BIOLOGY 332 – Advanced Cell Biology
MW 5:30 pm – 6:45 pm
Physics Building - Room 215

Instructor
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Office hours
M 12:00 pm – 1:00 pm
W 12:00 pm – 1:00 pm
F 12:00 pm – 1:00 pm

COURSE DESCRIPTION

BIOL 332 – Advanced Cell Biology; 3 cr. A discussion of recent findings in cell biology, emphasizing understanding of the research approaches used to elucidate major processes that regulate the normal function of the cell. Prerequisites: BIOL 260 or equivalent, and consent of instructor.

COURSE INSTRUCTIONAL OBJECTIVES

1. To reinforce and expand on recent findings and developments which shape our ever-changing understanding of the basic concepts of eukaryotic cell biology.

2. To provide the knowledge and tools that would enable graduate students to:
   a) Access the literature databases and extract relevant material of topics of interest
   b) Assemble the selected material into a research proposal (NSF, NIH, …etc.)

COURSE LEARNING OUTCOMES (CLOs)

Upon the completion of this course, a student will be able to:
1. Use proper terminology and notations in basic and advanced cell biology
2. Demonstrate an in-depth understanding of basic and advanced concepts in cell biology
3. Describe standard and recent cell biology techniques and their biomedical applications
4. Demonstrate ability to mine the scientific literature relevant to topics of interest in cell biology
5. Demonstrate knowledge of and ability to assemble research proposals (relevant to topics in cell biology) based on NIH format or similar
RESOURCES AVAILABLE TO STUDENTS

1. Current Opinion in Cell Biology (6 Volumes; annual update)
2. Recent literature (assigned and suggested readings), and Web sites required for the project assignments will be available through AUB’s library resources and internet access.*

*The course material is tentative and may be subject to change during this semester after consulting with the students registered for the course.

TENTATIVE SCHEDULE

The course consists of overview lectures provided by the course instructor that entail discussions and reviews of the recent advances in select topics of interest in Cell Biology. These lectures are followed by student presentations and discussion panels of recently published research articles relating to the topics presented by the instructor.

The schedule and topics of interest are decided upon by the students, in coordination with the instructor, at the start of the semester based on the published Reviews in the recent issues (past 1-2 years) of the “Current Opinion of Cell Biology” and other well-respected journals (for example MBoC). The chosen topics are meant to match the research interests of the students and the expertise of the instructor.

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<td>Introduction</td>
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<td>Guidelines for Presentations &amp; Research Proposals</td>
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<td>Part I: Recent Advances in Select Cell Biology Topics (lectures)</td>
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<td>Topic 1: The Nuclear Envelope &amp; Nuclear Lamina</td>
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<td>Topic 2: Nuclear-Cytoskeletal Coupling &amp; Mechanotransduction</td>
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<td>Topic 3: Membrane Junctions &amp; Lipid Rafts</td>
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<td>Topic 4: The Extracellular Matrix</td>
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<td>Topic 5: Stem Cells (with special focus on MSCs, iPcs)</td>
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<td>Guest lecture (to be determined)</td>
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<td>Mid-term Exam: take-home</td>
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<td>Part II: Student Presentation(s) &amp; Discussion of Research Papers Relevant to Topics 1-5</td>
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<td>One–to–one follow-up meetings to check progress of research proposals</td>
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Final research proposals due: Jan. 4
Final Exam: class based; open book/web access format: TBA

COURSE EVALUATION & GRADE DISTRIBUTION
Assessment is based on two exams, student presentations and an end-of-semester proposal-writing project. Grading also depends on the extent of student’s participation in class discussions.

- Mid-term Exam: 15%
- Final Exam: 15%
- Oral Presentations: 20%
- Summary for Colleagues Presentations: 5%
- Participation in class discussion: 15%
- Proposal Aims (initial submission): 5%
- Research Proposal: 25%

COURSE POLICIES

- Attendance: You are urged to attend all classes so you do not miss on the material presented in class and in turn the students can benefit from your contribution to class discussions. In case of absence from any class, you are required to cover the material missed and inquire about any announcements made during your absence. IF ATTENDANCE RECORD IS LESS THAN 80% OF LECTURES, YOU MAY BE DROPPED FROM THE COURSE (see AUB catalogue, FAS-Attendance).

- Exams: NO MAKE-UP EXAMS. Any missed exam will be added to the other exam. If you miss both EXAMS (I & II), you will receive 0% on one and the other added on to the research proposal.

- Code of conduct: Students are expected to respect their colleagues’ presence in a classroom setting and not to infringe on their rights for acquiring knowledge and for promoting an environment conducive for excellence of instruction (i.e. refrain from side conversations, avoid arriving late to class, no use of mobile phones, etc …)

- Academic integrity: Any violation of academic integrity WILL NOT be tolerated and will result in serious repercussions. Please refer to AUB Policies and Procedures on academic integrity. http://pnp.aub.edu.lb/university/handbook/158010044.html