Term: **Fall 2011**
Course Number: **GENET 245/BIOCH260**
Course Title: **Cancer Molecular Genetics and Applications**
Course Directors: **Drs. Andrew Hollenbach and Suresh Alahari**
Locations: **CSRB 752A**
Times of Class: **Tuesday 1-2:30pm, Thursday 12:30-2:00pm**
Course Credits: **3**

Course Description*:* This upper level course examines the types of genetic alterations that contribute to cancer development and discusses some of the underlying biochemical principals that result from these genetic alterations. By the end of the course, students should understand that various genotoxic stresses and subsequent genetic alterations induce cancer development and promote tumor progression. Further, students should be familiar with different approaches to identify candidate genes for cancer development and tumor progression. The class will involve two, ninety-minute lectures per week.

Grading*:* Each student will receive a letter grade dependent on a journal club styled presentation on a selected paper (40%), in class participation (20%), and two, in-class examinations (20% each).

Lecture Site and Times: Lectures will be given in CSRB 752A every *Tuesday from 1:00 – 2:30 P.M*. and every *Thursday from 12:30 – 2:00 P.M.* ***Please note that classes have slightly different starting times on Tuesdays and Thursdays.***

NOTE: because of a scheduling conflict, Thursday, September 8th class will be held from 10:00 – 11:30 in the Genetics Conference room, 6th floor CSRB.

Class Structure: The class will cover twelve topics relating to various aspects of the genetic and biochemical causes of cancer. Each topic will consist of two, ninety-minute lectures each week. The first of these lectures will be a didactic lecture that introduces students to the basic concepts and theories of that week's topic. This lecture will also utilize data from recent literature reports to provide a more in depth coverage of the topic. The second lecture of each week will consist of a presentation and discussion lead by a student. The presentation will be given in a journal club format and will center on one specific paper, provided by the lecturer, that highlights a key aspect or seminal discovery within the topic. The lecturer will e-mail the paper for discussion to Dr. Hollenbach and Dr. Alahari, who will then distribute the paper to the students. Students will be evaluated based on their overall presentation, grasp of knowledge of the field or topic covered in the paper, critical analysis of the data, and the ability to lead the discussion and address questions.

Examinations: There will be two exams, each exam covering six individual topics. Each exam will consist of six questions, one question from each of the six topics covered, with each question being given equal weight.

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Date	Lecture Topic	Instructor	Student
Aug. 30 Sept. 1	Oncogenes (Lecture) Oncogenes (Presentation)	Sakamuro	Discussion
Sept. 6 Sept. 8	Tumor Suppressors, p53 and Rb (Lecture) Tumor Suppressors, p53 and Rb (Presentation)	Sakamuro	Discussion
Sept. 13 Sept.15	DNA Repair/Genetic Instability (Lecture) DNA Repair/Genetics Instability (Presentation)	Izumi	Jack DePaolo
Sept. 20 Sept. 22	Chromosomal Translocations (Lecture) Chromosomal Translocations (Presentation)	Hollenbach	Alan Tseng
Sept. 27 Sept. 29	Tumor Viruses (Lecture) Tumor Viruses (Presentation)	Hagensee	Mike Ripple
Oct. 4 Oct. 6	Identification of Susceptibility Genes (Lecture) Identification of Susceptibility Genes (Presentation)	Mandal	Jacob Loupe
Oct. 13	EXAM		
Oct. 18 Oct. 20	Crystallography for Cancer Drug Development (Lecture) Crystallography for Cancer Drug Development (Presentation)	Worthylake	Alan Tsend
Oct. 25 Oct. 27	Ubiquitin/Ubiquitin-like Proteins in Cancer (Lecture) Ubiquitin/Ubiquitin-like Proteins in Cancer (Presentation)	Desai	Jacob Loupe
Nov. 1 Nov. 3	Epigenetics in Cancer (Lecture) Epigenetics in Cancer (Presentation)	Tsien	Mike Ripple
Nov. 8 Nov. 10	MicroRNAs and Cancer (Lecture) MicroRNAs and Cancer (Presentation)	Alahari	Jack DePaolo
Nov. 15 Nov. 17	Tumor Progression and Metastasis (Lecture) Tumor Progression and Metastasis (Presentation)	Alahari	Discussion
Nov. 29 Dec. 1	Signal Transduction and Cancer (Lecture) Signal Transduction and Cancer (Presentation)	Liu	Discussion
Dec. 8	EXAM		