MOLGEN 5194/PUBHBIO 5280: 
Introduction to Genomic Data Analysis 
(2 credits) 

Tuesday/Thursday 2:20pm

Course Instructors:
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This course is aimed at both graduate and advanced undergraduate students.

This course provides an in-depth analysis of a specific question to which genomic methods are applied. The course will intersperse experimental methods and statistical analysis of the biological data.

Topics to be covered include:

- Transcriptional gene regulation, and the role of gene expression and chromatin structure in stem cells and cell differentiation
- Genome-wide methods to collect gene expression data (e.g. gene expression microarray, RNA-seq, Chip-seq)
- Statistical methods implemented in Bioconductor software for genomic data analysis (e.g. methods for different microarray and RNA-seq platforms and combining different types of genomic data)

Prerequisites:

- Undergraduate students must be of rank 3 (junior standing) or higher.
- Undergraduate Calculus (Math 1151 or 1156), a Statistics course at the 2000 or above level (e.g., Stats 2450, 2480, or MolGen 5650), an Intermediate Biology course (Biology 1113 or MolGen 5660), or graduate standing, or permission of instructor.
- Some experience with programming is recommended.