Programming I

COP 3014: Fall 2021
Department of Computer Science, Florida State University

October 7, 2021

Class Time and Location

Lecture:

Mondays, Wednesdays and Fridays: 8:00 AM - 8:50 AM BEL 0180 (Sections 1, 2, 3, 4, 13)
Mondays, Wednesdays and Fridays: 12:00 PM - 12:15 PM WJB 2004 (Sections 5, 6, 7, 8, 14)
Mondays and Wednesdays: 3:05 PM - 4:20 PM WJB 2005 (Sections 9, 10, 11, 12, 15)
Lectures will meet in-person at the specified time and location. Students should attend the lecture for the section they are enrolled in.

Discussion Sessions

Discussion Sessions are the 50 minute weekly sessions scheduled at different times based on a student's section. There are 15 sections for the course. Discussion Sessions will meet in-person at the specified time and location. Students are required to attend the discussion session they are enrolled in.
Section 1: Mondays 9:20 AM - 10:10 AM MCH 302
Section 2: Wednesdays 9:20 AM - 10:10 AM MCH 302
Section 3: Fridays 9:@0 AM - 10:10 AM MCH 302
Section 4: Fridays 10:40 AM - 11:30 AM MCH 315A
Section 5: Mondays 1:20 PM - 2:10 PM MCH 202
Section 6: Wednesdays 1:20 PM - 2:10 PM MCH 202
Section 7: Fridays 1:20 PM - 2:10 PM MCH 202
Section 8: Mondays 10:40 AM - 11:30 AM MCH 202
Section 9: Mondays 4:50 PM - 5:40 PM MCH 202
Section 10: Wednesdays 4:50 PM - 5:40 PM MCH 201
Section 11: Fridays 4:50 PM - 5:40 PM MCH 202
Section 12: Wednesdays 10:40 AM - 11:30 AM MCH 202
Section 13: Mondays 6:35 PM - 7:25 PM MCH 315A
Section 14: Wednesdays 6:35 PM - 7:25 PM MCH 315A
Section 15: Fridays 6:35 PM - 7:25 PM MCH 315A

Review/Help Sessions

The instructor, Teaching Assistants and Learning Assistants will hold office hours every week. These are review/help sessions and are the best way for students to get help with course material and homework assignments, outside of classes. The times for the help sessions will be posted on Canvas once they are determined after Drop-Add.

- Most Help sessions will be done in person at the instructor/TA/LA's office. A list of the instructional staff and their office locations can be found below.

- The help sessions will be held virtually at least 2 times a week. This allows students to avoid driving into campus just for the help sessions. Virtual Help Sessions will be done though Zoom on a separate Canvas Organization page. Students are required to self-enroll in this page, and will not be automatically added. The URL for this Canvas Page will be released along with the times for the help sessions.
- Virtual Help Sessions might involve students sharing code / homework solutions or discussing grades with the instructor or the TA's. Therefore, students will be seen one by one. Students will enter a waiting room when they login to the Zoom meeting, and will be seen in 10-minute time slots on a first come, first serve basis. If the student requires more than 10 minutes, they will be moved back into the Waiting Room, and will be seen again, once it's their turn again.
- You might encounter long wait times for both in-person and virtual help sessions. The best way to avoid these is to start your homework assignments early.
- The instructor and the TA's will also be available by appointment outside for office hours. These appointments are subject to availability and have to be scheduled at least 24 hours in advance.

Instructor Information

- Instructor: Sharanya Jayaraman
- Email: jayarama@cs.fsu.edu
- Office: LOV 251 A (temporary). The instructor will move to a permanent office once the ongoing renovations to the Love Building are completed.
- Office hours: TBA
- **Do not look me up on Outlook,** instead please make sure you use the given email. There are many instructors/students at FSU with similar names, and unless you use this particular email, you do not know for sure if I received it.

Teaching Assistants

- Silei Song: ss19cu@my.fsu.edu
- Arunima Mandal: am19cf@my.fsu.edu
- Alexander Kostandarithes: ak17c@my.fsu.edu
- Alex Chiciu: ac16ad@my.fsu.edu
- Ashwati Nair: an21s@my.fsu.edu
- Aishwareeya Rath (grader): ar19c@my.fsu.edu

Teaching Assistants help with instruction and grade quizzes and homework assignments. They also supervise the discussion sessions.
Times for TA help sessions will be posted on the course website.

Learning Assistants

- Emily Schall - ers19i@my.fsu.edu
- Joshua Kane - jdk20bn@my.fsu.edu
- Grace Brill - kgb19a@my.fsu.edu
- Franchesca Bellevu - flb18@my.fsu.edu
- Richard Garcia - rg19g@my.fsu.edu
- Romail Khan - rk19d@my.fsu.edu
- Steven Matiz - wsm19a@my.fsu.edu
- Alexandra Velez - aev19c@my.fsu.edu
- Tyler Welsh - tjwelsh@fsu.edu
- Rotchy Moricette - rm18@my.fsu.edu

Learning Assistants support the students through the course. They are facilitators of learning and also serve as exemplars of students who have been through the course recently. They will serve as mentors and moral support along with being instructional support. LA's will provide students with more immediate feedback during the discussion sessions along with ideas for course corrections. However, they will not have any grading duties.

Email Policy

Email is the best way to contact the instructor, TA's or LA's outside of class and help sessions. Emails received during business hours (8AM - 5 PM) will usually receive a same day response. Emails received after business hours will receive a response within the NEXT BUSINESS DAY.

Please contact us directly by email. Do not send us Canvas messages. Most of us receive Canvas messages as a digest once a week, so your Canvas message most likely will not reach us in time. If you have a question about grading, please send an email or ask us in person. Comments on grading feedback will not be read as we have no way of knowing if and when you post comments on grading feedback.

If the instructor or TA needs to contact you individually for any reason, they will send emails to your myFSU email. **Please make sure you check your myFSU email frequently.**

Course Materials

Course Website: `www.cs.fsu.edu/~jayarama/prog1.html`
This website would contains most of the information related to this class including

- Day-by-day list of topics covered
- Lecture Slides
- Homework Assignments
- Practice Exercises
- OTher handouts
- Time and Location of Help Sessions

- Other useful resources.

The class will also have a Canvas page which will be used for

- The most recent copy of the course syllabus
- Course Announcements
- Recorded pre-lecture videos
- Submitting homework assignments
- Grades for all course assessments
- Discussion Posts
- Accessing Canvas for in-class exercises

Prerequisites

- All students taking COP 3014 are required to have previously taken and passed (with a C- or higher final grade) MAC 1140 or MAC 2311 or MAC 2233.
- If you have not completed this pre-requisite requirement, the CS department will most likely drop you from this course in the first week of classes.
- To be sure that your course schedule is correct, if you do not have the pre-requisite you should drop yourself from this course and then adjust your class schedule appropriately with the help of your academic advisor.

Course Objectives

This course is intended for majors in computer science or related areas and focuses on the fundamental concepts of computer programming using the C++ language. This course may be used as a programming pre-requisite for COP 3330. Successful completion of this course satisfies the computer competency requirement for the mathematics major.

Upon successful completion of the course, the student should be able to:

- Demonstrate a basic understanding of computer concepts, including software and hardware.
- Solve computing problems using a top-down approach in a well-structured design using procedural programming techniques.
- Design, implement, test, and debug a C++ program to solve a given problem.
- Demonstrate knowledge and use of control structures used in procedural programming, including sequence, selection, iteration, and functions.
- Make use of data types and structures in C++ including integer and floating point types, arrays (one-dimensional, two-dimensional, strings) and structs; arrays of structs and structs containing arrays. Have a introductory-level understanding of the C++ class and be able to utilize the standard IO and string classes and their member functions.
- Utilize fundamental algorithms studied to perform common tasks, such as finding the max and min of a data set, counting, summing, tracking a previous value, searching and sorting, reading until EOF, etc.
- Consider, compare, and evaluate code segments or simple algorithms for relative efficiency in a basic fashion.
- Make use of pointers: understanding their relationship with arrays, their use in function parameters and returns, and their importance in dynamic memory allocation.

Textbook

Starting Out with C++: From Control Structures through Objects, 9th ed., Tony Gaddis. This is available at the FSU bookstore, as well as online from multiple retailers. This is the only book you will need for this course. If you have a previous edition, just ensure you're reading the appropriate sections by checking with someone who has the current version (9th edition)

Software Required

- The c++ compiler used for this course is JetBrains CLion. This software is free for students and is cross-platform (it is available and works the same way on a PC, Mac or a Linux machine). Students will be provided with a guide to use the Software. All work submitted for this course will be graded using JetBrains CLion.
- JetBrains CLion will also be available in the computer labs used for the Discussion Sessions as well as the Computer Science Majors lab
- Canvas would be used for the in-class exercises. It is recommended that the students have a device they use to access Canvas during class (laptop/tablet/smartphone, etc).

Tentative Course Schedule

This is a tentative schedule for the course. Please see the weekly calendar on the class web site for details and updates.

- Week 1 - Introduction to C++, basic components of a Computer program, output statements
- Week 2 - Input statements, data types, variables, operators.
- Week 3 - Operators, selection statements
- Week 4 - Selection statements, repetitive statements
- Week 5 - Repetitive statements, problem decomposition
- Week 6 - Functions, Milestone assignment 1
- Week 7 - Advanced functions
- Week 8 - Arrays, Arrays with functions
- Week 9 - Strings and C++ string objects
- Week 10 - strings with functions, introduction to pointers
- Week 11 - pointers and dynamic memory
- Week 12 - Dynamic arrays, Milestone Assignment 2
- Week 13 - Structures - composite data types
- Week 14 - Structures continued
- Week 15 - File operations, Next steps

Pre-Lecture Videos

Pre-recorded videos about the next lecture's topics, about 10 minutes long, will be posted on Canvas at least 24 hours before the class meeting. Students need to watch these videos in order to be prepared for the lecture. The videos would also include 2 questions. Grades on these questions will count towards the student's attendance grade.

Lecture Policy

The course is face-to-face. Students are required to be in the classroom at the specified times. The lectures will not be recorded. Students are still expected to take notes on the material for future reference. As an effort to prevent binge-learning, attendance is required during the lectures. Students will complete in-class exercises for credit, both individually, and in groups.

Discussion Sessions Policy

Discussion Sessions are the once-a-week 50 minute sessions. The meeting times depend on the student's section, and will be led by a Teaching Assistant. Students will "present" the programs they competed for the previous week's practice exercises to an LA during the discussion sessions. The students do not have to prepare slides or a speech. They will just discuss their solution in a group consisting of the LA and about 6-7 more students. The LA might ask for clarifications, request modifications to the program, suggest a different approach, etc. The LA's and TA's observations will be recorded and submitted to the instructor. The student's performance in the discussion sessions would count towards 8% of their course grade.

Homework Assignments

Programming Homework Assignments

Programming assignments will be given periodically through the semester. They will be posted on the course website. You will have a week to 10 days to complete these assignments.

- Assignments are NOT OPTIONAL. Students need to turn in all the homeworks to make an attempt at getting full credit for the homework/assignment component of the grade.
- Students are expected to turn in all assignments ON TIME!
- Students are not permitted to "re-do" assignments after the deadline.
- Assignment deadlines are STRICTLY enforced.
- STUDENTS are responsible for ensuring that their program file was submitted correctly. This means making sure their file was submitted without error, ON TIME, and also submitting the correct .cpp file.
- STUDENTS are responsible for ensuring they do not accidentally delete or overwrite their files.
- Compiling
  - Programs that do not compile are very tedious to grade, and they show a lack of testing, which is a large part of programming. There will be an automatic 5 point penalty for each compiler error in a student's code that has to be fixed in the grading process. (This means that program submissions with compiler errors will likely earn very little, if any, credit).
  - If there are more than 10 compilation errors the program receives an automatic zero. Students are responsible for making sure the code COMPILES before they submit it.

- Also, the programs must compile without warnings - warnings are not the same as errors (programs can still "run" even with warnings) but they are NOT acceptable and it is not good practice to submit programs with warnings. 3 points will be taken off for EACH WARNING present in student's submitted code.

- Debugging, Testing and Programming Convention
  - The assignments will have sample runs that give the student an idea of what the output of the program should look like. However, these samples only show one or two possible runs of the program. It is the student's responsibility to test their programs thoroughly for a variety of possible inputs.
  - Testing is also a good way to catch logical bugs in the program that would give you the wrong answer. Compilers cannot help out with these.
  - Points are set aside for following programming conventions which will be introduced throughout the course. A program that produces the correct answers without following programming conventions would not get 100% credit.

Attendance and Class Participation

Attendance and participation is expected, and REQUIRED to do well in the course. Attendance translates to staying current with the course. Attendance and class participation, measured through the in-class exercises, will count towards 8% of the course grade. We follow FSU's attendance policy. If a student needs to miss class for whatever reason, they should contact the instructor.

Class Participation would be measured through in-class activities. Each lecture would include 4 questions. Student responses would be collected through a Canvas Quiz. The responses to these 4 questions along with the 2 questions from the pre-lecture video will be used to determine the student's class participation grade.

Milestone Assignments

Milestone Assignments are how we measure programming competency in the course. They are designed to test students' understanding of the material and their problem-solving ability in a given amount of time. This simulates a real-world measure of programming competency.

There will be three timed milestone assignments over the course of the semester. These will be announced about 2 weeks in advance and students will be provided with a Study Guide with sample questions. The dates will be posted on the course website. The tentative dates are the second class periods of Week 6, Week 12 and the scheduled time slot during the finals week

The milestone assignments will be cumulative. The format will be a mixture of multiple choice, short-answer, code reading and understanding, and code writing. Due to the nature of this course, it is likely that the milestone assignments will be timed (about 50 minutes long), closed-book closed-notes, and will be taken in class.

Practice Exercises

Practice is the only way to get better at programming. Programming is a very incremental discipline, and material covered in one week will be used in all the subsequent weeks. It is recommended that students practice for about 30 minutes every day. Students will be given graded practice exercises after every lecture. It is recommended that the students try and solve these practice exercises and ask the instructor or teaching assistants for help if they encounter issues. The solutions should be turned in through Canvas. The students will be presenting their solution from Canvas to any one of the practice problems during the next week's discussion session.

Grade Posting Policy

Grades for high-stake assignments (homework assignments or milestone assignments) will be posted within 2 weeks after the due-date. This is because the assignments are graded by hand and not auto-graded in an effort to provide meaningful feedback to the students.

Grade for the lower-stake assignments (practice exercises, discussion sessions, in-class exercises) will post within 7 days of the assignment being turned in.

Grading Policy

The final course grade will be computed as follows:

Attendance and Class Participation	8%
Practice Exercises	8%
Discussion Sessions	8%
Homework Assignments	35%
Milestone Assignment 1	12%
Milestone Assignment 2	12%
Milestone Assignment 3	15%
First-Day Quiz	1%
Participation in help sessions or discussion posts	1%

Regrade Requests

Requests for regrading should be within a week of grades being posted on Canvas by sending an email to the instructor or the TA who graded the assignment. Only the file already submitted on Canvas will be regraded. Students are not allowed to submit a newer version of their programs.

Comments on the grading feedback will NOT be read. The only way to request more feedback/clarifications/re-grading is through email.

Final Letter Grade

The final grade will be calculated according to your numerical average as shown in the table below.

THE CLASS WILL NOT BE GRADED ON A CURVE.

THE GRADES WILL NOT BE ROUNDED TO THE NEAREST WHOLE NUMBER.

		A	>93	A-	92.99 - 90
B+	89.99 - 87	B	86.99 - 83	B-	82.99 -80
C+	79.99 - 77	C	76.99 - 73	C-	72.99 -70
D+	69.99 - 67	D	66.99 - 63	D-	62.99 -60
F	<60				

In addition to the scale listed above, in order to earn a C- or better in the course, a student is required to achieve a milestone assignment average of C- or better. If the milestone assignment average is below this level, the highest possible course grade is a D+.

The Milestone assignment average can be computed with the following formula:

MAAvg = ((MA1 * 15) + (MA2 * 15) + (MA * 15)) / 45

The Letter Grade on Canvas is not accurate

Canvas only takes the graded assignments into account while calculating your letter grade. So, you might see a grade of A- one day and C- the next. Please do not assume the Canvas letter grade is your actual grade. Please calculate you grade according to the grade distribution, with a 0 for all the grade that haven't yet been posted. If you need an Excel formula for your grade, please email the instructor/ TA's for one.

Late Homework Assignment Policy

Students are expected to turn their homework assignments in on or before the due date. Late homework assignments will suffer a 10 percentage point penalty for the first 24 hour period. For example, a homework assignment worth 200 points turned in late will receive a 20 point penalty. Homework assignments turned in more than a day after the due date will receive a grade of '0', but you can still receive feedback on it.

The late deadline is only offered for Homework Assignments. In-class exercises have to be turned in during class. Practice Exercises have to be turned in before the next class-period begins. Discussion Sessions have to be completed in that class meeting.

Missed Milestone Assignment Policy

If a student missed a milestone assignment, and has a documented excuse for the same, they may schedule a make-up by contacting the instructor within 24-hours of the missed milestone assignment, with the documentation. It is understood that the make-up milestone assignment will be a different set of questions of the same difficulty level.

Extra Credit Policy

Extra credit points will be offered on all the graded assignment groups. Also, students will be offered 1 % extra credit on their final grade if they participate in the ACM Fall 2021 programming contest (if the contest is organized) and solve at least one problem.

PRE Program @ ACE: Free Academic Assistance

This class will participate in the Proactive Referral and Engagement (PRE) program. More information about PRE can be found at https://ace.fsu.edu/pre-student-faqs
The purpose of this program is to give you early academic assistance and advice so that you succeed in this class. Therefore, the course faculty or instructor may share information about your class performance with Dr. Samantha Tackett at ACE. You may contact ACE directly for course-based tutoring and study support via Campus Connect for zoom or in-person appointments:
https://fsu.campus.eab.com/student/appointments/new?type=tutoring

If you would like to contact Dr. Samantha Tackett directly for assistance, please use the information below:

Email: stackett@fsu.edu
Phone: 850-645-4047
Office: William Johnston Building G015B

University Attendance Policy

Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

Academic Honor Policy

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "...be honest and truthful and...[to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at **http://fda.fsu.edu/Academics/Academic-Honor-Policy**)

Additional Notes on the Academic Honor Policy

In addition to the University's Academic Honor Policy, students are expected to be aware of the following:

- Students are expected to do their own work on any classwork or test submitted for a grade. There are no group assignments in this course.
- It is NOT appropriate to work on assignments with other students or to give or receive solutions to or from anyone before an assignment is due and handed in (by all parties).
- It is NOT appropriate to share any amount of assignment/quiz/exam solutions with your classmates.
- Using or submitting existing scripts or solutions from the internet is a violation of the Academic Honor Policy.
- Submitting programs/reports/assignments done, wholly or in part, by a third party, including hired and contracted is a violation of the Academic Honor Policy. **This includes solutions or partial solutions found on "tutoring" websites like chegg.com, CourseHero or similar**
- DO NOT POST YOUR SOLUTIONS ONLINE (online compilers, text sites, blogs, help sites, etc...). No matter what the intent was in posting your solutions, this is automatically in violation of the Academic Honor Policy and the appropriate actions will be taken. DO NOT USE online compilers, chat rooms, or post any amount of your code on the web.
- DO NOT DISCUSS ASSIGNMENTS OR SOLUTIONS WITH YOUR CLASSMATES ON GROUPME OR SIMILAR. There is no official Group Chat for this course. Not only is any information found there unverified and possibly incorrect, it would also be a violation of the FSU Honor Policy. The instructor or the TA's will only ever contact you through Canvas (for course announcements) or through your FSU email (individually).
- **DO NOT UPLOAD COURSE MATERIALS (INCLUDING HOMEWORK QUESTIONS/ PROBLEM STATEMENTS) TO PAY-FOR SOLUTION WEBSITES LIKE CHEGG OR QUID-PRO-QUO WEBSITES LIKE COURSE HERO**. This is a violation of the Honor Policy. These materials are the intellectual property of the instructor and this also violates general Copyright rules.
- The only approved sources of "help" on assignments are the instructor, TA or LA Help Sessions and ACE Tutoring at FSU. Hiring "tutors" (from WiseAnt, Bartelby, unsanctioned Facebook Groups, reddit or similar) could potentially result in violations of the Academic Honor Policy.

- Discussing solutions and techniques on assignments with other students after the assignment has been graded and handed back is okay, and encouraged.
- Students are expected to turn in their work with their name on it, and they are representing that work as their own. If a student's submission matches that of another student, it is considered a violation of the Academic Honor Code.
- If a student has previously taken the course, they are NOT permitted to submit their old work for any assignment in the current semester. They must do their work from scratch. This is included in the FSU honor policy. See the link above.
- If it is found that a student has violated the academic honor policy the student is not permitted to drop or withdraw from the course, and must complete the course with the sanctions accessed via the policy. This is a UNIVERSITY policy.
- Examples found in the course textbook or in the course notes may be used in programs, **as long as the source is cited.** This is appropriate, as some assignments may be based on program examples found in the book or contain other code that is provided to you in the assignment specification.
- **A first violation of the honor code will result, at minimum (but not limited to), a penalty of a 0 grade on the assignment or test involved, along with a reduced letter grade in the course.** This will be done by filing the Step-1 Agreement of the FSU Honor Policy.
- **Any second violation of the honor code will result in an automatic F in the course, and possible proceedings before the Honor Court.** This will be done with a Step-2 Hearing.

Free Tutoring at FSU

On-campus tutoring and writing assistance is available for many courses at Florida State University. For more information, visit the Academic Center for Excellence (ACE) Tutoring Services' comprehensive list of on-campus tutoring options - see **http://ace.fsu.edu/tutoring** or contact **tutor@fsu.edu**. High-quality tutoring is available by appointment and on a walk-in basis. These services are offered by tutors trained to encourage the highest level of individual academic success while upholding personal academic integrity.

Accommodation for Disabilities

Florida State University (FSU) values diversity and inclusion; we are committed to a climate of mutual respect and full participation. Our goal is to create learning environments that are usable, equitable, inclusive, and welcoming. FSU is committed to providing reasonable accommodations for all persons with disabilities in a manner that is consistent with academic standards of the course while empowering the student to meet integral requirements of the course.

To receive academic accommodations, a student:
(1) must register with and provide documentation to the Office of Accessibility Services (OAS);
(2) must provide a letter from OAS to the instructor indicating the need for accommodation and what type; and,
(3) should communicate with the instructor, as needed, to discuss recommended accommodations. A request for a meeting may be initiated by the student or the instructor.

Please note that instructors are not allowed to provide classroom accommodations to a student until appropriate verification from the Office of Accessibility Services has been provided.

This syllabus and other class materials are available in alternative format upon request.

For more information about services available to FSU students with disabilities, contact the

Office of Accessibility Services
874 Traditions Way
108 Student Services Building
Florida State University
Tallahassee, FL 32306-4167
(850) 644-9566 (voice)
(850) 644-8504 (TDD)
oas@fsu.edu
https://dsst.fsu.edu/oas

Additional Notes for Students Registered with the OAS

If you have registered with the OAS for accommodations, the instructor will contact you through email to set up an appointment for a Zoom call. The purpose of the call is to clarify how the requested accommodations will be provided for this course and the protocols required for certain accommodations.

Confidential Campus Resources

Various centers and programs are available to assist students with navigating stressors that might impact academic success. These include the following:

Victim Advocate Program University Center A, Rm. 4100 (850) 644-7161 Available 24/7/365 Office Hours: M-F 8-5 **https://dsst.fsu.edu/vap**	University Counseling Center Askew Student Life Center, 2nd floor 942 Learning Way (850) 644-8255 **https://counseling.fsu.edu/**	University Health Services Health and Wellness Center (850) 644-6230 **https://uhs.fsu.edu/**

Syllabus Change Policy

Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.