



School of Engineering
*Information
Technology Program*

ITP 165 – Introduction to C++ Programming

Units: 2 location: online

2020 fall – T+H 11:00AM-12:20PM

section 31891

Instructor: Dr. Barrett Koster

Office: zoom

Office Hours: tbd

Contact Info: bkoster@usc.edu

Teaching Assistant:

Tyler amanosme@usc.edu

Pavle medvidov@usc.edu

IT Help: Provided by Viterbi IT

Hours of Service: 8am–5pm M-F

Walk-in: DRB 205 (or not)

Contact Info: (213) 740-0517

Help Desk Ticketing System:

<https://viterbi.usc.edu/servicedesk>

Course Description

Fundamentals of C++ syntax and semantics, including function prototypes, overloading, memory management, abstract data types, object creation, pointers to class members, and I/O streams.

Note for online classes

This semester we are online, all remote. Students in compatible time zones are expected to join the zoom class meetings live and submit labs same-day (although attendance is not *required*). Students for whom live class is the middle of the night (or if you have some other difficulty with class) may watch class recordings of class -- all classes will be recorded -- and submit labs offline. I am proud to be having this class around the world, unstopped by the virus. We will have TA and/or my office hours to accommodate. If there are other needs, let me know. Welcome.

Learning Objectives

This course will teach students problem solving skills using the C++ programming language. Programming fundamentals including variables, control statements, loops, and arrays, pointers, functions and object-oriented programming.

Prerequisite(s): None

Co-Requisite(s): None

Concurrent Enrollment: None

Technological Proficiency and Hardware/Software Required

Students are expected to be able to perform the following tasks before the course begins:

- **Zip and un-Zip folders and files**
- **Submit files through Blackboard's submission page**

Media

Required: no required text

Blackboard. Homework programs will be assigned and submitted on Blackboard. Files for class and lecture slides will also be posted on Bb. This is the place to look when you want to know what's next in class. Attendance is done with Course Tools/Quickly Attendance.

Piazza. We use this platform (rather than email) to communicate, about the homework, office hours, questions from class.

IDE. 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 repl for actual programming, an online compiler (so all you need is a web browser). But if you want you can install an IDE on your machine. Visual Studio for C++ is good, as is xCode on Macs.

Nature of the course

Programming is learned by doing. A typical class will have 30-40 minutes of lecture and live programming, where we demo the day's feature together. Then you will program. Lab time is short, so you may have to complete them out of class (but these are exercise-level programs, should not take more than an hour and hopefully much less). There will be two tests and 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.

Grading Breakdown

You will be graded on the following

item	% of grade
lab assignments	10
homework assignments	50
midter exam	20
final exam	20
total	100

note: reading and attendance are not graded per say but they will be recorded and used as context for your other efforts.

Your programs should have comments, and they should compile. Non-compiling programs will have severe deductions. Exams will be done on paper; prepare for it.

Grading Scale

Course final grades will be determined using the following scale

A	93+
A-	90 - <93
B+	87 - <90
B	83 - <87
B-	80 - <83
C+	77 - <80
C	73 - <77
C-	70 - <73
D+	67 - <70
D	63 - <67
D-	60 - <63
F	<60

Assignment Submission Policy

Homework are to be submitted on Blackboard only. We cannot process it correctly as an email attachment, so don't. Each homework assignment will include instructions, a due date, and a link for electronic submission. Homework assignments must be submitted using this link. The link should allow for multiple submissions, but only the last one will be graded.

Lab assignments are assigned during the class session and are due by the next class or the end of the week, which ever is sooner. Points are awarded by the zyLabs autograding system.

Each homework assignment must be completely individually. There are no group projects in this course.

It is your responsibility to submit your all homework assignments on or before the due date. Homework assignments turned in one day late will have 20% of the total points deducted from the graded score. Homework assignments turned in two days late will have 50% of the total points deducted from the graded score. After two days, submissions will not be accepted and you will receive a 0. Extensions may be granted for documented medical or other emergency.

If you have a valid excuse for turning in an assignment late, send me email (Piazza private preferred) with documentation and also (if approved) submit to Blackboard a summary of your request as a 'first draft' of your homework. I will add a note on Bb with my decision and typically give a score of -1, which lets the TAs know this is pending. You can then submit your actual assignment later as a 2nd version for a real score. Note: the critical part is the submission to Bb -- I can't

leave a note for the TA to accept your work late unless there is a submission there for me to put the note on.

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.

Homework assignment questions should be posted to the online question forum. Do not send any email to the instructor regarding homework. You are encouraged to attend the office hours for homework related questions.

Extensions for homework will only be granted for those students who have a medical/family emergency or illness resulting in an inability to complete the assignment on time. Students must provide official documentation.

Grading Timeline

Grading of homework will be done within one week of the deadline.

Additional Policies

Make-up policy for exams: To make up for a missed exam, the student must provide a satisfactory reason (as determined by the instructor) along with proper documentation.

Backup your work. A crashed computer is NOT a valid excuse for late work. ITP has loaner machines, but you need to save your work.

This course will make use of Piazza, an online discussion forum. Students will be invited to join the class discussion, but are not required to. Students may post questions, answer other student's questions, post anonymously, or post privately. Students are not allowed to post homework or lab code to Piazza publicly. Students may post homework or lab code privately on Piazza to instructors only. Any student caught posting homework or lab code on Piazza will be punished through SJACS.

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. 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.

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 and at the latest by the beginning of week 5.

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” <https://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, <http://policy.usc.edu/scientific-misconduct>

In this class, all homework submissions may be compared with current, previous, and future students’ submissions. If your work is found to be a copy of another person’s work, or if you submit someone else’s work as your own, the instructors will file a report with SJACS with a recommended penalty of an F in the course.

It is not okay to look through another student’s code. It does not matter if this code is online or from a student you know, it is cheating. Do not share your code with anyone else in this or a future section of the course, as allowing someone else to copy your code carries the same penalty as you copying the code yourself.

Support Systems:

Student Counseling Services (SCS) - (213) 740-7711 – 24/7 on call

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

<https://engemannshc.usc.edu/counseling/>

National Suicide Prevention Lifeline - 1-800-273-8255

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. <http://www.suicidepreventionlifeline.org>

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 - 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm. <https://engemannshc.usc.edu/rsvp/>

Sexual Assault Resource Center

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: <http://sarc.usc.edu/>

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086

Works with faculty, staff, visitors, applicants, and students around issues of protected class. <https://equity.usc.edu/>

Bias Assessment Response and Support

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. <https://studentaffairs.usc.edu/bias-assessment-response-support/>

The Office of Disability Services and Programs

Provides certification for students with disabilities and helps arrange relevant accommodations.

<http://dsp.usc.edu>

Student Support and Advocacy – (213) 821-4710

Assists students and families in resolving complex issues adversely affecting their success as a student

EX: personal, financial, and academic <https://studentaffairs.usc.edu/ssa/>

Diversity at USC

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. <https://diversity.usc.edu/>

USC Emergency Information

Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible, <http://emergency.usc.edu>

USC Department of Public Safety – 213-740-4321 (UPC) and 323-442-1000 (HSC) for 24-hour emergency assistance or to report a crime.

Provides overall safety to USC community. <http://dps.usc.edu>

Schedule for ITP-165 Intro C++

2020 Fall

week	Tues	topics	Thurs	topics (HW due Friday midnight)
1	Aug 18	topic: class policies , introduction lab: set up, repl or other	Aug 20	topic: variables lab: Madlib
2	Aug 25	topic: Conditionals lab: Premium	Aug 27	topic: Booleans lab: Craps due: HW Donut
3	Sep 1	topic: While Loops live: sum x^2 , factoring lab avg numbers until 0 (sentinel, accumulator)	Sep 3	topic: For Loops live: break int lab: stars, triangle, Factorial due: HW Horoscope
4	Sep 8	topic: Arrays , random numbers live: reverse a sentence lab: GradeBook	Sep 10	topic: Functions 1 , live: and create some faces lab: draw hotel due: HW Virus
5	Sep 15	topic: Vectors live: stars with functions lab: search text for word(s)	Sep 17	topic: Files , getline live: read files, use functions lab: copy file, 5 word lines due : HW Cypher
6	Sep 22	More Streams , files, arrays, vectors, and functions. live: command line parsing lab: parse	Sep 24	Functions 2 live: sum of 5 dice lab: N dice, paper quiz due: HW Pancakes, repeatable
7	Sep 29	topic: review for test	Oct 1	exam 1
8	Oct 6	topic: Function Misc , PBR vs PBV , and some attention to design lab: primes	Oct 8	topic: stringsArrays ... C-strings , live: Vowel Count lab: password checker due: HW Deal Or No Deal
9	Oct 13	topic: Structs live: Point, distance(), midPoint() lab: Card struct	Oct 15	topic: more structs , use vectors of structs, ... lots of data live: recipies ? lab: dictionary due: HW Numbo
10	Oct 20	topic: Pointers (+memory in general) live: exiting programs, check addresses, copies lab: try finding addresses of things	Oct 22	topic: Dynamic Allocation live and lab: start Gloss due: HW Quizzle
11	Oct 27	topic: Dynamic Arrays live: finish Gloss lab: bubble sort	Oct 29	Pointers on Pointers live and lab: stable marriage game due: Food Diary

12	Nov 3	topic: design choices live : d2 array, tic tac toe? lab: battleship prep	Nov 5	topic: Two D , lab: quick sort
xx		topic: Class Functions ,		topic: Class Functions 2 (access) ,
xx		topic: multi-file programs		topic: designing with classes
15	Nov 10	topic: Classes (a little) live: examples of computer power due: Player	Nov 12	topic: Final Review , Perspectives lab: Tournament live: evals, questions?
FINAL exam		Tuesday Nov 17 11am to 1pm, far east students TBD		

left over: [Destructors](#) , [Inheritacne](#) , [Vitual Functions](#) , [Vitual Functions again?](#) , [Virtual Destruction](#) , [Exceptions](#) , [dot h dot cpp \(multi file stuff\)](#) ,