CSC 314-01, Introduction to Bioinformatics
Spring 2017
Eastern Connecticut State University

Instructor: Dr. Garrett Dancik
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Science Building, Rm 257

Office Hours: MWF: 11-12:00
M: 3-5:00, or by appointment

Course information:

Title:	Introduction to Bioinformatics
Day/Time:	MWF 2:00 – 2:50 PM (SCI 139)
Section:	01
Credit:	3 hours

Course Materials:

Textbook: Understanding Bioinformatics by Marketa Zvelebil and Jeremy O. Baum, Garland Science, Taylor & Francis Group, 2008 (ISBN: 9780815340249)

Technology:

1. Course notes and class website: https://gdancik.github.io
2. Python (http://www.python.org) will be used for some programming assignments.
3. Piazza (https://piazza.com) will be used for online discussion and several assignments. Note: a mobile app is available from the App store (iPhone/iPad) or Google Play (Android devices)

Course Description

Bioinformatics is an interdisciplinary science where computational and statistical tools are used to store and analyze large biological datasets. This course will provide an introduction to fundamental concepts in bioinformatics, including genetics, genomic and proteomic databases, sequence alignment algorithms and database searching, and structure and function prediction.

Grading

Labs / Exercises	20%
Online Discussion (Piazza)	5%
Exam I	25%
Exam II	25%
Final Project	25%

Online discussion: We will use Piazza (https://piazza.com) as an online discussion and question and answer forum in this course. Shortly after the beginning of the semester, you will receive an e-mail with registration instructions sent to your Eastern e-mail address. Piazza allows for students to post and answer questions, anonymously if desired. The class benefits by seeing questions asked by other students (who often have the same questions as you) and by contributing answers. As the instructor, I will answer questions and can endorse correct student answers as well. For these reasons, all non-personal (e.g., not grade-related) questions should be posted to Piazza rather than e-mailed to me. Questions regarding homework assignments should be posted to Piazza. Questions about homeworks must be specific and may contain no more than *several* lines of code. Note that posts not meeting these criteria will be deleted and the poster penalized if warranted. Announcements will be made when posting a question or answer to Piazza is required (roughly every three weeks).

Exam Policy: Make-up exams will only be given if you have an official excuse for missing class. If you know ahead of time that you will miss an exam, please talk to me before the exam to make arrangements for taking it. Missing **two** or **more** exams without official excuses will result in your dismissal from the course with a grade of **F**.

Grading Scale

93-100: **A**	90-92: **A-**	
87-89: **B+**	83-86: **B**	80-82: **B-**
77-79: **C+**	73-76: **C**	70-72: **C-**
65-69: **D+**	60-64: **D**	59 and below: **F**

Academic Honesty

You are encouraged to discuss labs and exercises with one another unless specified otherwise. However, copying answers from another student (unless otherwise specified) is *cheating* and this will not be tolerated. A student found cheating will automatically receive a grade of "F" on the assignment and will be reported to the department head with further potential consequences.

Classroom civility

Cell phones are not appropriate in class and must be turned off or set to vibrate and stored off of the class desk. In general, follow the Golden Rule and treat others with respect and the way you want to be treated.

Special Accommodations
Eastern Connecticut State University is committed to following the requirements of the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. If you are a student with a disability (or think you may have a disability), and require adaptations or accommodations, or assistance evacuating a building in the case of an emergency, please contact the Office of AccessAbility Services (OAS) at 860-465-0189 to discuss your request further. Any student registered with the OAS should contact the instructor as soon as possible for assistance with classroom accommodations. Please note that accommodations are not retroactive, and must be communicated through a Letter of Accommodation which is drafted by the OAS.

***Tentative course schedule**

Week	Week of	Topic	Book Chapters
1	1/16/17	***Martin Luther King Holiday – No Class Monday***	
		Intro to Bioinformatics	
2	1/23/17	Inheritance	-
3	1/30/17	Cells and DNA	-
4	2/6/17	Python Programming / Protein Structure	-
5	2/13/17	From Genes to Proteins	-
		Lincoln's Birthday – No Class Friday	
6	2/20/17	***President's Day – No Class Monday***	
		Review / Exam I	
7	2/27/17	Gene and Protein Databases	Chapter 3
8	3/6/17	BioPython	
9	3/13/17	***Spring Recess – No Class***	
10	3/20/17	Sequence Alignments and BLAST (Application)	Chapter 4-5
11	3/27/17	Sequence Alignments and Profiles (Theory)	Chapters 5-6
12	4/3/17	Evolutionary Processes	Chapters 7-8
13	4/10/17	BioPython Project	
		Day of Reflection – No Class Friday	
14	4/17/17	**Review / Exam II**	Chapters 3-8
15	4/24/17	Gene Prediction and Annotation (Theory)	Chapter 10
16	5/1/17	Additional Topics and Review	
		Final Project (Due: 5/12/17, 4:00 PM)	