Course Instructor

Dr. Janyl Jumadinova
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Instructor’s Office Hours

- Monday, Wednesday, Thursday: 2:30 pm – 4:30 pm (15 minute time slots)

To schedule a meeting with me during the office hours, please go to http://cs.allegheny.edu/sites/jjumadinova/schedule, click on the “book an appointment” link and select the available date and time of your choice. You can schedule an appointment outside of my office hours via course’s Slack channel or email.

Course Meeting Schedule

Lecture, Discussion and Group Work: Tuesday, Thursday, 11:00 am – 12:15 pm
Laboratory Session: Tuesday, 2:30 pm – 4:20 pm

Course Resources

Course Web page: http://cs.allegheny.edu/sites/jjumadinova/teaching/220
You can find the most up-to-date schedule of the course and the required readings on the course’s page.

Sakai page: https://sakai.allegheny.edu/
The course page on Sakai will only be used for reporting student grades and online exams.

Bitbucket: https://bitbucket.org/
Bitbucket repositories will be used for sharing course materials by the instructor and for submitting assignments by the students.

Slack channel: https://cs220s2017.slack.com/
Slack will be used for discussion and communication outside of the classroom.
Academic Bulletin Course Description

A study of the important concepts in the design of programming languages, with emphasis on data types, scoping, binding times, control structures, facilities for abstraction, and storage allocation. Language constructs will be evaluated both for their usefulness in supporting the software development process and the overhead incurred in implementing them. Both procedural and non-procedural languages will be studied, and students will acquire enough literacy in a few of these languages to write moderately sophisticated programs. One laboratory.

Course Objectives

This course will introduce students to the foundational concepts that underlie programming language syntax and semantics through a comparative study of several languages and their features. The main goal of the course is to equip students with the ability to study conceptual linguistic issues without having to focus on a particular language’s implementation. The course will discuss key issues related to programming language design, such as the paradigm (procedural, functional, etc.), and implementation (interpreter, compiler, virtual machine, etc.). To facilitate learning these fundamental concepts, students will also gain hands-on experience through various assignments in different programming languages.

Learning Objectives

At the completion of this class, a student must be comfortable with the fundamental concepts that underly most programming languages. Students should be moderately experienced in using the different programming styles or paradigms and should be able to choose the appropriate programming languages for certain classes of problems. Finally, students must be able to develop and apply a strong knowledge of analytical and empirical programming techniques and be able to learn new programming languages with a minimum of effort based on an understanding of general principles of language design and implementation.

Required Textbooks

(References to the textbook are abbreviated as “PLP” in the schedule).

Along with the required book and handouts, you will be assigned to read additional articles from a wide variety of conference proceedings, journals, and the popular press.

Class Policies

Grading

The grade that a student receives in this class will be based on the following categories. All percentages are approximate and it is possible for the assigned percentages to be changed during the academic semester, if a need arises to do so.
These 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 (individually and in teams), answering questions about the required reading assignments, contributing to class discussions and asking constructive and relevant questions. You must also regularly participate in the discussions and polls on the Slack channels for this course.

- **Laboratory Assignments**: Lab assignments invite students to explore different techniques for designing, implementing, evaluating, and documenting software solutions to challenging problems that often have a connection to real-world concerns. To best ensure that students are ready to develop software in both other classes at Allegheny College and after graduation, students will complete assignments both on an individual basis and in teams.

- **Examinations**: The first, second and third examinations will cover all of the material in their associated module(s). While the second and third examinations are not cumulative, it will assume that a student has a basic understanding of the material that was the focus of the previous examination(s) and, thus, these exams are weighted more than the first one. The finalized date for each examinations 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 examinations on the scheduled date.

- **Final Project**: This project will present you with an opportunity to design and implement a correct and carefully evaluated system for a particular problem using some programming language paradigm. 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. The details for the final project will be given shortly after the spring break.

**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.

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 at 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. For any assignment completed...
in a group, students must also turn in a one-page retrospective that describes each group member’s contribution to the submitted deliverables and the dynamics of their team work.

**Attendance**

It is mandatory for all students to attend all of the class, practical, and laboratory sessions. If you will not be able to attend a session, then please see me at least one week in advance to describe your situation. In case you missed a class because of an emergency, please notify me as soon as possible. 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 me in advance to make appropriate arrangements.

**Use of Laboratory Facilities**

Throughout the semester, we will investigate many different software tools that computer scientists use during the design, implementation, and evaluation of algorithms. The course instructor and the department’s systems administrator 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 laboratory and practical assignments and the final project while using the department’s laboratory facilities. The course instructor and the systems administrator normally do not assist students in configuring their personal computers.

You may access your computer science account remotely by following instructions on: http://www.cs.allegheny.edu/about/x2go/

**Class Preparation**

In order to minimize confusion and maximize learning, students must invest time to prepare for the class discussions, lectures, and practical and laboratory sessions. During the class periods, the course instructor 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 organized and effectively prepare for classes, the course instructor will maintain a class schedule with reading assignments and presentation slides.

**Seeking Assistance**

Students who are struggling to understand the knowledge and skills developed in a class or a laboratory session are encourage to seek assistance from the course instructor. Students who need the course instructor’s assistance should schedule a meeting through her Web site.

*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 me 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 one of the
available resources on campus:
The Maytum Learning Commons, Library/Academic Commons, 814-332-2898
Allegheny College Counseling Center, Reis Hall, 814 -332-4368
Winslow Health Center, Schultz Hall , 814-332-4355
Allegheny College Chaplain, Reis Hall, 814-332-2800

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 Department Policy:

Department of Computer Science Honor Code 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 to faculty of the Department of Computer Science 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 and The Compass.