
Course Summary

Lectures: Tues/Thurs, 11:40–12:55, Comstock B106
Recitations: Thurs, 2:55–4:10, Comstock B106
Credit Hours: 4 (S/U or letter)
Professor: Adam Siepel, 101 Biotech (4-1157; acs4@cornell.edu)
Office Hours: Tues, 4:30–5:30
Course Web Page: http://compgen.bscb.cornell.edu/btry4790

Prerequisites

Required prerequisites are a course in probability theory (BTRY 4080 or equivalent) and a course in intermediate programming/data structures (CS 2110 or equivalent). A course in mathematical statistics (BTRY 4090 or equivalent) is recommended but not required. Students should be comfortable programming in a structured language such as Java or C++.

Textbooks

The primary textbook (available at the campus store) is:


Supplementary readings will be provided from:

• Jordan MI, Introduction to Probabilistic Graphical Models, in preparation.

In addition, students may find it useful to consult introductory books on probability and statistics. For example:


Grading

Grades will be based on five homework assignments, a class project, and class participation, broken down as follows:

• Homeworks: 12% \(\times 5 = 60\%\)
• Project: 30%
• Participation: 10%

The homeworks will be fairly challenging and will take some time. Please start early on them and make use of recitations and office hours as needed. Assignments will be given out approximately every other week and you will have two weeks to complete them. The homeworks will taper off near the end of the semester so that you can focus on your projects.

The project is an opportunity to apply some of the new concepts and skills you have learned to a real research question. It should be substantial. Try to start thinking about it early, even if it takes until late in the semester to “gel.” A list of possible project ideas will be posted on the class website soon after Fall Break. You will be asked to submit a brief project proposal in early November.

For graduate students (BTRY 6790), the project should involve original research, and except in rare cases (e.g., a challenging theoretical project) should involve some programming and some analysis of real data. Undergraduates (BTRY 4790) will not be expected to do original research, but should attempt a substantial programming project, a comprehensive literature review on a topic of interest, or something of similar scope. In all cases, a written project report will be due at the end of the semester (during finals week). The best class projects may lead to (Master’s or Ph.D.) thesis projects, and/or to conference or journal publications.

Note the significant class participation component. This is to encourage you to come to class prepared, do your best to follow the lectures, keep up with the readings, ask good questions, and so on—in short, to be an active, inquisitive learner. This will make the course more rewarding for all involved.
Collaboration

Students are free to discuss homework problems with one another, but each student must turn in his or her own work and must acknowledge all outside sources and collaborators. It is of course in your interest to understand thoroughly what you turn in for homework. Each student is responsible for an individual class project. Team projects are not allowed.