Cell Biology 245 Fall 2014

Course Director:	Mark von Zastrow	mark.vonzastrow@ucsf.edu
Lecturers:	Robert Edwards	
	Adam Frost	
	Wendell Lim	
	Wallace Marshall	
	Dave Morgan	
	Peter Walter	
	Jonathan Weissman	
	Mark von Zastrow	
Discussion Leaders:	Sophie Dumont	
	Adam Frost	
	Natalia Jura	
	Shaeri Mukherjee	
	Orion Weiner	
	Jonathan Weissman	
	Torsten Wittman	
Course TAs:	Alexandra Long	Alexandra.Long@ucsf.edu
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Course Description: Cell Biology 245 explores modern cell biology at the level of fundamental principles, with an emphasis on the "how" of formulating scientific questions and generating significant new knowledge. The course is not a survey and, instead, will focus on a limited selection of the most exiting recent developments, approaches and problems. Understanding of current dogma at the level of Alberts' *Molecular Biology of the Cell* is assumed.

Cell Biology 245 is organized into faculty-led interactive lectures (2 per week), faculty-led small group discussions of primary research papers (1 per week), and a TA-led evening roundtable / workshop (1 per week). Requirements include 1) problem sets linked to TA sessions and in-class chalk talks, 2) a 2-page research proposal and 3) a final project (together with Macromolecules).

Course Time and Location: Lectures will be held on Monday and Wednesday from 10:30 am - noon in **BH-212**. Discussion sections are on Thursday or Friday from 10:30 am - noon in **GH-204** or **GH-S271**. TA-led sessions are Weds evenings from 5:30-7:30 pm with dinner provided.

Grading: 50% discussion section attendance and participation, 25% research proposal, 25% problem sets / in-class discussion / TA evaluation. Final project evaluation is included in the Macromolecules grade.

<u>Holidays/Events</u>: THANKSGIVING November 27; Bay Area Membrane Cell Biology Symposium 9/27; ASCB Meeting-Philadelphia 12/6 - 12/10; BBC Retreat 12/11-12/12

<u>Week 1: September 22, 24 (**Bay Area Membrane Cell Biology Symposium 9/27**)</u>
Lecture 1: Dave Morgan — Cell cycle I (preceded by brief intro from Dyche + Mark)
Lecture 2: Dave Morgan — Cell cycle II
TA session with Dyche + Mark et al.: Picking a problem
Discussion 9/25 and 26, Papers:

<u>Week 2: September 29, October 1</u>
Lecture 3: Dave Morgan — Cell cycle III
Lecture 4: Dave Morgan — Cell cycle IV
TA session: Problem roundtable
Discussion 10/2 and 3, Papers:
Problem Set 1 (Cell cycle and Signaling)

<u>Week 3: October 6, 8</u>
Lecture 5: Wendell Lim — Signaling I
Lecture 6: Wendell Lim — Signaling II
TA session: Problem set 1 discussion and preparation
Discussion 10/9 and 10, Papers:

<u>Week 4: October 13, 15</u>
Lecture 7: Jonathan Weissman — Subcellular complexes / mass spectrometry
Lecture 8: Wallace Marshall — Cytoskeleton I
TA session: tbd
Discussion 10/16 and17, Papers:
Problem Set 2

<u>Week 5: October 20, 22</u>
Lecture 9: Wallace Marshall — Cytoskeleton II
Lecture 10: Students — Talks, Problem set 1 (Wendell / Dave / Jonathan critique)
TA session: Modeling workshop
Discussion 10/23 and 24, Papers:

<u>Week 6: October 27, 29</u>
Lecture 11: Kurt Thorn — Optical imaging and tracking
Lecture 12: Adam Frost — Membrane traffic I - From atoms to cells using EM
TA session: Imaging workshop

Discussion 10/30 and 31, Papers:
Problem Set 2 (Cytoskeleton and Trafficking)

<u>Week 7: November 3, 5</u>
Lecture 13: Adam Frost — Membrane traffic II- The endolysosomal system

Lecture 14: Mark von Zastrow Membrane traffic III- The biosynthetic pathway
TA session: Problem set 2 discussion and preparation
Discussion 11/6 and 7, Papers:

Week 8: November 10, 12 (Veterans Day Tuesday, 11/11)
Lecture 15: Adam von Zastrow Membrane traffic IV- Trafficking netherworlds
Lecture 16: Students Talks, Problem set 2 (Wallace / Mark / Adam critique)
TA session: Proposal
Discussion 11/13 and14, Papers:

Week 9: November 17, 19
Lecture 17: Peter Walter Membranes I
Lecture 18: Peter Walter Membranes II
TA session: Proposal
Discussion 11/20 and 21, Papers:

Week 10: November 24 **(Thanksgiving 11/27)**
Lecture 19: Robert Edwards Gradients and transport I

Week 11: December 1, 3 **(ASCB 12/6 - 12/10)**
Lecture 20: Robert Edwards Gradients and transport II
Lecture 21: Wallace Marshall Xtreme Cell Bio
Discussion 12/4 and 5, Papers:
Proposals due

December 12 Symposium

Lecture Room (BH-212) reserved until Wednesday, 12/10