MCB 110V: iBioseminars in Cell and Molecular Biology

Instructor: Dr. Jonathan M. Scholey, Professor of Cell Biology and Biochemistry

TA: Anna Nowak, BS, Graduate student in Biochemistry, Molecular, Cell and Developmental Biology, UC Davis

Guest iBioseminars Faculty: Drs Sarah Goodwin and Laurence Clement, UCSF.

Online Component: Each week students will watch an assigned iBioseminar in their own time (see description below syllabus).

Class: Participation: Thursday 1:40-3:00pm in Storer 1344 on dates listed after each seminar

Asynchronous Discussion: With Anna, available via Smartsite using “chat” tab.

Office hours: With Dr Scholey or with Anna by request.

Week 1: Thursday April 4th Introduction**: Overview of the topics in cell and molecular biology research to be covered during the following nine weeks i.e. cell membranes, organelles and cytoplasmic organization, cell movement and cell division – Jonathan Scholey.

Week 2: The Origin of Cellular Life on Earth – Jack Szostak Class April 11th

Week 3: Organization of Cytoplasm – Tony Hyman Class April 18th

Week 4: GTP-binding Proteins as Molecular Switches – Alfred Wittinghofer Class April 25th

Week 5: Protein Secretion and Vesicle Traffic – Randy Schekman Class May 2nd

Week 6: Cell organization and Cell Motility – Julie Theriot Class May 9th

Week 7: Cytoskeletal Motor Proteins - Ron Vale Class May 16th

Week 8: Separating Duplicated Chromosomes in Preparation for Cell Division – Dick McIntosh Class May 23rd

Week 9: Protein Kinases: Structure, Function and Regulation – Susan Taylor Class May 30th

Week 10: Controlling the Cell Cycle – David Morgan Class June 6th

Format: This class is designed for senior level undergraduate students in the biochemistry and molecular biology, cell biology and genetics majors.

During each of weeks two through nine, student should listen to the assigned iBioseminar as “homework”. Each of the iBioseminars are divided into 2 or 3 parts starting with a general
introductory lecture followed by two lectures on more “in-depth” topics for a total of approximately 90 or so minutes per iBioseminar. The currently available seminars are listed at the link below and are also available on Smartsite under resources.

http://www.ibioseminars.org/lectures/lectures-list-by-category.html

In Class:

- **Introduction (15 min)**: Instructor gives an overview of the seminar and addresses key points discussed in asynchronous discussions, answers student questions, introduces the discussion question and reminds students of the expectations and rules for team discussions (equity, time management, using evidence to support statements).

- **Team discussions (25 min)**: Small group discussions centered around the discussion question (sub-questions to guide students). Instructor and TAs rotate among groups and make sure students stay on topic, that discussion rules are followed, and to make notes of ideas and misconceptions that may come up during the discussions. These will be used to structure the following activity. Team composition changes every week.

- **Instructor-led class-wide discussion (30 min)**: Teams report on their discussions, bring up answers to discussion questions, and ask new questions. Speakers will webcast when possible. Instructor can use this time to lecture, building on the ideas brought in the discussion.

- **Quiz (10 min)**: Multiple-choice questions assessing understanding/application of knowledge (similar to the assignment questions) and reflection about the week’s discussion question, which can be used to assess participation in the discussion (35% of grade)