
BIOL 6900 - Advanced Bioinformatics

Fall 2026 Syllabus, Section 01, CRN 41029,

Credit hours: 3

Instructor

Xiangjia Min

Professional Qualifications:

Ph. D., Plant Science, University of Hawaii Master's, Software Systems, University of British Columbia Master's, Plant Science, China Agricultural University Bachelor's, Plant Science, Qingdao Agricultural University

Professor

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Additional Contact Methods:

Preferred Contact Method: Email is preferred for communications

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Communication Expectations:

Typically respond to email within 24 hours.

How to Refer to me:

Dr. Min

Students support: Students are welcome to get help in class, during office hours or any time when my office is open. In-person is preferred, email will be replied within 24 hours.

Course Description

6900. Advanced Bioinformatics. An examination of how computer and informatics technology is applied to biological data analysis, particularly in the area of genomics data mining, and its use in genomics, molecular, and systems biology research. One and a quarter hours of lecture and two hours of lab per week are required. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Optional	Bioinformatics and Functional Genomics	Jonathan Pevsner	978-1-118-58178-0

A textbook is optional, available in the Bioinformatics Lab.

Bioinformatics and Functional Genomics

By Jonathan Pevsner, 3rd Edition, WILEY-LISS 2015

Extra readings from recent publications will be available on Blackboard.

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Schedule of Topics and Assignments

Week of	Reading(s)	Proposed Topic	Due/To Prepare for Class
8/25	Chapter 1, 2	Introduction; NCBI databases	
9/1	Chapter 3	Pairwise sequence alignment	
9/8	Chapter 4, 5	BLAST	
9/15	Chapter 6	Multiple sequence alignment	
9/22	Chapter 7	Molecular phylogeny and evolution	
9/29	Chapter 7 continued	Molecular phylogeny and evolution (continued)	
10/6	Test 1. Chapter 9	RNA	
10/13	Chapter 10; 11	Gene expression; RNA-seq data analysis	
10/20	Chapter 12	Protein analysis	
10/27	Chapter 13	Protein structure and function	
11/3	Chapter 14	Pathways and systems biology	
11/10	Review section 2	Complete Gene/Protein Family Analysis Project Report	
11/17	Test 2. Section 3: Genome analysis	Gene prediction and genome annotation	
11/24	Genome analysis	Specific papers will be assigned	
12/1	Genome analysis (continued)	Specific papers will be assigned	
12/8	Final exam	Research report due	

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.