BI314: Cell and Molecular Biology
Spring Quarter 2017

MWF 2:00 – 2:50 PM LINC 228
Plus one weekly recitation

Instructor: Dr. Colin P. Johnson (colin.johnson@oregonstate.edu)
Assistant Professor of Biochemistry and Biophysics
Office hours: Monday 11-12AM, (feel free to email me to make an appointment outside of office hours)

Teaching Assistants: Aiden Estelle (estellea@oregonstate.edu)
Ruben Riordan (riordan@oregonstate.edu)

Learner Outcomes:

Specific skills and knowledge you should obtain as a result of instruction are listed below:
Students are expected to:

1. Explain and describe the differences between eukaryotes, prokaryotes and archaea
2. Explain the principals of gene expression in both eukaryotes and prokaryotes
3. Describe and explain detailed mechanisms of cellular regulation.
4. Explain the structure of biological membranes and membrane proteins, and describe the membrane trafficking processes in eukaryotic cells
5. Describe the concepts and concepts and pathways involve in biological energy transduction, explain the differences between chloroplasts and mitochondria, and compare photosynthesis and cell respiration
6. Explain the function of the cytoskeleton, and describe the basic cytoskeletal components/systems
7. Describe the basic processes involved in cell signaling and cell-cell communication
8. Define and explain the steps involved in the cell cycle
9. Define and contrast tumors and cancer, and explain the molecular basis for each

Learner Expectations and Course Policies:

You should attend every class. If you cannot attend a class, please obtain notes and review the material with another student. Please note the date and time of the exams. All exams must be taken. In cases of serious illnesses or other traumatic events a make-up exam may be granted if you contact me within 24 h of the event and provide documentation. Makeup exams will not be given for airline reservations, routine illness (colds, flu, stomach aches), or other common ailments.

Please use the resource on Canvas, the material is there to aid in your understanding of the material. Additionally, attend and ask questions during recitation, as it provides an opportunity to test your comprehension.

Disabilities/ Special Accommodations:
Students who require accommodations should be registered with Disabilities Access Services. Accommodations are a collaborative effort between the students and instructor, as well as Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for

contacting me prior to or during the first week of the course to discuss accommodations.

Student Conduct:
Please be respectful in class and remember that disruptive behavior will be referred to the Office of Student Conduct.

The Department of Biochemistry and Biophysics follows the university policies on student conduct. These can be found at http://oregonstate.edu/admin/stucon/regs.htm.

"The goal of Oregon State University is to provide students with the knowledge, skill and wisdom they need to contribute to society. Our rules are formulated to guarantee each student's freedom to learn and to protect the fundamental rights of others. People must treat each other with dignity and respect in order for scholarship to thrive. Behaviors that are disruptive to teaching and learning will not be tolerated, and will be referred to the Student Conduct Program for disciplinary action. Behaviors that create a hostile, offensive or intimidating environment based on gender, race, ethnicity, color, religion, age, disability, marital status or sexual orientation will be referred to the Affirmative Action Office."

Grades:
There is no fixed numerical grading scale to determine letter grades, and letter grades will be determined at the end of the term. For each exam, the mean score for the class will be posted. If your exam has been wrongly graded, bring it to my attention and request regrading within two class periods after the day that exams are returned to the class. After this, no requests will be considered.

PREREQS: (BI 211 [C-] or BI 211H [C-]) and (BI 212 [C-] or BI 212H [C-]) and (BI 213 [C-] or BI 213H [C-]) and (CH 331* [D-] or CH 334* [D-])

Evaluation: Final grade is based upon a total of 550 points.
2 Exams – 100 points each
Final – 200 points
Clickers – 50 points
Recitations – 100 points

Learning resources and study guide:
Essential Cell Biology, Third or Fourth Edition, by Alberts et al. is highly recommended, but not required. All lecture slides highlighting key points from chapters will be posted on Canvas. It is the student's responsibility to check Canvas regularly for class announcements and information.

Tentative **BI 314 Course Schedule**

Below is the tentative course schedule for the term.

Class	
1	Introduction and Cells (Ch. 1)
2	DNA and Chromosomes (Ch. 5)
3	DNA and Chromosomes (Ch. 5) / DNA Replication, Repair, and Recombination (Ch. 6)
4	DNA Replication, Repair, and Recombination (Ch. 6)
5	DNA Replication, Repair, and Recombination (Ch. 6)
6	From DNA to Protein: How Cells Read the Genome (Ch. 7)
7	From DNA to Protein: How Cells Read the Genome (Ch. 7)
8	Control of Gene Expression (Ch. 8)
9	Control of Gene Expression (Ch. 8)
10	Membrane Structure (Ch. 11)
11	Membrane Structure (Ch. 11)
12	Exam 1
13	Membrane Transport (Ch. 12)

14	Energy Generation in Mitochondria and Chloroplasts (Ch. 14)
15	Energy Generation in Mitochondria and Chloroplasts (Ch. 14)
16	Intracellular Compartments and Transport (Ch. 15)
17	Intracellular Compartments and Transport (Ch. 15)
18	Cell Communication (Ch. 16)
19	Cell Communication (Ch. 16)
20	Cell Communication (Ch. 16)
21	Cytoskeleton (Ch. 17)
22	Cytoskeleton (Ch. 17)
23	Exam 2
24	The Cell Division Cycle (Ch. 18)
25	No class – Memorial Day
26	The Cell Division Cycle (Ch. 18)
27	Cellular Communities: Tissues, Stem Cells, and Cancer (Ch. 20)
28	Cellular Communities: Tissues, Stem Cells, and Cancer (Ch. 20)
29	Cellular Communities: Tissues, Stem Cells, and Cancer (Ch. 20)
30	Review