6.047/6.878 Computational Biology: Genomes, Networks, Evolution  
Fall 2008 Course Information

Lectures: Tue/Thu, 11-12:30, Room 1-190.  
Recitations: Fri 11am, MIT:36-372, BU:LSEB948  
Units: 3-0-9. Prerequisites: 6.006, 7.01, 6.041

Course staff

Lecturers:
• Manolis Kellis: MIT Room 32G-826 (Stata Center), manoli@mit.edu, 617-253-2419  
• James Galagan: BU, 24 Cummington St 1002, jgalag@mit.edu, 617-258-0479

Teaching Assistants:
• MIT: Pouya Kheradpour: Room 32G-822 (Stata Center), pouyak@mit.edu, 617-253-6079  
• MIT: Matt Rasmussen: Room 32G-828 (Stata Center), rasmus@mit.edu, 617-253-3434  
• BU: Andy Krueger: 24 Cummington St (BU), akrueger@bu.edu, TBD

Course secretary:
• Sally Lee: 32G-846 (Stata Center), sally@csail.mit.edu, 617-253-6837

Web site and mailing lists

• Course webpage: [http://stellar.mit.edu/S/course/6/fa08/6.047/](http://stellar.mit.edu/S/course/6/fa08/6.047/)  
• Course wiki: [http://6047.wikispaces.com/](http://6047.wikispaces.com/) (for scribing, projects, presentations signup)  
• 6047-staff@mit.edu reaches the course staff  
• 6047-tas@mit.edu reaches the three TAs  
• 6047@mit.edu reaches the entire class

Grading

Your grade in this course will be based on the following:
• Problem sets (40%)  
• Midterm Exam (20%)  
• Final Project (25%)  
• Scribing (10%)  
• Participation (5%)
Problem Sets

There will be four problem sets during the first half of the semester. Each problem set will include 3-5 problems for all students and one problem for 6.878 students only. The problem sets will include both theoretical and programming problems. For programming problems, we will provide skeleton code in Python, but you may use a different programming language if you so choose.

Midterm Exam

There will be a midterm exam approximately halfway through the course (see Course Schedule), which will cover all material up until that point. There will be no final exam.

Final Project

You will complete a final project during the second half of the semester. You may either work alone or with one partner. Teams and 6.878 students will be expected to undertake more ambitious projects. In previous years, approaches to the final project have included:

- Compare several computational biology algorithms for solving the same problem, by implementing them, applying them to some dataset, and evaluating the results.
- Design and apply a novel computational biology algorithm and evaluate its performance and effectiveness.
- Carefully analyze, with criticism, corrections and/or improvements, a relevant conference or journal article.

We will distribute more detailed project expectations and suggested project topics as the term progresses. Additionally, we will provide example projects on the course web site.

Scribing

Each student will be required to scribe for one lecture. Several students may be assigned to work together on each lecture, depending on course enrollment. You are encouraged but not required to use \LaTeX for scribe notes.

As a scribe, you should strive to produce a self-contained narrative of the lecture. However, the slides for each lecture will be available on the course web site, so you should pay particular attention to issues that the slides don’t convey well on their own. For example: what is the background and motivation for the problem we are studying? What were some particularly insightful questions and answers that we discussed? Were there any common misunderstandings or points of confusion? How about alternative ways of explaining a concept or algorithm? Did we stumble upon any good ideas for a final project?

You can of course use the scribe notes from previous years and improve upon them, and the latex source will be made available to the students scribing each lecture by the TAs.

Recitations

A weekly recitation will be held on Fridays, during which we will discuss additional aspects of the lecture material and hold Q&A. The time and location are TBA, depending on responses to the student questionnaire. Since there will be only one recitation section, we may not be able to accommodate all scheduling conflicts. Therefore, attendance is not mandatory and recitation notes will be made available on the course web site. The material in the recitation notes may be covered in the exam. The TAs will also hold office hours, time and location TBA.
Textbooks

This course will use the following three textbooks:


• Neil Jones and Pavel Pevzner, *An Introduction to Bioinformatics Algorithms*.

• Richard Duda, Peter Hart, David Stork, *Pattern Classification*.

Collaboration Policy

You are welcome to collaborate on problem sets and the final project. However:

• You must work independently on each problem before you discuss it with others.

• You must write the solutions on your own.

• You must acknowledge outside sources and collaborators.