GCB/CAMB 752  Seminar in Genomics

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Spring 2014
Mondays 3 PM to 6 PM
251 BRB
Prerequisite: GCB 531/534 Intro to Genomics or equivalent, or permission of instructor.
Class Size limited to 16.

Class Format:
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, and there will be one major
writing assignment. Each 3-hr session will include two student presentations, each
centered on a paper. 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.

Writing Assignment:
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 organizers
and the GCB curriculum committee.

Paper Presentations:
Each student will present 2 papers during the semester: one from a “required” reading
list prepared by the course organizers (see attached), and the second chosen by the
student (and approved by the course organizers). For all papers, supplementary figures
and tables will also be covered.

Grading:
   Midterm Writing Assignment: 50%
   Paper Presentations: 25%
   Class Participation: 25%
Papers will be from the following topic areas:

Cancer Genomics
High-throughput Sequencing (Illumina, 454, other) technologies
Studies involving ChIP-seq, RNAseq, other Next-Gen Sequence based methods
GWAS Studies, 1000 genomes project
DNA re-sequencing and mutational profiling
Analysis of Copy Number Polymorphisms (CNPs) and Structural Variation
Protein Interaction Networks
Epigenomics
Ecological Genomics/ Metagenomics
Comparative Genomics and Human-Primate comparisons
Synthetic Biology
Proteomics and biomarkers
Variation in Gene Expression, e-QTLs
Genome-wide functional screens
Other…

Wed Jan 15.   Introduction, brief organizational meeting. Selection/assignment of initial dates and topics for individual student presentations.

Monday Jan 20.  MLK day, no class.

Monday Jan 27.  Student Presentations Begin

Monday Feb 3.

Monday Feb 10.

Monday Feb 17.
Monday Feb 24.

Monday Mar 3.

Monday Mar 10.
Penn Spring Break

Monday Mar 17.

Monday Mar 24.

Midterm, no class.

The midterm assignment will be distributed by e-mail on Mar 19, and is due back to me by Mar 26. There will be no class on Mar 24 to permit additional time for you to work on the Midterm. If this scheduled assignment conflicts with a major examination for you, please contact us 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).

Monday March 31.

Monday Apr 7.

Monday Apr 14.

Monday Apr 21.

Monday Apr 28