HOURS OF COURSE WORK EXPECTED:
To earn one academic credit at HCC, students are required to complete a minimum of 37.5 clock hours (45 fifty-minute "academic" hours) of coursework per semester. Those hours of coursework may be completed through a combination of hours within the classroom and hours outside the classroom. Certain courses may require more than the 37.5 minimum hours of coursework per credit.

For most classes, students should expect to do at least 2-3 hours of coursework outside of class for each hour of in-class coursework.
The table below summarizes the hours of work that is expected to succeed in this course.

COURSE ACTIVITY	**HOURS REQUIRED**	
In class attendance:		
Lecture	15 weeks x 2.5 hrs/week =	37.5 hrs
Laboratory	14 weeks x 2.75 hrs/week =	38.5 hrs
Reading text book	~300 pgs x 80 mins/25 pgs =	16 hrs
In class/online problem sets	10 x 1 hr/quiz =	10 hrs
Lecture Exams	4 exams x 8 hrs/exam =	32 hrs
Lab prep	14 labs x 1 hr/lab =	14 hrs
Lab Homework Assignments	16 lab assignments x 1.5 hr/assignment =	24 hrs
Lecture Homework Assignments	4 lecture assignments x 2 hr/assignment=	8 hrs
Checking Moodle for course info	15 weeks x ~0.25 hrs/week =	4 hrs
Total Hours of work expected	**184 hrs** (exceeds minimum of 180 hours for 4 credits)	

SERVICES FOR STUDENTS WITH DISABILITIES: Students may receive reasonable accommodations if they have a diagnosed disability and present appropriate documentation. Students seeking accommodations are required to contact the Disability Support Services (DSS) office as early as possible. Students may contact a DSS staff member for an appointment at dss@hagerstowncc.edu or at 240-500-2530.