New York University – Tandon School of Engineering
BMS 3314: ADVANCED CELL BIOLOGY SYLLABUS
Spring 2017
Professor: Alexandra Seidenstein
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Office: 709
Office Hours: Monday 1-3 pm or By Appointment

Text: Cell and Molecular Biology, Gerald Karp, 6th or 7th edition. Wiley

Course Description and Objectives:
This course takes an in depth look at the cell structure and function, including membrane structure and transport, cellular organelles, the cytoskeleton, cell communication, immunology and cancer.

The objectives:
- To gain in-depth understanding of organelle structure and function, cellular membrane, cytoskeleton and cell communication
- To understand how experimental approaches can be used to learn about cellular activities
- To give students a variety of laboratory skills used in cell biology
- To increase students technical writing skills
- Final grade: 60% Lecture 40% Lab

Lecture Grading:
- Exams: 50%
- Final Exam: 35%
- Article Reviews: 15%

Critical Reviews/Article Summaries:
There will be 4 journal articles posted on Blackboard, corresponding to a topic covered in lecture. Students will write a review and article summary on these journal articles, not exceeding two pages. Due dates are posted in the lecture topic outline. Students are responsible for the information covered in all of the articles. All summaries must be submitted through Blackboard. “Writing a Journal Article Summary”.

Academic Integrity:
Academic Integrity is the practice of honesty and openness in scholarly, creative, and communal endeavors. Academic integrity is multifaceted. It involves, in addition to ethical practices, the avoidance of plagiarism, cheating and other forms of professional and personal misrepresentation and dishonesty.

Plagiarism and cheating are serious violations of academic integrity that have significant consequences for the student. Students caught cheating/plagiarizing will receive a zero for the exam/assignment and the program coordinator will be notified of the infraction. I have a zero tolerance policy for acts of cheating or plagiarism.
Plagiarism:
Plagiarism is the use or presentation of ideas, words, or work that is not
one's own and that is not common knowledge, without granting credit to the
originator. Plagiarism may take many forms. To avoid plagiarism, always cite
the source of your information whether from print, electronic/online, or other
materials. It is incumbent upon the student to learn and understand what
plagiarism is and how to avoid it.

Cheating includes:
1. Falsification of statements or data.
2. Listing of sources that have not actually been used
3. Having another individual write a paper or create work in lieu of one’s
   own; writing a paper or creating a work for another to use without
   attribution.
4. Purchase of a written paper of work for the purpose of submitting it as
   one’s own, or selling a written paper or other work for another’s
   submission as his/her own.
5. Using written, verbal, electronic, or other sources of aid during an
   examination, or knowingly providing such assistance to another.

LECTURE SCHEDULE
Week 1 (1/23/17): Basic Properties & Types of Cells (Chap. 1)
   The Nature, Type & Formation of Biological Molecules (Chap. 2)

Week 2 (1/30/17): Bioenergetics, Enzymes and Metabolism (Chap. 3)

Week 3 (2/6/17): Membrane Structure (Chap. 4)

Week 4 (2/13/17): **No class 2/20**
   Transport of Molecules across cell membranes (Chap. 4)
   *Article review #1 due before the start of class Wednesday*

Week 5 (2/27/17): **EXAM 1: Chap. 1, 2, 3, 4**

Week 6 (3/6/17): Photosynthesis and the Chloroplast (Chap. 6) **No class 3/13-19**

Week 7 (3/20/17): Cyttoplasmic Membrane Systems (Chap. 8)
   *Article Review #2 due before the start of class Wednesday*

Week 8 (3/27/17): The Cytoskeleton and Cell Motility: Cytoskeletal filaments and
   behavior (Chap. 9)

Week 9 (4/3/17): Regulation of Cytoskeletal Filaments; Molecular Motors (Chap. 9)

Week 10 (4/10/17): **EXAM 2 (Chap 5,6,8,9)**
Cellular – Environmental interactions (Chap. 7)

Week 11 (4/17/17): Plant Cell Wall, Cell Adhesion (Chap. 7)
Control of Cell Cycle (Chap. 14)
*Article #3 due before the start of class Wednesday*

Week 12 (4/24/17): Cell Signaling and Communication (Chap. 15)
Cancer (Chap. 16)

Week 13 (5/1/17) Immunology (selected reading)

Week 14 (5/8/17) Neurons & Special Cells (selected reading)
*Article #4 due before the start of class Wednesday*

TBD: FINAL EXAM