GCB/CAMB 752  Seminar in Genomics
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Spring 2012
Mondays 3 PM to 6 PM
1311 Blockley
Prerequisite: GCB 531 Intro to Genomics or equivalent or permission of instructor
Class Size limited to 16.

The class will meet once a week for a 3 hr period. Recent papers from the primary genomics literature will form the core material for the course. Each 3-hr session will feature a major topic or set of related topics in Genomics, with student presentations (usually two per session) centered on papers selected within the topic area(s). While the “presenting” student will give a 10-15 min introduction to the paper and will show powerpoint slides of the data in the paper, all students in the class are expected to have read and to be prepared to discuss the papers presented. For example, following the introduction, non-presenting students will be called upon to explain a particular table or figure, or to discuss a point raised in the paper.

There will be one major writing assignment that will be considered the midterm, but no final exam. Near the middle of the course, students will be assigned a set of key recent papers on a particular genomics topic, and asked to write a review article (similar to Nature News and Views) synthesizing the key ideas in the papers and explaining their significance. This is essentially identical to what has been, in past years, a writing component of the GCB prelim qualifying exam (it is no longer part of the GCB prelim). Students will have 1 week to complete the review article once they have been given the topic and papers. The topic and papers will be selected jointly by the course organizer and the GCB curriculum committee; it will count for 50% of the grade for the class. The remaining portion of the grade will be based upon the student presentations and upon class participation.

Some topics will be decided upon jointly by the students and the course organizers during the Introductory/Organizational meeting on the first scheduled day of class.

Mandatory Topics selected by course organizers

Gene Expression Profiling
High-throughput Sequencing (Solexa, 454 and SOLiD) Applications
Genome-wide Location Analysis, ChIP
HapMap and Association Studies, 1000 genomes project
DNA re-sequencing and mutational profiling
Analysis of Copy Number Polymorphisms (CNPs) and Structural Variation
Genome-wide functional analysis using RNA interference
Protein Interaction Networks
Epigenomics
Cancer Genomes

Examples of Elective Topics (to be selected by students)

Comparative Genomics and Genome Annotation
Ecological Genomics/ Metagenomics
Comparative Genomics and Human-Primate comparisons
Synthetic Biology
Proteomics and biomarkers
SNPs and the regulation of gene expression.
Variation in Gene Expression, e-QTLs
Genome-wide functional screens
New DNA sequencing technologies
Other…

Students select papers for presentation from among the selected topics, subject to approval by the course organizers.

Note: for all papers, Supplementary figs and tables will also be discussed.

Monday Jan 16.  MLK day, no class

Monday Jan 23.  Introduction, organizational meeting. Selection/assignment of initial dates and topics for individual student presentations.

Monday Jan 30. Student Presentations Begin

Brian Cole

Joe Glessner

Monday Feb 6.

Hannah Hutton


Ian Silverman


Monday Feb 13.

Meagan Rubel


Monday Feb 20.

Nathan Berkowitz


Mike Allegrezza


Monday Feb 27.

Ray Zhang

Krishna Vijayendran


Monday Mar 5.
Spring Break, No class.

Monday Mar 12.

Meagan Rubel


Hannah Hutton


Monday Mar 19.

Midterm, no class.

The midterm assignment will be distributed by e-mail on Mar 14, and is due back to me by Mar 23. There will be no class on Mar 19 to permit additional time for you to work on the Midterm. If this scheduled assignment conflicts with a major examination for you, please contact me and an alternate week can be scheduled
individually (but you will be expected to attend and participate in the regularly scheduled class for that week).


Brian Cole (?)

Mike Allegrezza (?)

Monday Apr 2.

Joe Glessner


Ian Silverman (?)

Monday Apr 9.

Gabe Otte


Nathan Berkowitz (?)

Monday Apr 16.

Ray Zhang

Krishna Vijayendran


Monday Apr 23.

Gabe Otte

Open