

# Introduction to C++ Programming

## ITP 165 (2 Units)

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**Spring 2018 - Tuesdays 5:00-7:50 pm**

**Instructor:** Heather Romero

**Office Hours:** Tuesday 8pm (after class)

**Contact Info:** [heiman@usc.edu](mailto:heiman@usc.edu)

### 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.

### Objective

This course will teach students problem solving skills using the C++ programming language.

### Concepts

Programming fundamentals including variables, control statements, loops, and arrays, pointers, functions and object-oriented programming.

### Prerequisites

None. This class is intended for students with no prior programming experience.

### Instructor

Listed on Blackboard under Contacts

### Office Hours

Listed on Blackboard under Contacts

### Lecture / Lab

See online schedule of classes for exact times  
2 hours 50 minutes once weekly

### Required Textbooks

None.

### Optional References

To supplement course material a good introductory C++ reference is recommended like the tutorials available at [LearnCpp.com](http://LearnCpp.com), [CPlusPlus.com](http://CPlusPlus.com), and [CProgramming.com](http://CProgramming.com).

## Course website

All course material will be on Blackboard (<http://blackboard.usc.edu>).

We will use Piazza (<http://piazza.com/>) as an online question and discussion forum.

## Grading

The following percentage breakdown will be used in determining the grade for the course.

Lab assignments	20%
Homework assignments	40%
Midterm exam	20%
Final exam	20%
<b>Total</b>	<b>100%</b>

## Grading Scale

The following shows the grading scale to be used to determine the letter grade.

93% and above	A
90% - 92%	A-
87% - 89%	B+
83% - 86%	B
80% - 82%	B-
77% - 79%	C+
73% - 76%	C
70% - 72%	C-
67% - 69%	D+
64% - 66%	D
63% and below	F

## Policies

### Lab assignments

There will be lab assignments after most lectures. These assignments will be immediate application of the material presented in lecture. These assignments will be graded as pass/fail. For credit on each practical you must complete the practical before class time has ended. Each practical will contribute to your overall grade. There is no way to make up a missed practical, however a practical grade can be dropped provided either prior instructor approval or a documented emergency.

## **Policies (continued)**

### **Homework assignments**

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

Each homework assignment will include instructions, a due date, and a link for electronic submission. Homework assignments must be submitted using this link.

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.

All homework assignments must be digitally submitted through Blackboard except when otherwise specified by the course staff. Do not email homework assignments to the instructor or lab assistant.

Homework assignment questions should be posted to the online question forum. Class time is for lecture and lab assignments only. Do not send any email to the instructor regarding homework assignments or ask specific homework questions during the lecture sessions. You are encouraged to attend the office hours for homework related questions.

### **Exams**

Make-ups are only allowed under extraordinary circumstances. Students must provide a satisfactory reason (as determined by the instructor) along with proper documentation. There are two exams: a midterm and a final. These exams are comprehensive of all topics covered.

### **Lab facilities**

You are encouraged to save your work using a USB flash drive or a website such as [Dropbox](#). You must keep a copy of all coursework. You will not be able to save your work on the ITP lab computers. Any work saved to the computer will be erased after restarting the computer.

ITP is not responsible for any work lost.

ITP will have open lab hours starting the third week of the semester. The open labs may not have course staff there. These lab times are there in case you need extra time to complete your work.

## Incomplete and Missing Grades

Excerpts for this section have been taken from the University Grading Handbook, located at <http://www.usc.edu/dept/ARR/grades/gradinghandbook/index.html>. Please see the link for more details on this and any other grading concerns.

A grade of Missing Grade (MG) “should only be assigned in unique or unusual situations... for those cases in which a student does not complete work for the course before the semester ends. All missing grades must be resolved by the instructor through the Correction of Grade Process. One calendar year is allowed to resolve a MG. If an MG is not resolved [within] one year the grade is changed to [Unofficial Withdrawal] UW and will be calculated into the grade point average a zero grade points.”

A grade of Incomplete (IN) “is assigned when work is no completed because of documented illness or other ‘emergency’ **occurring after the twelfth week** of the semester (or 12<sup>th</sup> week equivalency for any course scheduled for less than 15 weeks).”

## Academic Conduct and Academic 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 Section 11, Behavior Violating University Standards <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. 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/>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the Office of Equity and Diversity

<http://equity.usc.edu/> or to the Department of Public Safety

<http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>.

This is important for the safety whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. The Center for Women and Men <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage [sarc@usc.edu](mailto:sarc@usc.edu) describes reporting options and other resources.

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### Course Outline

Note: Schedule subject to change

	Topics/Daily Activities	Labs	Deliverable/ Due Dates
<b>Week 1</b>	Introduction Variables	NONE LP1	Homework 1 Assigned
<b>Week 2</b>	Booleans and Conditionals More conditionals	LP2 LP3	Homework 2 Assigned Homework 1 Due
<b>Week 3</b>	Loops More loops and arrays	LP4 LP5	Homework 3 Assigned Homework 2 Due
<b>Week 4</b>	More arrays and C-Style Strings Using Functions	LP6 LP7	Homework 4 Assigned Homework 3 Due
<b>Week 5</b>	Writing Functions More Functions	LP8 LP9	Homework 5 Assigned Homework 4 Due
<b>Week 6</b>	PBR vs. PBV Debugging	LP10 LP11	Homework 5 Due Homework 6 Assigned
<b>Week 7</b>	Midterm Streams	NONE NONE	
<b>Week 8</b>	Midterm Review More Streams	NONE LP12	Homework 6 Due Homework 7 Assigned
<b>Week 9</b>	Structures Memory and variables	LP13 LP14	Homework 7 Due Homework 8 Assigned
<b>Week 10</b>	Pointers Dynamic Memory and Arrays	LP15 LP16	Homework 8 Due Homework 9 Assigned
<b>Week 11</b>	Classes Class Functions	LP17 LP18	Homework 9 Due Homework 10 Assigned
<b>Week 12</b>	Header and Implementation files Dynamic Memory in Classes	LP19 LP20	Homework 10 Due Homework 11 Assigned
<b>Week 13</b>	Vectors Has-A vs. Is-A	LP21 LP22	
<b>Week 14</b>	Virtual Functions Pure Virtual Functions	LP23 LP24	
<b>Week 15</b>	Abstract Classes Where to go from here	LP25	Homework 11 Due
<b>FINAL</b>			Date: For the date and time of the final for this class, consult the USC <i>Schedule of Classes</i> at <a href="http://www.usc.edu/soc">www.usc.edu/soc</a> .

## **Academic Conduct and Support Systems**

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### **Support Systems:**

*Student Counseling Services (SCS)* - [\(213\) 740-7711](tel:2137407711) – 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](tel:18002738255)

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 & Sexual Violence Prevention Services (RSVP)* - [\(213\) 740-4900](tel:2137404900) - 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](tel:2137405086)

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/>

*Student Support & Advocacy* – [\(213\) 821-4710](tel:2138214710)

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* – <https://diversity.usc.edu/>

Tab for Events, Programs and Training, Task Force (including representatives for each school), Chronology, Participate, Resources for Students

### **A Further Note on Plagiarism**

All submissions will be compared with current, previous, and future students’ submissions using a code plagiarism identification program. If your code significantly matches another student’s submission, you will be reported to SJACS with the recommended penalty of an F in the course.

You may discuss solutions to specific problems with other students, but you should not look through another's code. The code can be from an online forum or another student, the source is immaterial – all code submitted in this course must be your own. Do not share your code with anyone else in this or future sections of the course, as allowing someone to copy your code carries the same penalty as copying the code yourself.