BIOL-GA 1002 Bio Core II

Instructor:
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Course Description:
This intensive team-taught core course surveys the major areas of up-to-date cell biology. Topics include review of cell and membrane structure, organelle function, cytoskeletal dynamics, cell motility and division, cell cycle, cellular energetics, protein and ion transport, cell signaling, stem and nerve cells, immunology and cancer.

Pre-requisites:
General Genetics
Calculus

Textbook and Required Materials:
Molecular Cell Biology (Lodish, 7th or 8th Edition, Freeman)

Grading:
Exams 60%
Paper 15%
Presentation/discussions 15%
Class participation/attendance 10%

Topics:
Cell organization and movement: Actin
Cytoskeleton: MTs and intermediate filaments
The eukaryotic cell cycle
Cell structure, organelles, microscopy, membrane structure and properties
Moving proteins into membranes and organelles
Vesicular traffic, secretion, and endocytosis
Cellular energetics
Transmembrane transport of ions and small molecules
Signaling pathways that control gene expression
Signal transduction
G protein–coupled receptors and stem cells
Development, cell asymmetry, and cell death
Nerve cells