

# Next Generation Sequencing and Genome Assembly—Spring 2020

## CS 286-01: Advanced Topics Course (Next Generation Sequencing and Genome Assembly) Tue & Thur 6:00-7:15PM Room MH 222

### COURSE TOPICS

- Introduction to
  - ✓ The history and state of the art in NGS (Next Generation Sequencing) technologies and methods.
  - ✓ Public sequence databases
  - ✓ Genome assembly and annotation
  - ✓ NGS in Medicine: Clinical vs Research sequencing
- NGS technologies and vendors that will be covered include Maxam-Gilbert, Sanger, Oxford nanopore, Pac-Bio, Illumina, 454, ionTorrent, and Capillary-based sequencing.
- De novo and reference genome assembly will be covered including assembly techniques that use generalized De Bruijn graphs.
- Students will have an opportunity to have a portion of their own genome sequenced and to assemble it themselves.
- After completing the course, students will have a sound understanding of key NGS technologies, genome assembly and annotation methods.

### WHO SHOULD ENROLL?

Anyone who wants a solid introduction to NGS technologies and methods, along with applications in diagnostics and clinical medicine.

### HOW TO ENROLL

**Current SJSU Students** – Log in to your MySJSU account to search for the course number and section printed above.

**Others** – Go to the SJSU Open University web page (<http://ou.sjsu.edu>) and click on the link:

How to Register for an On-Site Class.

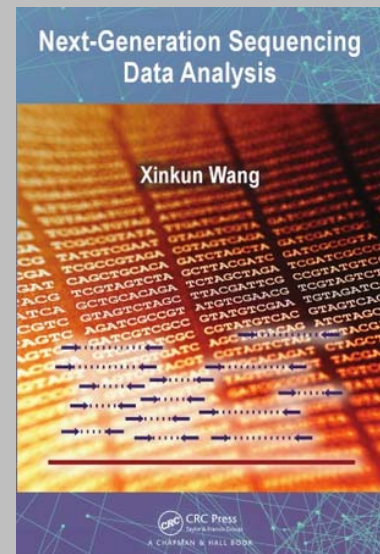
NOTE: Open Univ. Spring 2020 courses will be visible at the above URL likely by December 2019.

### PREREQUISITES

- Any basic molecular cell biology course.
- Being comfortable with running bioinformatics software on Macs, Windows, or UNIX platforms.
- Instructor consent.

### PROPOSED TEXTBOOK

*Supplemental reference material will be provided.*



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