

BINF 732 – Genomics

Course Time: Monday 1:30-4:10 pm

Course Location: Online

Instructor: Saleet Jafri, 703-993-8420, sjafri@gmu.edu

Office Hours: By appointment phone or web meeting

Course Web Page: <http://www.binf.gmu.edu/jafri/binf732/>

Prerequisites: Computer knowledge and previous courses in biology, or permission of instructor

Textbook: Discovering Genomics, Proteomics, and Bioinformatics by Campbell and Heyer 2nd Edition on reserve in library

Course Description:

Surveys computational tools and techniques to study whole genomes and explores biological basis of genome analysis algorithms. Topics include genome mapping, comparative genomics, and functional genomics.

Grading Policy:

The course grade will be determined as follows:

	90-100	A
Mid-Term Exam - 30%	80-89.9	B
Final Exam - 40%	80-89.9	C
Final Project - 30%	70-79.9	F

Problem sets will be assigned as homework several times during the semester. They will be due two weeks after they are assigned. The assignments will be posted on the course web page. Late homeworks will not be accepted.

Academic Honesty Policy:

Academic dishonesty will not be tolerated. This includes cheating, plagiarism, and falsification of academic records. That being said, you can help each other out on the homework (this does not mean that you can copy each other's homework).

Important Dates (Under revision):

Monday, January 25 - First Day of Class

Monday, March 15 - Take-home Mid-Term Exam Posted

Monday, March 22 - Take-home Mid-Term Exam Due

Monday, April 26 - Project Presentations - Last Day of Class

Monday, May 3 - Final Exam 1:30-4:10

Course Schedule

Lecture 1 - Introduction to Genomics - January 25, 2021

Lecture 2 - Multiscale view of Genomics: Cardiac Calcium Signaling - February 1, 2021

Lecture 3 - Multiscale view of Genomics: Transcription Factors - February 8, 2021

Lecture 4 - Sequencing and Annotation - February 15, 2021

Lecture 5 - Genomes of Populations - February 22, 2021

Lecture 6 - Genomic Variation - March 1, 2021

Posted March 8, 2021 - Midterm Take-home Exam

Lecture 7 - Clinical Genomics - March 15, 2021

Lecture 8 - Functional Genomics - March 22, 2021

Lecture 9 - Epigenomics - March 29, 2021

Lecture 10 - Agricultural Genomics - April 5, 2021

Lecture 11 - Mitochondrial Genomics - April 12, 2021

Lecture 12 - Pharmacogenomics - April 19, 2021

Final Projects Due - April 26, 2021

Final Exam Posted - April 26, 2021

Final Exam Due - May 3, 2021

Sage Advice: If you want to do well in course: 1) Do all the problem sets. 2) Read the text book and any other assigned reading. 3) Ask questions in class and office hours. 3) If you are having difficulty doing the problem sets, be sure to get help. I encourage the students discussing the course material and problems, but require everyone to do the work - NO COPYING.

Saleet Jafri

Thursday, January 14, 2021