ITP 165 – Introduction to C++ Programming

2022 fall Units: 2
section 31882 MW 12-12:50 WPH-102
section 31891 MW 3-3:50 SOS-B4

Instructor: Dr. Barrett Koster
Office: RRB 211 and zoom
Office Hours: TH 9:30am-11am, 1pm-2:30pm or by appointment
Contact Info: bkoster@usc.edu

Teaching Assistants:
Nikita Loginov and Tori Brookings, contact info and OH on Piazza

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

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School of Engineering
Information Technology Program

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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 : students should be able to handle text files, rename files, save and load files. You also need to know how to get on Blackboard and submit files to Blackboard.

Media 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 Bb. This is the place to look when you want to know what's next in class. Attendance is done 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). But if you want you can install an IDE on your machine. Visual Studio for C++ is good, as is xCode on Macs. If you use just replit.com, use an unguessable account name and keep it secret.

Nature of the course 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. 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 (note that the unweighted numbers on Blackboard may not match)

what	% of grade
labs	10
homework	50
midterm exam	20
final exam	20
total	100

Grade scale

letter	range
A	93+
A-	90-92.99
B+	87-89.99
B	83-86.99

B-	80-82.99
C+	77-79.99
C	73-76.99
C-	70-72.99
D+	67-69.99
D	63-66.99
D-	60-62.99
F	0-59.99

Assignment Submission Policy Homeworks are 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 files, 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. If I find this (and we have a program for finding it, so it is easy to find), you go to SJACS. You would be better off with an F (and you'll get the F anyway).

Lateness It is your responsibility to submit your all homework assignments on or before the due date. Homework grades will be deducted 10% per day late. 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 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 TA 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 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.

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 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.

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.

Schedule for ITP-165 Intro C++

2022 fall

Links on this page only work on MY computer. - BEK

week	Mon	topics	Wed/Fri	topics (HW due Friday midnight)
1	Aug 22	1. topic: class policies , introduction lab: set up, repl or other	Aug 24	2. topic: variables lab: Madlib
2	Aug 29	3. topic: Conditionals lab: Premium	Aug 31	4. topic: Booleans lab: Scratch Off due: HW Pizza
3	Sep 5	labor day no class	Sep 7	5. topic: While Loops live: sum x^2 , factoring lab avg numbers until -100 (sentinel, accumulator) due: HW Horoscope
4	Sep 12	6. topic: For Loops live: break int lab: lab stars, triangle, Factorial	Sep 14	7. topic: Arrays , random numbers live: reverse a sentence lab: GradeBook due: HW Mortgage
5	Sep 19	8. topic: Functions 1 , live: and create some faces lab: draw hotel	Sep 21	9. topic: Vectors live: stars with functions lab: Count Words: search text for word(s)
6	Sep 26	10. some thoughts , some pointers, do Cypher in class.	Sep 28	11. topic: Files , getline live: read files, use functions lab: copy file, 5 word lines due : HW Pancakes
7	Oct 3	12. More Streams , files, arrays, vectors, and functions. live: command line parsing lab: parse	Oct 5	13. Functions 2 live: sum of 5 dice lab: N dice, paper quiz due : HW Dogs
8	Oct 10	14. topic: review for test due: HW Madlib from files.	Oct 12	15. exam 1
9	Oct 17	16. topic: Function Misc , PBR vs PBV , and some attention to design lab: primes	Oct 19	17. topic: stringsArrays ... C-strings , live: Vowel Count lab: password checker

10	Oct 24	18. topic: Structs live: Point, distance(), midPoint() lab: Card struct	Oct 26	19. topic: more structs , use vectors of structs, ... lots of data live: recipies ? lab: dictionary due: HW Deal Or No Deal
11	Oct 31	20. topic: Pointers (+memory in general) live: exiting programs, check addresses, copies lab: try finding addresses of things	Nov 2	21. topic: Dynamic Allocation live: mke dictionary dynamic (more on Gloss) lab17: dynamic allocation due: HW Numbo
12	Nov 7	22. topic: Dynamic Arrays live: do array load of dictionary for gloss lab: bubble sort	Nov 9	23. Pointers on Pointers live : stable marriage lab: no lab
13	Nov 14	24. topic: Classes + into constructors here. lab: battleship prep due: HW Food Diary	Nov 16	25. topic: Class Functions , live/lab: Stable Marriage game
14	Nov 21	26. topic: Class Functions 2 (access) live/lab: Stable Marriage game ... finish?	Nov 23	Turkey Day break
15	Nov 28	27. topic: Final Review , due: Player	Nov 30	28. Perspectives lab: Tournament live: evals, questions?
FINAL exam	MW 12 section	Friday Dec 9 11am-1pm	MW 3 section	Monday Dec 12 2-4pm

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 conseque

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsik

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 inte

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 for Equity, Equal Opportunity, and Title IX (EEO-TIX) - (213) 740-5086
eeotix.usc.edu
Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
usc-advocate.symplicity.com/care_report
Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation

The Office of Student Accessibility Services (OSAS) - (213) 740-0776
osas.usc.edu
OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and u
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, Equity and Inclusion - (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, parti

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

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 c

Occupational Therapy Faculty Practice - (323) 442-3340 or otfp@med.usc.edu
chan.usc.edu/otfp
Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic perform