



U.S. National Library of Medicine

National Network of Libraries of Medicine
Training Office

801-587-3518 – Voice
<https://nnlm.gov/nto>

Bioinformatics and Biology Essentials For Librarians: Databases, Tools, and Clinical Applications

Course overview, timeline, and activities

Overview

This class is an introductory, online bioinformatics course for librarians using the Moodle learning management system. It is a 16-week, self-paced course worth 25 hours of CE credit from the Medical Library Association. This course was designed both for librarians who offer, or intend to offer, bioinformatics services; and also for librarians who use bioinformatics information on a periodic or irregular basis to serve their patrons.

The course is offered twice a year: January - May and August – December.

See timeline for the pace of topics. Modules open progressively. Course content is provided in the form of videos, hands-on exercises, readings, discussion posts, and open book quizzes. Synthesis activities conclude the course with actual reference questions from the NCBI and the creation of a personal bioinformatics action plan.

Due Dates

There are four major due dates. You can work ahead, but instructors may not review or comment until the date listed below. You must complete each major part by the following due dates:

Pre-Work: end of week 2

Part I: end of week 6

Part II: end of week 11

Part III: end of week 16

Timeline/Agenda

Pre-Work

Week 1: Genetics Basics

Week 2: Genetics Basics

The first two weeks of the course consist of pre-work to orient you to molecular biology concepts you need to understand in order to use the bioinformatics databases effectively. We've framed the learning



U.S. National Library of Medicine

National Network of Libraries of Medicine
Training Office

801-587-3518 – Voice
<https://nnlm.gov/nto>

experience as an open book quiz with readings and activities and given you two weeks to work through the content and ask questions using the discussion board.

Part I

Week 3: Bioinformatics and Librarianship

What is bioinformatics and what does it have to do with librarianship? In this module you'll learn the scope of bioinformatics and explore different roles for librarians by watching a 60 minute video and participating in a discussion.

Week 4: Molecular Biology Techniques

How do scientists acquire nucleotide sequences from organisms? In this module you'll explore some basic techniques for sequencing through an interactive website and open book quiz.

Week 5: NCBI Nucleotide

The NCBI Nucleotide database is where you can find the DNA and RNA sequences. This module explores the NCBI Nucleotide Database through videos, a hands-on exercise, and quiz.

Week 6: BLAST Sequence Similarity

This module uses videos and hands-on exercises to explore the Basic Local Alignment Sequence Tool (BLAST) to identify and compare sequences, and review the GenBank record.

Part II

Week 7: NCBI Gene

The NCBI Gene Database pulls together data from many sources, to give you quick access to what is known about a gene. In this module you will learn about the NCBI Gene database through videos, a hands-on exercise, and quiz.

Week 8: Basics of Proteins

Before you delve into the NCBI Protein and Structure Databases, it's best to understand the structure and function of proteins. This module reviews the fundamentals through videos and an open book quiz.

Week 9: NCBI Protein and Structure Databases

This module shows how to use the Protein and Structure Databases through videos, hands-on exercises and quiz.

Week 10: Clinical Applications

This module uses video and hands-on exercises to explore the NCBI databases MedGen, ClinVar and Genetic Testing Registry (GTR).

Week 11: Catch Up Week

Use this week to catch up!



U.S. National Library of Medicine

*National Network of Libraries of Medicine
Training Office*

801-587-3518 – Voice
<https://nnlm.gov/nto>

Part III

Week 12: Ethics and Policy in Bioinformatics

In this module, we discuss public policy and the ethical implications of bioinformatics data storage, access, and use through readings, videos and discussion posts.

Week 13: What's Next in Genomic Research

This module takes a look at advances in genomic research through readings in Genetics Home Reference and a PubMed literature search activity.

Week 14: Synthesis

You now have an opportunity to reflect on and apply what you've learned. Work through four synthesis activities based on actual questions that the NCBI has been asked, then reflect on your own next steps by creating a personal bioinformatics action plan.

Week 15: Synthesis and Evaluation

Take an additional week to finish up your synthesis activities, then complete the evaluation to receive 25 hours of CE credit from the Medical Library Association.

Week 16: Additional catch up days (if needed)