BIOM 600 Cell Biology and Biochemistry
Fall 2020

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Textbook: **Molecular Biology of the Cell**, Eds. Alberts, et al. 6th edition (recommended but not required).

Also, some assignment/small group problems with answers are obtained from **The Problems Book: for Molecular Biology of the Cell (Sixth Edition) by John Wilson and Tim Hunt** (not required).

Lectures: Live on-line as indicated Mon, Wed, and Fri – 10:30 – 11:50 AM

On-Line Lectures Prerecorded and available on Mediasite as indicated.

Small Group Sessions: On-line participation is mandatory during normal class time as scheduled.

Biochemistry Quiz: Open notes/on-line. **To be completed by September 16, 2020.**

Lecture Assessments: Open notes/on-line as scheduled and assigned.

Exams: Open notes/on-line as assigned. Fri Sep 25, Mon Nov 16, Fri Dec 18. 10:30 am – 12:30 pm.

Please see the Course Overview document for further information.

THEME I: INFORMATION FLOW AND SIGNAL TRANSDUCTION

Review Basic Techniques information as needed. This background material is posted in the course site on Canvas.

- Immunological Techniques in Cell Biology
- Basics of Protein Structure & Folding
- Protein Methods in Cell Biology
- Sequencing Techniques in Cell Biology
- Control of Protein Expression and Function in Cell Biology
- Data Presentation

Keynote Lecture (on line)	"Why we should use more live imaging"	Nicolas Plachta

https://bluejeans.com/playback/s/cHK345e3nQsdERtQsZULr2UywKeGHKse2lTEIx3PKMZEccjjjLA51XLXl7CMdoe1

Wed, Sep 2	Course Introduction/Intro to Signal Transduction	Kurt Engleka
Fri, Sep 4	Protein-Protein Interactions	Ronen Marmorstein
Mon, Sep 7	No Class (Labor Day)	
Wed, Sep 9	G-Protein Coupled Receptors and G-Proteins – Small Groups	TAs
Fri, Sep 11	Protein Phosphorylation - Small Groups	TAs
Mon, Sep 14	Ubiquitin-Mediated Proteolysis	Luca Busino
Wed, Sep 16	Nuclear Receptor Signaling	Mitch Lazar
Fri, Sep 18	Calcium Signaling and Phospholipases	Kevin Foskett
Mon, Sep 21	GTPases and Phosphoinositides	Margaret Chou
Wed, Sep 23	Exam Review	TAs
Fri, Sep 25	Theme I Exam	

THEME II: COMPARTMENTATION

Prerecorded Mediasite	Basics of Imaging (9-12-13)	Andrea Stout
Mon, Sep 28	Advanced Imaging	Andrea Stout
Wed, Sep 30	Biological Membranes (Small Groups)	TAs

Fri, Oct 2	Protein Biogenesis and Translocation into the Endoplasmic Reticulum	Jeremy Wilusz
Mon, Oct 5	Protein Folding and Assembly in the Endoplasmic Reticulum	Mickey Marks
Wed, Oct 7	ER Protein Translocation/Folding - Small Groups	TAs
Fri, Oct 9	Mechanisms of Vesicular Transport	Mickey Marks
Mon, Oct 12	Golgi Function and Protein Sorting in the Secretory Pathway/ Exocytosis and Secretion - Small Groups	TAs
Wed, Oct 14	Endocytosis and Lysosomal Degredation	Mickey Marks
Fri, Oct 16	Golgi Function and Protein Sorting in the Secretory Pathway/ Exocytosis and Secretion - Small Groups	TAs
Mon, Oct 19	Mitochondria Biogenesis & Function	Rebecca Ganetzky
Prerecorded Mediasite	Nuclear Architecture and Nucleocytoplasmic Transport (10-18-19)	Ben Black
Fri, Oct 23	Small Groups	TAs
THEME III: THE CYTOSKELETON, ADHESION, AND MOTILITY		
Mon, Oct 26	Actin Cytoskeleton	Roberto Dominguez
Wed, Oct 28	Myosins	Mike Ostap
Fri, Oct 30	Microtubules	Erika Holzbaur
Mon, Nov 2	Microtubule-Based Motility	Erika Holzbaur
Wed, Nov 4	Cell Adhesion	John Weisel
Fri, Nov 6	Cell/Extracellular Interactions	John Weisel
Mon, Nov 9	Intermediate Filaments	Paul Janmey
Wed, Nov 11	Mitosis and Cytokinesis/Cell Size (Veteran's Day)	Matthew Good
Fri, Nov 13	Exam Review	TAs
Mon, Nov 16	Theme III Exam	

THEME IV: SOLUTE TRANSPORT AND ION CHANNELS		
Prerecorded Mediasite	Intro to Kinetics (10-11-13)	Rahul Kohli
Wed, Nov 18	Principles of Ion Transport	Kevin Foskett
Fri, Nov 20	Ion Channels 1	Toshi Hoshi
Mon, Nov 23	Ion Channels 2	Tosh Hoshi
Wed, Nov 25	Integrated Functions of Ion Channels	Kevin Foskett
Fri, Nov 27	No Class (Thanksgiving Break)	
Mon, Nov 30	Lecture Assessment: Problem Set - Small Groups	Engleka/TAs

THEME V: CELL FATE		
Wed, Dec 2	Cell Cycle 1: Cyclins and CDKs	Frank Luca
Fri, Dec 4	Cell Cycle 2: The Rb-E2F Pathway - Small Groups	Engleka/TAs
Mon, Dec 7	Apoptosis	Igor Brodsky
Wed, Dec 9	Metabolism	Zoltan Arany
Fri, Dec 11	Energy Homeostasis	Katy Wellen
Mon, Dec 14	Autophagy	Sara Cherry
Wed, Dec 16	Exam Review	TAs
Fri, Dec 18	Theme V Exam	

Faculty Lecturers

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