Spring 2009

CS 271/BIO 371: Introduction to Bioinformatics

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CS 271 / BIO 371 – INTRODUCTION TO BIOINFORMATICS

Spring, 2009

Meeting Time and Place

12:20 – 1:35 Tuesday and Thursday A230 Creative Arts

Textbook

D. Krane and M. Raymer (2003), *Fundamental Concepts of Bioinformatics*, Benjamin Cummings, ISBN: 0-8053-4633-3

Instructors and Office Hours

Dr. Michael Raymer
391 Joshi
775-5110
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http://www.wright.edu/~michael.raymer
Office hours: Tue/Wed/Thu, 4:00 – 5:00 pm
or by appointment.

Dr. Dan Krane
050 Bio Sci II
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Office hours: Mon/Thu, 8:30 – 10:00 am
or by appointment.

Course Web Page

The course web page will be the primary method for distributing important announcements, course material, class notes, etc. Please check the page often. Login to the campus WebCT system using your CATS username and password. The URL is: http://wisdom.wright.edu

You can find an archive of the course materials at: http://birg.cs.wright.edu/cs271

Grading

Course grades will be determined as follows:

Midterm Exams (2) = 100 pts each
Cumulative Final Exam = 150 pts
Lab and Homework Assignments = 150 pts

Final grades will be based on the standard university-wide score divisions (i.e. 90%, 80%, 70%, etc.). However, the instructors may choose to curve the final grades depending on the distribution of scores at the end of the term.

Policies & Notes

Programming assignments are due by 11:55 pm of the due date. Late programming assignments will be accepted, but 10% of the total available points will be deducted for each day late. Programming assignments are considered one day late after 11:55: pm on the due date. At 11:55 pm of each successive day (including weekends) the lab is considered an additional day late until turned in. Once a graded programming assignment has been returned, that assignment will no longer be accepted.

Collaboration: Discussion of the course contents with other students is an important part of the learning process. However, it is expected that graded course assignments will be completed *on an individual basis* unless the assignment states otherwise.

Students may not, under any circumstances, work together in actual implementation of any course assignment unless the assignment is specifically designated as a group project by the course instructors. Do not allow other students to view or copy your code. Code sharing, including code from previous quarters, is strictly disallowed. Copying or significant collaboration on any graded assignment will be considered a violation of university guidelines for academic integrity and reported to the Office of Judicial Affairs. The Code of Student Conduct can be viewed at http://www.wright.edu/students/judicial/conduct.html or a hand copy can be obtained from the Office of Student Judicial Services in the Student Union. If you have any questions about these policies, it is your responsibility to discuss them with the instructor of the course or a representative of the Office of Judicial Affairs as soon as possible.

If the same work is turned in by two or more students, all parties will be held equally accountable for violation of academic integrity. In other words, *you are responsible for ensuring that other students do not have access to your work*. If you suspect that your work material has been compromised, notify an instructor immediately.

Tentative Lecture Schedule

Date	Topic(s)
	PART A: DNA INFORMATION CONTENT
March 31	Course introduction
April 2	Introduction to genomics: Information content in DNA
April 7	Introduction to programming in Ruby – installing and using the tools.
April 9	Variables and data types in Ruby
April 14	DNA, genes, and the central dogma. Structure and information in genomes.
April 16	Gene recognition
April 21	**Midterm Exam 1: 100 pts**
	PART B: GENOMIC INFORMATION CONTENT
April 23	File and text processing in Ruby
April 28	Data structures in Ruby
April 30	Substitution patterns
May 5	Sequence Alignments
May 7	Subroutines in Ruby
May 12	Gene expression, microarrays, and data analysis
May 14	**Midterm Exam 2: 100 pts**
	PART C: ANALYZING CHANGES IN GENOMES AND PROTEOMES
May 19	Phylogenetic reconstruction
May 21	Clustering, parsimony and maximum likelihood
May 26	Elements of protein structure , introduction to Fold-it
May 28	Sequence and structure comparisons among proteins
June 2	-omics data analysis
June 4	Forensic bioinformatics
June 9	**Final Exam: 150 pts; 1:00 – 3:00 pm, A230 Creative Arts**