MC212 Aug. 2:0

Advances in Cell Biology

Instructor
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Teaching Assistant

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Department: Microbiology and Cell Biology
Course Time: Wed., Fri., 9:00 - 10:00 AM
Lecture venue: MCB Lecture Hall
Detailed Course Page: http://mcbl.iisc.ac.in/courses.html

Announcements

Brief description of the course
This course can avail by the senior undergraduate or first year graduate/Integrated PhD students.

Prerequisites
None

Syllabus
Concepts: Prokaryotic and eukaryotic membrane structure, composition, organization and transport; Organelle structure, function and their biogenesis includes nucleus, endoplasmic reticulum, Golgi, endosomes, lysosomes and lysosome-related organelles, autophagosomes, peroxisomes, mitochondria and chloroplasts; Protein trafficking in-and-out of the organelles; Cytoskeletal elements and organization; Cell adhesion and junctions; Intra and extra cellular signaling; Cell cycle, cell division (asymmetric and symmetric) and stem cells; Cell death and protein homeostasis pathways and Cellular diseases.

Methods: Introduction and evolution of light microscopy; Electron microscopy; Cytohistochemistry; Flow cytometry; Pulse-chase and subcellular fractionation; Proteomics and Protein-protein interaction approaches
and genome-wide RNAi or small molecular screens to study the various cellular pathways.

**Course outcomes**
Students will learn current knowledge on cell biology including basic techniques

**Grading policy**
40% mid term exam, 20% assignments and 40% final exam

**Assignments**
Presenting research papers, group discussion, answers for given questions

**Resources**
Lewinâ€™s GenesX, Lewin, B., Krebs, J.E., Goldstein, E.S. and Kilpatrick, S.T.