

COURSE OVERVIEW

L519: Bioinformatics: Theory & Application

Spring 2003

<http://bio.informatics.indiana.edu/L519>

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TextBooks

1. *Developing Bioinformatics Computer Skills* , Cynthia Gibas & Per Jambeck April 2001, O'Reilly ISBN 1-56592-664-1
2. *Bioinformatics: sequence, structure, and databank* Edited by Des Higgins and Willie Taylor, 2000, Oxford University Press ISBN 0 19 963790 3

We will cover sequence analysis first and then structure.

Grading

Grading for Bioinformatics majors and non-majors will be separate. I expect (about 50%) more work from major students and more technical term project.

1. Exam (20%)
2. Homeworks and Quiz (30%)
3. Term project (40%)
A topic should be chosen before the end of Feb.
4. Presentation (10%)

Guest Lectures

There will be several guest lectures. The first geust lecture is scheduled on Jan. 16 by Mary Papakhian, Manager of the Research and Technical Services (RATS).

Sue Olsen at the Center for Genomics and Bioinfomatics will talk about **Emboss** in Feb.

Reading Assignment

Read Chap2, 4, 5, and 12 of Gibas and Jambeck, a two web sites on transcription and translation (<http://biology-pages.info>), and 1992 Primer on Molecular Genetics (<http://www.ornl.gov/hgmis/publicat/primer/intro.html>).

Homeworks and Quiz

There will be homeworks and quiz. A quiz on biology background is scheduled on Jan 20 and another quiz (programming quiz) is scheduled on Jan 23.

Reading material for the first quiz is Chapter 2 of Gibas and Jambeck, two web sites on trascription and translation at <http://biology-pages.info> and 1992 Primer on Molecular Genetics (<http://www.ornl.gov/hgmis/publicat/pr>

The second programming quiz will be a short programming test in the lab session on Jan 23. Perl is preferred: read books on Perl and visit web sites on our course homepage. If you want, you can use a programming language other than Perl.

Biology students should help CS students to prepare for Quiz I and Cs students should help Biology students to prepare for Quiz II.

Use `oncourse.iu.edu`

The class will use `oncourse.iu.edu` for discussions and homework submissions.

Go to **In Touch** tab and use the following **Chatrooms** and **Discussion Forums**.

- **Biology 101**
- **Unix/Linux 101**
- **Perl 101**

Your participation will be appreciated and rewarded.

Sample Data

There is data for two genomes, *Borrelia burgdorferi* (AE000783) and *Treponema pallidum* (AE000520). For each genome, there are files with different suffixes for various genetic information:

AE000520.faa

AE000520.ffn

AE000520.fna

AE000520.gbk

AE000520.ptt