Syllabus

GENOMIC SEQUENCING AND ANALYSIS

ISC 4933 & 5935, SPRING 2016

COURSE DESCRIPTION: This course will provide students with training in the process of collecting and analyzing next-generation DNA sequence data. After lectures designed to bring students up to speed on the cutting edge DNA sequencing technologies, students will develop and/or apply new algorithms for efficient processing of large amounts of genome-scale data.

OBJECTIVES:
1. become familiar with current methods of DNA sequencing
2. study in detail one pipeline for de-novo sequence assembly
3. learn several downstream applications derived from genome-scale data
4. study several current algorithms for DNA sequence analysis
5. develop and implement new algorithms for DNA sequence analysis

INSTRUCTOR: Dr. Alan R. Lemmon, alemmon@fsu.edu

CLASS: DSC 152, M W F 10:10-11:00

** Note: the meeting times may change after the drop-add date

OFFICE HOURS: BRF-213, 11-12 M and F, and by appointment.

Students must sign up for one 5-minute one-on-one session the week of January 11th.

COURSE WEBSITE: Blackboard

EVALUATION:
35% (350 pts) Participation/Attendance
25% (250 pts) Midterm Exam
15% (150 pts) Student Algorithm Presentations
25% (250 pts) Student Project

Attendance, Reading Assignments, Participation

Since this is a hands-on course with no textbook, class attendance is critical.

Midterm Exam

A hand-written midterm exam covering the topics covered in class. The Midterm will be given in class on Friday **March 4th, 2014**.

Student Project

Students will work in teams to develop and implement a new bioinformatics algorithm. Students will be graded based on written and oral reports, in addition to the design and implementation of the algorithm.

TENTATIVE CALENDAR:

January 6,8	Introduction
January 11-15	Sequencing Technologies
January 18	**No Classes**
January 20-22	Sequencing Technologies
January 25-29	Enrichment and Multiplexing
February 1-5	Sequence Assembly
February 8-12	Orthology Assessment
February 15-17	Sequence Alignment
February 19-24	Downstream Applications
February 26-29	Genome Assembly
March 2	Midterm Review
March 4	**MIDTERM EXAM**
March 7-11	Spring Break
March 16, March18	**Algorithm Presentations**
March 21	Student Project Proposals Due
March 23 - April 15	Student Projects, Lectures TBD
April 18,20,22	**Project Presentations**

NO FINAL EXAMINATION

*Note that course content may be adjusted based on student needs.

Policies

Florida State / Faculty Senate / Curriculum Forms / Policies

ALL SYLLABI ARE REQUIRED TO INCLUDE THE FOLLOWING STATEMENTS:

University Attendance Policy:
Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

Academic Honor Policy:
The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to ". . . be honest and truthful and . . . [to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at http://fda.fsu.edu/Academics/Academic-Honor-Policy.)

Americans With Disabilities Act:
Students with disabilities needing academic accommodation should:
(1) register with and provide documentation to the Student Disability Resource Center; and
(2) bring a letter to the instructor indicating the need for accommodation and what type. This should be done during the first week of class.

This syllabus and other class materials are available in alternative format upon request.

For more information about services available to FSU students with disabilities, contact the:

Student Disability Resource Center

874 Traditions Way
108 Student Services Building
Florida State University
Tallahassee, FL 32306-4167
(850) 644-9566 (voice)
(850) 644-8504 (TDD)
sdrc@admin.fsu.edu
http://www.disabilitycenter.fsu.edu/

RECOMMENDED LANGUAGE FOR SYLLABI:

Free Tutoring from FSU

On-campus tutoring and writing assistance is available for many courses at Florida State University. For more information, visit the Academic Center for Excellence (ACE) Tutoring Services' comprehensive list of on-campus tutoring options - see http://ace.fsu.edu/tutoring or contact tutor@fsu.edu. High-quality tutoring is available by appointment and on a walk-in basis. These services are offered by tutors trained to encourage the highest level of individual academic success while upholding personal academic integrity.

Syllabus Change Policy

"Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice."