

**Bi 023**  
**SP 2008-09**

**Tutorial 1**

Instructor: Joe Bertani, D.Sc., x8851 or 626 577 1450, M/C 156-29, email: [gbertani@earthlink.net](mailto:gbertani@earthlink.net)

**Title: Selections from Bacterial Genetics: Then and Now (3 units)**

First Meeting: Wednesday, April 1, at 4 PM in Kerckhoff 101

Description:

There will be weekly classes focused on assigned reading materials that cover the historical development of the following topics: mutation and adaptation, mutation induction, recombination in bacteria and bacteriophages, plasmids, "horizontal" transfer. Preference is for at least 3 students

**Tutorial 2**

Instructor: Rasheeda Hawk, Ph.D., x2863, M/C 139-74, email: [rhawk@caltech.edu](mailto:rhawk@caltech.edu)

**Title: Chemicals in the Environment That Act as Endocrine Disrupters to Our Neuroendocrine System**

First Meeting: Wednesday, April 1, at 4 PM in Beckman Institute Conference room BI66

Description:

Chemicals in the environment have similar structures to the structure of some hormones in our bodies, as a result they can have hormone like activity? Do low levels of these chemicals threaten the health of humans or wildlife? This course will provide a review of the science on these important topics (endocrine disrupters) and will begin with a brief overview of the neuroendocrine system.

Preference is for 1-10 students

**Tutorial 3**

Instructor: Joon Lee, Ph.D., x8458, M/C 147-75, email: [joonlee@caltech.edu](mailto:joonlee@caltech.edu)

**Title: Cell Cycle and Cancer (3 units)**

First Meeting: Wednesday, April 1, at 4 PM in Braun 151 (Conference Room)

Description:

A pivotal regulatory step for the G2/M transition in eukaryotes is activation of the Cdc2-cyclin B complex (MPF). The proper regulation of Cdc2 requires a myriad of protein kinases and phosphatases including Wee1, Myt1, and Cdc25. They maintain Cdc2-cyclin B in its inactive state if there is incompletely replicated DNA or damaged DNA in the cell. These surveillance processes, commonly referred to as checkpoints, are essential for the protection of genomic integrity during cell division. In this section of Bi23 (Cell Cycle and Cancer) it will be covered how some essential cell cycle proteins were discovered and how they have been studied, in genetic and biochemical aspects. Next, we will cover key issue of current cell cycle checkpoint studies. Finally, we will look up some translational works of cell cycle and cancer biology. This section will be organized as a half-lecture and half-discussion mainly on historical research papers, with minimal study question assignments.

Preference is for 5-10 students

#### **Tutorial 4**

Instructors:

Erik Winfree, Ph.D., x6246, M/C 136-93, email: [winfree@caltech.edu](mailto:winfree@caltech.edu)

Michael Elowitz, Ph.D., x8871, M/C 114-96, email: [melowitz@caltech.edu](mailto:melowitz@caltech.edu)

Andrea Loettgers, Ph.D., x5969, M/C 101-40, email: [andreal@hss.caltech.edu](mailto:andreal@hss.caltech.edu)

**Title: Classics in Systems and Synthetic Biology (6 units)**

First meeting: Wednesday, April 1, at 4 PM in Moore 239

Description:

Systems and Synthetic biology are important new fields of research in biology. But how novel are the approaches taken by systems and synthetic biologists? In this class, which is co-taught by scientists working in systems and synthetic biology and a historian of science studying the history of systems and synthetic biology, early approaches of systems biology will be studied and related to current research in systems and synthetic biology.

Preference is for 5-20 students