**CSB 428H1F - ADVANCED CELL BIOLOGY II: CELL POLARITY AND CYTOSKELETAL DYNAMICS**

12L, 12T, 12S

**Lecturers:**

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**Prerequisite:** Minimum grade of 73% in BCH311H1/CSB349H1/MGY311Y1 and minimum grade of 73% in

 BCH340H1/CJH223H1/CSB328H1/CSB329H1/CSB331H1/CSB340H1/CSB353H1/CSB397Y0

This advanced course covers cell polarity and cytoskeletal dynamics emphasizing current literature. For each topic, the course examines (1) the proteins involved, (2) their interactions and regulation, and (3) how they organize specific cellular structures. The coordination of these complexes required for orchestrating complex cellular processes is addressed. Perhaps most importantly, students gain experience at the interpretation and critique of primary research data.

**Content:**

The course is separated into two halves. Each half will be composed of the following elements:

**Lecture Periods:** Standard lectures given by the instructors to provide relevant background information based on current review articles.

**Round Table Discussion Periods:** Students are split into groups of three. Eight specific questions are provided on Blackboard for each of two research papers (one per hour). Students must be prepared to answer all of the questions before class. At the beginning of class, one group is randomly chosen to answer the first question, and then we continue around the room answering the remaining questions (~5min for answers and discussion per question).

**Student Presentation Periods:** In groups of three, students will present one primary research paper. ~1 hour per paper for presentation and discussion. 12 students will present 4 papers during the last two periods of the first half of the course, and the remaining students will present 2 papers during the last period of the second half of the course.

**Evaluation:**

Mid-term exam (covering first half) 35%

Final exam (covering second half) 35%

Student presentation 20%

Participation 10%

**Background knowledge:** The prerequisites for this course imply that all students have taken introductory textbook-based cell biology classes before. Reading and critical evaluation of the primary literature, the purpose of this class, will benefit from the knowledge students gained in previous courses. Many cell biology texts will cover immediately relevant material on the cytoskeleton, cell polarity, cell junctions, cell adhesion, and intercellular vesicle traffic. The text we recommend is Alberts et al., “Molecular Biology of the Cell” (4th or 5th edition, chapters 13, 16, 19; The 4th edition can be found online at [www.ncbi.nlm.nih.gov/sites/entrez?db=Books](http://www.ncbi.nlm.nih.gov/sites/entrez?db=Books)).