Lecture, Discussion, Group Work session: Alden 101, Tuesday and Thursday 9:30am to 10:45am
Laboratory session: Alden 101, Friday 2:30pm to 4:20pm

Course Web page: http://cs.allegheny.edu/sites/jjumadinova/300
  • You can access course materials on the course web page.
Sakai page: https://sakai.allegheny.edu/
  • The course page on Sakai will only be used for reporting student grades.
Bitbucket: https://bitbucket.org/
  • Bitbucket, a cloud based system, will be used by the instructors for sharing course materials and by the students for submitting assignments.
Slack channel: https://biocs300.slack.com/
  • Slack will be used for discussion and communication outside of the classroom.

Instructors:
Janyl Jumadinova
Office: Alden Hall 105
Office phone: 814-332-2881
Email: jjumadinova@allegheny.edu
Office hours:
Monday, Wednesday: 10am-12pm (15 minute slots) and 2:30pm-3:30pm (10 minute slots) Thursday:
12:30pm-1:30pm (10 minute slots)
Friday: 11am-12pm (10 minute slots)
To schedule a meeting with the instructor during the office hours, please go to http://cs.allegheny.edu/sites/jjumadinova/schedule, click on “schedule an appointment” link and select the desirable date and time. You can schedule an appointment outside of the office hours by email.

Kristen Webb
Office: Steffee Hall B222
Office phone: 814-332-3369
Email: kwebb@allegheny.edu
Office hours: Monday: 11am-12pm, Tuesday: 1:30pm-3:30pm, Thursday: 11:30am-12:30pm, Friday:
10am-12pm
To schedule a meeting with the instructor during the office hours, please go to https://sites.google.com/a/allegheny.edu/webb/, click on the “schedule an appointment” link, and select the desired date and time. You can schedule an appointment outside of the office hours by email.

Required textbook:
The course:

• An introduction to the development and application of computational approaches to answer biological questions. Students use state-of-the-art bioinformatics software to gain insights into the functionality of the information contained within genomes as well as learn the algorithms behind such applications. Topics include data management, analysis of large-scale biological datasets, genome annotation, and genetics of disease. Unique challenges in the field and the wide range of existing solutions are examined. Prerequisites: BIO 221 and FSBIO 201, or CMPSC 111.

• The course follows two parallel tracks. In the lectures we will learn basic bioinformatics fundamentals and applications, while in the laboratory sessions you will have a larger hands on experience with problem solving and writing programs. The laboratory sessions will be usually tied to the lectures.

Course Goals:

Students successfully completing this class will have developed:

• A “big-picture” view of bioinformatics.
• An understanding of the objectives and limitations of bioinformatics.
• An understanding of the biological foundations of bioinformatics (genes and genomes, gene expression, etc.).
• An understanding of the computational foundations of bioinformatics (programming, databases, etc.).
• An understanding of how genetic information is obtained and processed.
• The ability to use basic bioinformatics software tools to study genetic information.

Grading:

• There will be three in-class quizzes, each covering the material up to the point of the quiz, a number of in-class exercises, laboratory assignments and a final project. All percentages are approximate and it is possible for the assigned percentages to be changed during the academic semester if the need presents itself to do so.

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Participation</td>
<td>15%</td>
</tr>
<tr>
<td>Laboratory Assignments</td>
<td>30%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>20%</td>
</tr>
<tr>
<td>Final Project</td>
<td>35%</td>
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The grading categories have the following definitions:

• **Class Participation**: All students are required to actively participate during all of the class sessions. Your participation will take forms of completing class exercises, answering questions about the required reading assignments, and asking constructive questions. You must also regularly participate in the discussions on the Slack channels for this course.

• **Laboratory Assignments**: Lab assignments invite students to explore different techniques for designing, implementing, evaluating, and documenting bioinformatics solutions to challenging problems that often have a connection to real-world concerns. To best ensure that students are ready to apply bioinformatics tools and techniques in both other classes at Allegheny College and after graduation, students will complete assignments both on an individual basis and in teams.
• **Quizzes:** The quizzes will cover all of the material in their associated module(s). The finalized date for each of the quizzes will be announced at least one week in advance of the scheduled date. Unless prior arrangements are made with the course instructor, all students will be expected to take these quizzes on the scheduled date and complete the quizzes in the stated period of time.

• **Final Project:** This project will present you with an opportunity to design and implement a correct and carefully evaluated solution for a particular problem. Completion of the final project will require you to apply all of the knowledge and skills that you have acquired during the course of the semester to solve a bioinformatics problem. The details for the final project will be given approximately two months before the project due date (during finals week).

**Assignment Submission:**

• All assignments will have a stated due date and are to be turned in electronically on that due date; all assignments must have headers with your name, date, and the Honor Code pledge of the student(s) completing the work. You must follow proper procedures for submitting your completed programs in order for them to be graded. You will be given instructions on how to do that with your first programming assignment. For any assignment completed in a group, students will also peer review each group members’ contribution to the assignment.

• Late assignments will be accepted for up to one week past the assigned due date with a 15% penalty. All of the late assignments must be submitted by the beginning of the session that is scheduled one week after the due date. Unless special arrangements are made with the course instructor, no assignments will be accepted after the late deadline.

**Use of Laboratory Facilities:**

• Throughout the semester, we will investigate many different software tools that bioinformaticians use during the design, implementation, and evaluation of solutions. The course instructors and the system administrator in the department of Computer Science have invested a considerable amount of time to ensure that our laboratories support the completion of all of the assignments and projects. To this end, students are required to complete all of the computational laboratory assignments and the final project while using the Computer Science department’s laboratory facilities. The course instructors and the systems administrator normally do not assist students in configuring their personal computers.

**Attendance:**

• It is mandatory for all students to attend all classes and laboratory sessions. You will receive a grade deduction of one letter grade on the laboratory submission if you did not attend the scheduled laboratory session, unless prior arrangements have been made with the instructors. If you will not be able to attend a session, then please see one of the instructors at least one week in advance to describe your situation. Students who miss more than five unexcused sessions will have their final grade in the course reduced by one letter grade. Frequent or prolonged absences due to illness should be documented by the student’s doctor, the Health Center, the Dean of Students’ Office, or the office of Student Disability Services. If you need to miss class due to a religious observance, please speak to one of the instructors in advance to make appropriate arrangements.
Class Preparation:
• In order to minimize confusion and maximize learning, students must invest time to prepare for the class discussions, lectures, and laboratory sessions. During the class periods, the course instructors will often pose questions that could require group discussion, the creation of a program or data set, a vote on a thought-provoking issue, or a group presentation. In order to help students remain organize and effectively prepare for classes, the course instructor will maintain a class schedule with reading assignments and presentation slides.

A Note on extenuating circumstances:
• If you should find yourself in difficult circumstances that significantly interfere with your ability to prepare for this class and to complete assignments, please inform the instructors immediately so that we can work something out together! Do not wait until the last day of class to ask for exceptions to what is stated in this syllabus. In such a situation, you may also find it helpful to contact the campus Counseling Center (332-4368) in 304 Reis Hall, which is open from 8-5 but also has a 24 hour hotline.

Special Needs and Disability:
• Students with disabilities who believe they may need accommodations in this class are encouraged to contact Disability Services at (814) 332-2898. Disability Services is part of the Learning Commons and is located in Pelletier Library. Please do this as soon as possible to ensure that approved accommodations are implemented in a timely fashion.

Honor Code:
• All students enrolled at Allegheny College are bound by the Honor Code. It is expected that your behaviour will reflect that commitment. To this end, we expect that you will adhere to the following policy:

• It is recognized that an important part of the learning process in any course, and particularly in computer science, derives from thoughtful discussions with teachers, student assistants, and fellow students. Such dialogue is encouraged. However, it is necessary to distinguish carefully between the student who discusses the principles underlying a problem with others, and the student who produces assignments that are identical to, or merely variations on, someone else’s work. It will therefore be understood that all assignments submitted are to be the original work of the student submitting the assignment, and should be signed in accordance with the provisions of the Honor Code. Appropriate action will be taken when assignments give evidence that they were derived from the work of others.

• You are encouraged to periodically review the specifics of the Honor Code as stated in the College Catalogue, The Compass, and elsewhere.