SYLLABUS
Advanced Cell Biology
BIOL 3301 (3 Credit Hours)
Fall 2016

Instructor: Dr. Weidong Yang

Time: 11:00 am -12:20 pm, Tu/Thu, Fall 2016
Location: Buery Hall 162

Office Hour: Tu/Thu 2:00 pm - 3:30 pm
Office: Room 202

A. Course description:

Fundamental knowledge in cell biology will be discussed. Topics include DNAs, RNAs, proteins, cell structure, cell motility, bio-membrane, endocytosis, exocytosis, nucleocytoplasmic transport, vesicular transport, cancers, visualizing macromolecular trafficking in cells with advanced microscopy imaging techniques, and stories of Nobel Prize Winners. Current journal articles reporting up-to-date developments in molecular and cellular biology will be covered as well. NOTE: for majors in Biology, Biochemistry, Biophysics and Bioengineering.

B. TEXTBOOKS

1) Molecular Biology of the Cell; Alberts et al, Edition: 6, ISBN-13: 978-0815345244, ISBN-10: 0815345240

C. GRADING PLAN

Final score will be calculated as follows:

1. Exam #1	15%
2. Exam #2	15%
3. Exam #3	15%
4. Final Exam	35%
5. In-class activities	20%

6. Score:

90-100	A
80-89	B
70-79	C
60-69	D
0-59	F

D. Tentative Schedule:

Listed content, topics and sequence may change depending on the progress of class. Extensive readings will be announced in class. Exam date might shift depending on the progress.

Date	Topic	Reading
8/30	Introduction of Syllabus	
9/1,6	1) Macromolecules 2) From DNA to proteins	Ch 3-6
9/8,13	3) Cells 4) Powerful biological research tools	Ch 8
9/15	Exam #1	
9/20, 22	5) Light microscope and super-resolution microscopy 6) Electron microscope	Ch 9
9/27, 29	7) Nobel prize 1 - GFP 8) Nobel prize 2 – super-resolution light microscopy	Extensive reading materials
10/4, 6	9) Membrane structure 10) Membrane transport	Ch 10-11
10/11	Exam #2	
10/13, 18	11) Nuclear-cytoplasmic transport 12) Vesicular traffic	Ch 12 Ch 13
10/20,25	13) Nobel prize 3 - vesicle trafficking 14) Cell signaling	Extensive reading Ch 15
10/27, 11/1	15) Cytoskeleton 16) Molecule motor	Ch 16-17
11/3	Exam #3	
11/8, 10	18) Cilium	Ch 16
11/15, 17	19) Cell cycle and death 20) Nobel prize 4 – cell cycle	Ch 17-18 Extensive reading
11/21-23	Fall Break	
11/24-27	Thanksgiving Holiday	
11/ 29	21) Cancer	Ch20
12/1, 6	22) Pathogens and Infection	Ch23
12/8	23) Final Review	
12/13-14	24) Study Days	
12/15	Final Exam	

E. Class Etiquette and Academic Integrity

All students are expected to follow the rules of academic honesty in this class. Examinations and reading assignments are expected to be completed independently by each student. Please contact me in advance if you are sick, or attend a university-related activity, or have to handle an emergency to miss class or exam. You are also required to provide supporting evidence after the events. However, there will not be make-up exams. If you miss an exam and have documentation, you may take the exam with the final exam at the end of the semester.