

**CMPSC 201**  
**Programming Languages**  
**Fall 2020**  
**Syllabus**

### **Course Instructor**

Dr. Janyl Jumadinova

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Web Site: <https://cs.allegheny.edu/sites/jjumadinova>

### **Instructor's Office Hours**

- Monday: 10:30 am–11:00 am and 12:45 pm–1:45 pm (15 minute time slots)
- Tuesday: 1:45 pm–2:45 pm (15 minute time slots)
- Wednesday: 10:30 am–11:00 am (15 minute time slots)
- Thursday: 1:45 pm–2:45 pm (15 minute time slots)
- Friday: 10:30 am–12:30 am (15 minute time slots)

To schedule a meeting with me during my office hours, please visit my web site and click the “Schedule” link in the top left-side corner. Now, you can browse my office hours or schedule an appointment by clicking the correct link and then reserving an open time slot. Students are also encouraged to post appropriate questions to a channel in Slack, which is available at <https://cs201f2020.slack.com/>, and monitored by the instructor and the student technical leaders.

### **Course Meeting Schedule**

Discussion and Hands-on Class Session (in-person and online): Tuesday and Thursday 9:35 am–10:50 am

Laboratory Session (online): Tuesday 3:00 pm–4:50 pm

Detailed schedule of the course is located on its Web Site: <https://www.cs.allegheny.edu/sites/jjumadinova/teaching/201>

All course assignments are available in their respective repositories in the course's GitHub Organization: <https://github.com/allegheny-computer-science-201-f2020>

### **Course Description**

A study of the fundamental concepts that arise in different programming language paradigms. Students learn how programming languages are designed and implemented, and how these factors affect the overall usability, performance, and effectiveness of computer software. Participating in hands-on activities that often require teamwork, students gain experience in leveraging the styles and features of programming languages to implement and evaluate correct and efficient computer software. During a weekly laboratory session, students use state-of-the-art technology to complete projects, reporting on their results through both written documents and oral presentations. Students

are invited to use their own departmentally approved laptop in this course; a limited number of laptops are available for use during class and lab sessions.

Prerequisite: CMPSC 101.

Distribution Requirements: QR, SP.

## Course Objectives

1. Recognize various programming language design and implementation trade-offs.
2. Understand fundamental concepts that underlie programming language syntax and semantics.
3. Use language constructs effectively to design correct and elegant programs.
4. To continue developing team-working strategies with a diverse range software developers.
5. To enhance ability to write and present ideas about software in a clear, concise, and compelling fashion.

## Performance Objectives

At the completion of this class, a student must be comfortable with the fundamental concepts that underlie 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. 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. Finally, students should demonstrate the ability to use both in-person discussions and software tools to collaborate with a group of diverse team members.

## Required Textbook

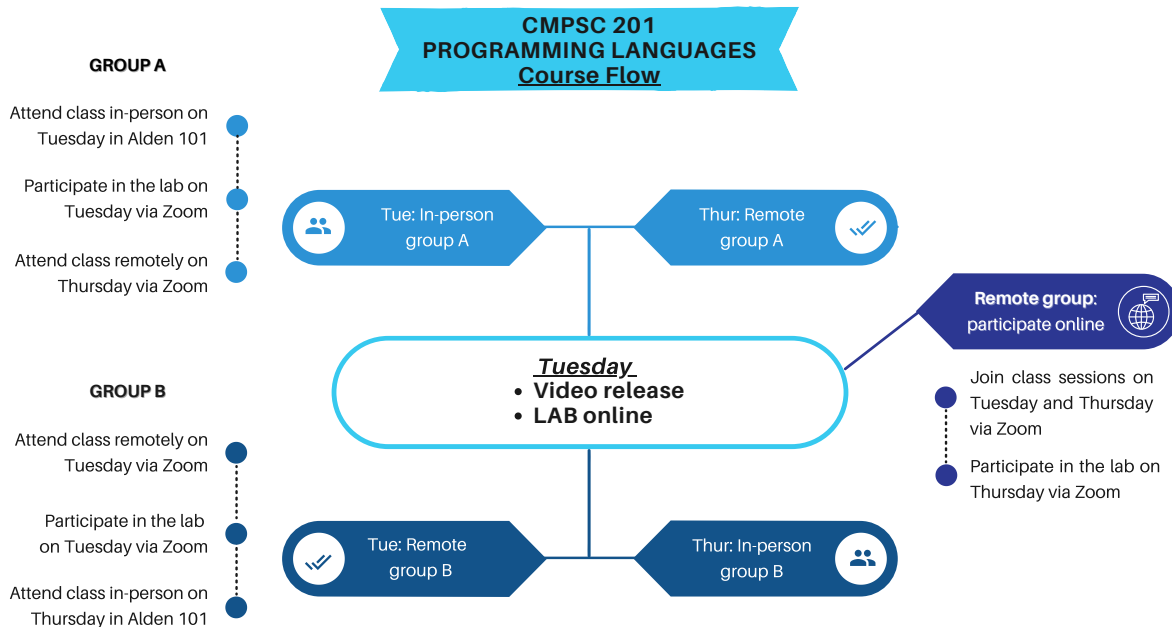
**Required:** *Programming Language Pragmatics*, Fourth Edition by Michael L. Scott. Morgan-Kaufmann, 2016.

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

Along with reading the required textbook, you may be invited to study additional articles from a wide variety of conference proceedings, scientific journals, and the popular press.

## Course Flow

The class members will be broken up into two groups, A and B. Each group will attend one class session in-person and the second class session synchronously online via Zoom each week. All labs will be held online and students are expected to join the lab session via Zoom unless you have discussed your absence(s) with me.



## Course Policies

### Grading

The grade that a student receives in this class will be based on the following categories. All of these percentages are approximate and, if the need to do so presents itself, it is possible for the course instructor to change the assigned percentages during the academic semester.

Class Participation	20%	Laboratory Assignments	40%
Midterm Examination	10%	Final Project	20%
Final Examination	10%		

The grading categories have the following definitions:

- *Class Participation:* Your participation will take forms such as participating in polls, completing surveys, and engaging with programming-based activities. Participation activities are graded on a credit/no-credit basis and are to be submitted before the start of the next class session. If a student is absent for a valid reason (illness, need to quarantine, personal issues, etc.) communicated to the instructor, the participation activity(ies) for that period will be excused.
- *Midterm Examination:* The midterm is an hour-long cumulative test covering all of the material from the class, practical, and laboratory sessions, as outlined on the review sheet. Unless prior arrangements are made with the course instructor, all students will be expected to take this test on the scheduled date and complete the test in the stated period of time.
- *Final Examination:* The final examination is a two-hour cumulative test, as outlined on a review sheet given to students at the end of the academic semester. By enrolling in this course, students agree that, unless there are severe extenuating circumstances, they will take the final examination at the date and time stated on the first page of the syllabus.

- *Laboratory Assignments:* These assignments invite students to explore different techniques for designing, implementing, evaluating, testing and documenting software solutions to challenging problems. To best ensure that students are ready to develop software in both other classes at Allegheny and after graduation, students will complete assignments both on an individual basis and in teams. Team-based assignments will be evaluated based on both individual and team effort according to the guidelines established in the course's Code of Conduct. GatorGrader and Continuous Integration will be used to help students assess their work before submission of the assignment and for the evaluation of the lab assignment.
- *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 semester to solve a technical problem and, whenever possible, make your solution and results publicly available in a free and open fashion.

### **Assignment Submission and Evaluation**

All assignments will have a stated due date. Electronic versions of the laboratory, practical, and final project assignments must be submitted to a student's GitHub repository. No credit will be awarded for any course work that is not submitted to your GitHub repository with the required name. Unless specified otherwise, all laboratory assignments must be turned in at the beginning of the session that is one week after the day the assignment was released. If special arrangements arise making it difficult for you to submit any assignment on time, please contact the instructor. One assignment grade of student's choice will be dropped at the end of the semester per request of the student.

Using a report that the instructor shares with you through the commit log in GitHub, you will privately receive a grade for and feedback on each assignment. Your grade will be a function of whether or not you completed correct work and submitted it by the deadline. Other factors (e.g., the quality of your source code and technical writing) will also influence your assignment's grade.

### **Illness and In-person Attendance**

If you feel ill, please stay in your residence and complete the daily health screening, and err on the side of caution when deciding whether or not to come to class. Especially if you feel feverish or have a cough, please avoid contact with others; if you feel like you'd like to "power through" class rather than miss it and have to make it up, please do so remotely.

### **Remote Attendance**

If you are participating entirely remotely this semester and relying on technology to attend class meetings, occasional technology problems that disrupt your participation will not harm your participation grade, but as with illnesses and family emergencies, chronic absences for this reason will require a more extensive discussion with me and may impact your grade.

### **In-person Attendance**

A mask covering both your mouth and your nose is required for all in-person activities, per College policy; you will not be permitted to enter or stay in a classroom or other learning space without

a face covering, and class time missed for this reason may count against your participation grade. Physical distancing must be respected at all times in the classroom. Chairs will be positioned 6 feet apart, and should remain so.

### **Use of Computer Hardware and Software**

You will need to ensure that your laptop is sufficiently charged so that you may participate in class(es). It won't be possible for all in-person students to charge their devices at once in the classroom, so please make sure you bring the power cord(s) for your devices to class, pack a power strip if you have multiple devices, and pay attention to the power meter on your device.

Although the instructor and the student technical leaders will support you in the configuration of your own development workstation, it is the responsibility of each enrolled student to download and install the required software. Please schedule a meeting with the instructor if you are struggling with these tasks.

### **Recording Policy (prepared by Campus Life and Community Standards Committee)**

In remote teaching and learning contexts, there is an understanding that instructors (including faculty, coaches, staff, and facilitators) have the right to record class and discussion proceedings. All other participants must request permission of the instructor in advance before making any additional recordings. An instructor's pre-recorded material, including lectures and class notes, may not be shared with anyone outside of the course's current enrollment without the consent of the instructor. Similarly, under no circumstances may a recording, still, screenshot, picture, or any other media of any sort be altered or circulated by anyone outside of its original intent. No content may be distributed outside the circle of participants without the consent of all who appear or are heard. The college community is reminded of Allegheny College's Recording Policy, outlined in 9.8 of the Faculty Handbook, as well as Allegheny's Statement of Community. Violations will be referred to the Student Conduct system. Classes may also be recorded if approved as an educational accommodation through the Office of Student Disability Services. Faculty are further reminded that recordings of class activities are educational records protected under FERPA. While students do not have a right to be anonymous in a class in which they are enrolled, they have the legal right to be anonymous to third parties. Please direct questions about FERPA to the Registrar.

### **Class Preparation**

In order to minimize confusion and maximize learning, students must invest time to prepare for the class discussions, lectures, and practical sessions. During the class periods, the course instructor will often pose challenging 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. Only students who have prepared for class by reading the assigned material and reviewing the current laboratory and practical assignments will be able to effectively participate in these discussions.

More importantly, only prepared students will be able to acquire the knowledge and skills that they need to be successful in this course, subsequent courses, and the field of computer science. In order to help students remain organized and to effectively prepare for classes, the course instructor will maintain a class schedule with reading assignments and presentation slides. During the class sessions students will also be required to download, use, and modify programs and data sets that are made available through means such as the course web site and a GitHub repository.

### **Seeking Assistance**

Students who are struggling to understand the knowledge and skills developed in a class, laboratory, or practical session are encouraged to seek assistance from the course instructor or one of the student technical leaders. Throughout the semester, students should, within the bounds of the Honor Code, ask and answer questions on the course's Slack workspace. To ensure a suitable response, please request assistance from the instructor or technical leaders first through Slack before sending an email. Students who need the course instructor's assistance must schedule a meeting through his web site and attend the meeting with all of the details needed to discuss their question.

### **Academic Integrity**

Allegheny College operates under an Honor Code, to which all students are subject. See *The Compass: Student Handbook*. You should educate yourself appropriately as to how this applies to you. Plagiarism and other forms of intellectual dishonesty will not be tolerated.

It is understood that an important part of the learning process in any course, and particularly one in computer science, derives from thoughtful discussions with teachers 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. While it is acceptable for students in this class to discuss their programs, data sets, and reports with their classmates, deliverables that are nearly identical to the work of others will be taken as evidence of violating the Honor Code.

### **Religious Accommodations**

If you need to miss class or reschedule a final examination due to a religious observance, please speak to the professor well in advance to make arrangements. See <http://sites.allegheny.edu/religiouslife/religious-holy-days/>.

### **Disability Services**

Students with disabilities who believe they may need accommodations in this class are encouraged to contact the Office of Disability Services at (814) 332-2898. Disability Services is located in Pelletier Library. Please do this as soon as possible to ensure that such accommodations are implemented in a timely fashion.

### **Learning Commons**

If you are not already, you should become familiar with the Learning Commons, located in Pelletier Library (<http://sites.allegheny.edu/learningcommons/>). Among other things, the staff at the Learning Commons can assist you with study and time management skills, writing, and critical reading. You should know that if you are having trouble in this class, or if I think you can specifically benefit from their services, I will refer you to the Learning Commons. Experienced peer writing and speech consultants in the Learning Commons help writers and speakers to determine strategies for effective communication and to make academically responsible choices at any stage in the writing or speaking process and on assignments in any discipline. Both appointments and drop-in sessions are available. To view the hours of operation, and to make an appointment, visit the Learning Commons website.

**Statement of Community**

Allegheny students and employees are committed to creating an inclusive, respectful and safe residential learning community that will actively confront and challenge racism, sexism, heterosexism, religious bigotry, and other forms of harassment and discrimination. We encourage individual growth by promoting a free exchange of ideas in a setting that values diversity, trust and equality. So that the right of all to participate in a shared learning experience is upheld, Allegheny affirms its commitment to the principles of freedom of speech and inquiry, while at the same time fostering responsibility and accountability in the exercise of these freedoms.