Course syllabus

Syllabus, Fall 2016
Microbial Genomics and Bioinformatics
Instructors: L. Wackett and A. Khodursky

Lectures will be held in 239 Gortner Lab (239 GortL)

1. Sept. 6 Overview, definitions, history (Wackett)
2. Sept. 8 Nucleic acid biochemistry (Wackett)
4. Sept. 15 DNA sequencing and synthesis, Part 2 (Wackett)
5. Sept. 20 Protein biochemistry and proteomics (Wackett)
6. Sept. 22 Protein structure and families (Wackett)
7. Sept. 27 Fundamentals of genome annotation (Wackett)
8. Sept. 29 Functional categories and annotation problems (Wackett)
9. Oct. 4 Microbial genome properties and the pangenome (Wackett)
10. Oct. 6 Genomic view of prokaryotic metabolism (Wackett)
11. Oct. 11 Genomic patents (Mueting)
12. Oct. 13 Genomics and biotechnology (Wackett)
13. Oct. 18 Human metagenome, pathogenesis, antibiosis (Wackett)
14. Oct. 20 Mid-term

Computer Lab will be held at 220 Learning and Environmental Sciences (220 LES): http://www1.umn.edu/twincities/maps/LES/

15. Oct. 25 CompuLab1 (220 LES): bioinformatics tools and computers (Khodursky)
16. Oct. 27 CompuLab2 (220 LES): databases and searches (Khodursky)
17. Nov. 1 CompuLab3 (220 LES): data formats, files and retrieval (Khodursky)
18. Nov. 3 CompuLab4 (220 LES): genome visualization (Khodursky)
19. Nov. 8 CompuLab5 (220 LES): introduction to sequence analysis (Khodursky)
20. Nov. 10 CompuLab6 (220 LES): Galaxy (K. Silverstein, MSI)
21. Nov. 15 CompuLab7 (220 LES): sequence content analysis (Khodursky)
22. Nov. 17     CompuLab8 (220 LES): intro to sequence comparisons (Khodursky)
23. Nov. 22     CompuLab9 (220 LES): pairwise alignments and scoring (Khodursky)
X. Nov. 24     Thanksgiving
24. Nov. 29     CompuLab10 (220 LES): multiple sequence alignments and HMMS (Khodursky)
25. Dec. 1      CompuLab11 (220 LES): information processing, information content and PWM (Khodursky)
26. Dec. 6      Student presentations (239 GortL)
27. Dec. 8      Student presentations (239 GortL)

December 15 – No classes – study day

Final Exam:  1:30-3:30 p.m., Wednesday, December 21

Grading policy

The total grade will be a cumulative of the following:

20 points for mid-term
20 points for final
40 points (10 report x 4 points) for lab reports
10 points for student presentations
10 (5 points each for two assignments)

Total: 100

Laboratory Reports

Each lab session will consist of a short introduction and 45-60 min in-class computer exercise.
Lab reports are due by 10AM of the day of the following class.
Lab reports will have to be submitted for every lab (CompuLab 1-11) with the exception of a guest lecture and Lab12.

More details about lab reports are on the class Moodle site.