

USC Viterbi

School of Engineering

ITP-165 “Introduction to C++ Programming”

Units: 2

Fall 2024

Mon&Wed 12:00-12:50 pm

Location: OHE 540

Instructor: Matt Whiting

Office: RRB 221

Office Hours:

TBD See Piazza for latest

Contact Info:

Email: whitingm@usc.edu

Discord: Matt Whiting#2805

Learning Assistant: Shawn Liao

Office Hours:

TBD See Piazza for latest

Contact Info:

Email: liaoyuxu@usc.edu

Learning Assistant: Adrian Reynoso

Office Hours:

TBD See Piazza for latest

Contact Info:

Email: atreynos@usc.edu

IT Help: Viterbi IT

Hours of Service:

Monday – Friday, 8:30 a.m. – 5:00 p.m.

Contact Info:

DRB 205

(213) 740-0517

engrhelp@usc.edu

Last updated: 4/15/2023

Course Description

Introduction to programming using C++, including variables, operators, conditionals, loops, arrays, vectors, strings, functions, files, structs, pointers, dynamic allocation, and a start on classes. Class time will be about half lecture, and half lab, where students practice programming the topic of the day. There will be about 10 almost-weekly homeworks (programs to write), and 2 exams.

Catalogue Description

Introduction to programming using C++, including variables, operators, conditionals, loops, arrays, vectors, strings, functions, files, structs, pointers, dynamic allocation, and an introduction to classes.

Learning Objectives

Students will be able to

1. design algorithms for simple calculations and data processing, and
2. write, run, and debug C++ programs to do such tasks, including use of variables, conditionals, loops, i/o, functions, structs and some classes.

Prerequisites: none

Co-requisites: none

Concurrent Enrollment: none

Technological Proficiency and Hardware/Software Required

Students should be able to handle text files, rename files, save and load files, find and organize files on your computer. You also need to know how to get on Blackboard and submit files to Blackboard.

Required Readings and Supplementary Materials

There is no required text (book) for this course.

Blackboard

Homework programs will be assigned and submitted on Blackboard. Files for class and lecture slides will also be posted on blackboard.

This is the place to look when you want to know what's next in class, what is due.

Attendance is monitored with Course Tools/Qwickly Attendance.

Piazza

We use this platform (preferred over email) to communicate, about the homework, office hours, questions from class.

IDE and Computer

You need a computer for class and to do your homework. (The ITP department has loaners if you don't have your own.)

We are going to use replit.com for actual programming, an online compiler (so all you need is a web browser).

It is highly recommended that you also have an IDE on your machine. Visual Studio for C++ is good on PC, as is xCode or Visual Studio Code on Macs.

If you use replit.com, use an unguessable account name and keep it secret.

Course Notes

Programming is learned by doing. A typical class will have 30 minutes of lecture and

live programming, where we demo the day's feature together. Then you will program a 'lab'. Labs should take you less than an hour.

There will be two tests and possibly some 'notecard-quizzes', all on paper. There will be 10 (as currently planned) programs to write for homework. Most of your effort should go to these homework assignments.

Description and Assessment of Assignments, Grading Breakdown

Assignment	% of grade
In-Class Labs	20
Homework	40
Midterm Exam	20
Final Exam	20
TOTAL	100

Assignment Submission Policy

Homework is to be submitted on Blackboard only. The link should allow for multiple submissions, but only the last one will be graded. Some systems do not allow submission of .cpp, so you should be able to change your files to .txt and submit, as needed.

Lab assignments are assigned during the class session and are due soon. You generally get the points if you make a reasonable attempt.

Each homework assignment must be completely individually. There are no group projects in this course. This is really important. Do not present or allow someone to present another person's work as ones own. You are not supposed to be looking at each other's programs or working on each other's programs. If I find matching programs (and we have a system for finding it, so it is easy to find), your case gets sent to the Office of Academic Integrity. Typical sanction (from me and or them) is an F on the program or an F in the course and an 'integrity' note on your transcript. You would be better off with a plain F. Please, I am begging you, do not turn in work that is not yours. If you do poorly on an assignment, take your hit with honor.

Lateness

It is your responsibility to submit your all homework assignments on or before the due date. Homework grades will be deducted up to 10% per day late. You have a 1-day grace period you can use on any ONE assignment. If you turn in an assignment late and wish to use this, put a note on it for the TA. You only have one of these per semester. Sometimes students do not feel good about their work, and they do not turn it in. Do not do that -- TURN STUFF IN. If you improve your program, fine, turn it in again. If you are embarrassed that it is late or not complete, turn it in. It is almost always better than a 0. Write comments in it, say what you have tried. Tell me what is working and what you know is not working. And turn it in.

Procedure for Extension

Extensions may be granted for documented medical or other emergency. If you have a valid excuse for turning in an assignment late, send me a message (Piazza private preferred) with documentation, and also submit to Blackboard a summary of your request as a 'first draft' of your homework. I will add a note on Blackboard with my decision and typically give a score of -1, which lets the TA know that I have given you an extension and your real work will arrive later. You can then submit your actual assignment

later as a '2nd version' for a real score. Note: the critical part is the submission to Blackboard -- I cannot leave a note for the TA to accept your work late unless there is a submission there for me to put the note on.

[Questions/Help](#)

Homework assignment questions should be posted to the online question forum Piazza. General questions or examples can be 'public'. Use private mode to post your code if you have specific questions. DO not post your homework code publicly. Try to avoid email to the professor. You are encouraged to attend the office hours for homework related questions. We give good help; use it. Additional Policies If you have a documented reason for missing an exam or if you need special accommodations, please let me know ahead of time and we will make arrangements.

[Back Up](#)

Back up your work. A crashed computer is not a valid excuse for late work. If you think that something of your homework was not graded correctly, contact the person who graded it to see if you can clear it up. If you still don't like it, come see me (professor). Generally, this should happen within a week of getting a grade. Do not come to me at the end of the semester with some complaint that is months old.

[Late Registration](#)

The university allows students to join courses up to the end of week 3. You will need my permission to join the course, and I generally give it with the understanding that late-comers will catch up within a week of arrival and at the latest by the beginning of week 5.

Exams will not be accepted late unless specific exceptions have been arranged in advance.

Grading Scale

Course final grades will be determined using the following scale

A	93-100
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	59 and below

Half percentage points will be rounded up to the next whole percentage. For instance, 89.50% is an A-, but 89.49% is a B+.

Course Schedule: A Weekly Breakdown

Subject to modification and update especially prior to the beginning of class August 26, 2024

	Topics	In Class	Homework
Week 1 8/26	01_Intro	Lab: Lab01_HelloWorld	
Week 1 8/28	02_OutputAndVariables	Lab: Lab02_MyNamels	
Week 2 9/2	No Class Labor Day		
Week 2 9/4	03_InputAndOperators	Lab: Lab03_Madlib	HW: HW01_Donut Due Friday 9/6 11:59pm
Week 3 9/9	04_Conditionals	Lab: Lab04_Premium	
Week 3 9/11	05_Bool	Lab: Lab05_ScratchOff	HW: HW02_Horoscope Due Friday 9/13 11:59pm
Week 4 9/16	06_DoWhile	Lab: Lab06_Average	
Week 4 9/18	07_WhileLoop	Lab: Lab07_Guess	HW: HW03_HighLow Due Friday 9/20 11:59pm
Week 5 9/23	08_ForLoop	Lab: Lab08_Stars	
Week 5 9/25	09_LoopReview	Lab: Lab09_TimesTable	HW: HW04_Mortgage Due Friday 9/27 11:59pm
Week 6 9/30	10_Getline	Lab: Lab10_Lines	
Week 6 10/2	11_ArrayAndStrings	Lab: Lab11_CString	HW: HW05_Encryption Due Friday 10/4 11:59pm
Week 7 10/7	12_Random	Lab: Lab12_PickACard	
Week 7 10/9	13_Vector	Lab: Lab13_ThreeInARow	HW: HW06_Stories Due Friday 10/11 11:59pm
Week 8 10/14	Midterm Review		
Week 8 10/16	Midterm Exam		
Week 9 10/21	14_Functions1	Lab: Lab14_Hotel	

Week 9 10/23	15_Functions2	Lab: Lab15_Primes	HW: HW07_ChuckALuck Due Friday 10/25 11:59pm
Week 10 10/28	16_PassByReference	Lab: Lab16_Shuffle	
Week 10 10/30	17_StreamOutput	Lab: Lab17_HotelFile	HW: HW08_Pancakes Due Friday 11/1 11:59pm
Week 11 11/4	18_StreamInput	Lab: Lab18_5WordsAtATime	
Week 11 11/6	19_EnumAnd2DArray	Lab: Lab19_TicTacToe	HW: HW09_Quizzle Due Friday 11/8 11:59pm
Week 12 11/11	20_Map1	Lab: Lab20_DataMap	
Week 12 11/13	21_Map2	Lab: Lab21_LetterCount	HW: HW10_BookIndex Due Friday 11/15 11:59pm
Week 13 11/18	22_Struct	Lab: Lab22_Point	
Week 13 11/20	23_Class1	Lab: Lab23_PointClass	HW: HW11_Gloss Due Friday 11/22 11:59pm
Week 14 11/25	24_Class2	Lab: Lab24_Dice	
Week 14 11/27	No Class Thanksgiving Break		
Week 15 12/2	25_SeparateFiles	Lab: Lab25_Battleship	
Week 15 12/4	Final Review		HW: HW12_War Due Friday 12/6 11:59pm
Final Exam	In the Classroom Friday Dec 13, 11:00 am		

Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
studenthealth.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press “0” after hours – 24/7 on call

studenthealth.usc.edu/sexual-assault

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) - (213) 740-5086 | Title IX – (213) 821-8298
equity.usc.edu, titleix.usc.edu

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
usc-advocate.symplcity.com/care_report

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity | Title IX for appropriate investigation, supportive measures, and response.

The Office of Disability Services and Programs - (213) 740-0776
dsp.usc.edu

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Campus Support and Intervention - (213) 821-4710

campussupport.usc.edu

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

ombuds.usc.edu

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.