

## BIOM 600: Cell Biology and Biochemistry--Fall 2016

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### Co-Directors:

*Theme I:* Xiaolu Yang, PhD ([xyang@mail.med.upenn.edu](mailto:xyang@mail.med.upenn.edu))

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**Lectures:** Monday, Wednesday and Friday from 10:30 AM – 11:50 AM  
Austrian Auditorium

**Textbook:** Molecular Biology of the Cell, Eds. Alberts, et al. 6<sup>th</sup> edition

Weekly office hours/location:

Kurt Engleka Thursdays, 3-5PM / 09\_142 SCTR

Eddie Chuang Mondays, 1-3PM / 801 Stellar Chance

**Biochemistry Quiz (50 points):** open note/on-line. To be completed by September 16, 2016

### REQUIRED introductory lectures (prerecorded; available via MediaSite On-Line)

Protein Purification (9-4-13)

M. Ostap

Immunological Techniques (9-6-13)

M. Marks

Basics of Protein Structure and Folding (9-9-13)

K. Ferguson

<u>DATE</u>	<u>TOPIC</u>	<u>LECTURER</u>
<b>THEME I: INFORMATION FLOW AND SIGNAL TRANSDUCTION</b>		
W Aug 31	Course introduction and overview of signal transduction	Assoian
F Sep 2	Protein-Protein Interactions	Marmorstein
M Sep 5	LABOR DAY (no class)	
W Sep 7	Tyrosine Kinases & Phosphatases	Seykora
F Sep 9	Calcium Signaling & Phospholipases	Foskett
M Sep 12	G-protein Coupled Receptors & G-proteins	Manning
W Sep 14	Small GTPases & Phosphoinositides	Chou
F Sep 16	Serine & Threonine Kinases	Lee
M Sep 19	Nuclear Receptor Signaling	Lazar
W Sep 21	Ubiquitin-mediated proteolysis	Busino
F Sep 23	REVIEW	Engleka/Chuang
<b>M Sep 26</b>	<b>Exam 1 (Theme I): 50 points</b>	
<b>THEME II: COMPARTMENTATION</b>		
W Sep 28	Themes in Compartmentation and Membrane Structure	Marks
F Sep 30	Protein Biogenesis & Translocation into the Endoplasmic Reticulum	Wilusz
M Oct 3	Protein Folding & Assembly in the Endoplasmic Reticulum	Marks
W Oct 5	Mechanisms of Vesicular Transport	Marks
F Oct 7	Golgi Function & Protein Sorting in the Secretory Pathway	Girauda
M Oct 10	Exocytosis & Secretion	Girauda
W Oct 12	Endocytosis & Lysosomal Degradation	Marks
F Oct 14	Mitochondria Function & Biogenesis	Dancis
M Oct 17	Nuclear Architecture & Nucleocytoplasmic Transport	Black
W Oct 19	REVIEW	Engleka/Chuang
<b>F Oct 21</b>	<b>Exam 2 (Theme II): 100 points</b>	

### THEME III: THE CYTOSKELETON, ADHESION AND MOTILITY

<i>MediaSite On-Line</i>	<i>Basics of Imaging</i>	<i>Stout</i>
M Oct 24	Advanced imaging	Stout
W Oct 26	Microtubules	Holzbaur
F Oct 28	Microtubule-Based Motility	Holzbaur
M Oct 31	Actin Cytoskeleton	Dominguez
W Nov 2	Actin-Based Motility	Ostap
F Nov 4	Cell Adhesion	Weisel
M Nov 7	Cell/Extracellular Interactions	Weisel
W Nov 9	Intermediate filaments	Janmey
F Nov 11	Mitosis and Cytokinesis	Bi

### THEME IV: MEMBRANES AND SOLUTE TRANSPORT

<i>MediaSite On-Line</i>	<i>Introduction to Kinetics</i>	<i>Kohli</i>
M Nov 14	Principles of Ion Transport	Foskett
W Nov 16	Ion Channels 1	Hoshi
F Nov 18	Ion Channels 2	Hoshi
M Nov 21	Integrated Functions of Ion Channels	Foskett
W Nov 23-F Nov 25	THANKSGIVING BREAK (no class)	
M Nov 28	Membrane problem set and Exam Review	Engleka/Chuang
<b>W Nov 30</b>	<b>Exam 3 (Themes III and IV): 100 points</b>	

### THEME V: CELL FATE

F Dec 2	Cell Cycle 1: cyclins & CDKs	Luca
M Dec 5	Cell Cycle 2: the Rb-E2F pathway	Assoian
W Dec 7	Metabolism	Arany
F Dec 9	Energy homeostasis	Wellen
M Dec 12	Autophagy	Cherry
W Dec 14	Apoptosis	Yang
F Dec 16	Review	Engleka/Chuang
<b>M Dec 19</b>	<b>Exam 4 (Theme V): 50 points</b>	

## Faculty Lecturers

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