

Introduction to Programming

CPSC 120-15/16

Fall 2016

Description & Objectives

Introduction to the concepts underlying all computer programming: design and execution of programs; sequential nature of programs; use of assignment, control and input/output statements to accomplish desired tasks; design and use of functions. Structured and object-oriented methodologies. (1.5 hours lecture, 3 hours laboratory)

Prerequisites

MATH 125

Instructor

Professor David McLaren

Phone: 657-278-XXXX

Email: davidmclaren@fullerton.edu

Office: CS-419-2

Office Hours: Tuesday 9:30 - 10:30 AM

Thursday 4:00 - 5:00 PM

& by appointment. During final exam week, office hours are by appointment only.

* Email is the best way to reach me.

Meeting Information

Room: CS 110B Lecture

Time: Tuesday 8:00 - 9:15 AM

Room: CS 300 Lab

Thursday 8:00 - 10:45 AM

Rev. 8/15/2016

1 of 10



Important Dates

CSUF's Academic Calendar is posted online at «<http://apps.fullerton.edu/AcademicCalendar/>». The Academic Calendar contains all the campus closures and holidays you should be aware of. CSUF's Admissions Calendar is posted online at «<http://www.fullerton.edu/admissions/Resources/Calendars.asp>». The Admissions Calendar contains all the major dates with respect to adding, dropping, and withdrawing from your classes.

December 15 Final Exam 9:30 - 11:20 AM CS 110 B

Textbooks

Required

Starting out with C++ Early Objects, 9th Ed., Tony Gaddis, Judy Walters, Godfrey Muganda, Pearson, ISBN: 0134400240

Optional

Many popular technical books may be read online through the campus's subscription to Safari Books Online. From outside of the campus network, the campus library's WWW proxy will grant you access, «<http://www.library.fullerton.edu/asp/ipcheck.aspx?url=http://proquest.safaribooksonline.com/?uicode=calstate>». The Safari Books Online service can be accessed directly from any computer on the campus network, «<http://proquest.safaribooksonline.com/>».

Development Tool Resources

Students will be required to use a text editor and a command line. The installation of the GNU Compiler Collection is required. We will go over how to install this during the first week.

Windows users, you may find it difficult to get useful error messages when running your program on Windows. I strongly recommend you use the virtual machine and run the virtual image linked below. If you choose to go against this advice, I will not help you if you run into issues.
<https://gamble.ecs.fullerton.edu/resources>

An Integrated Development Environment will be required after the first half of the semester. I recommend CLion, as it is cross platform and excellent software:
<https://www.jetbrains.com/clion/>

Other Tools

Students interested in using Microsoft® development tools may request a Dreamspark account at «<http://dsreqform.ecs.fullerton.edu/>». A student may, at no monetary cost, download full featured versions of Microsoft Visual Studio.

Students interested in using Apple® development tools can freely download Xcode through the App Store application bundled with OS X. Students may download Xcode directly from «<https://developer.apple.com/xcode/>».

A Debian-based GNU/Linux OS virtual machine ready for students use and Debian-style installation scripts are posted online at «<https://gamble.ecs.fullerton.edu/resources/>».

A CentOS-based shell server is available through secure shell (ssh) and secure file transfer protocol (sftp). The hostname is ecs.fullerton.edu. If your email address is malcolm@csu.fullerton.edu, then your username is ACAD\malcolm. If you are using a command-line ssh client, then your command to connect to ecs.fullerton.edu will be `ssh 'ACAD\malcolm@ecs.fullerton.edu'`. Your password is the same password as your CSUF Portal password.

Please consider adopting a package management system for your personal computer to facilitate adding, updating and removing the various software development tools you may wish to use.

- Apple OS X
 - MacPorts «<http://www.macports.org/>»
 - Fink «<http://www.finkproject.org/>»
 - Homebrew «<http://brew.sh/>»
- Microsoft Windows
 - Chocolatey NuGet «<https://chocolatey.org/>»
 - Cygwin «<http://www.cygwin.com/>»
 - Npackd «<https://npackd.appspot.com/>»
- GNU/Linux OS
 - dpkg «<https://www.debian.org/doc/manuals/debian-faq/ch-pkgtools.en.html>»
 - rpm «<http://fedoranews.org/alex/tutorial/rpm/>»

Learning Goals

1. Write syntactically-correct source code, making appropriate use of fundamental constructs such as variables, branches, loops, and functions that solves a well-posed computational problem.
2. Demonstrate ability to develop software using an Integrated Development Environment (IDE).

G.E. Requirements

This class does not meet any CSU General Education requirements.

Course Outline

1. Introduction, Intro to C/C++
2. Syntax, Data Types, Compiling
3. Operator Precedence and Algorithmic Thinking
4. Variables, Strings, Constants
5. Input and Output, Streams, Formatting
6. Branching
7. Loops
8. Functions, Structs
9. Midterm Review, Midterm
10. Arrays
11. Pointers
12. Pointers 2
13. Thanksgiving Break
14. Introduction to Classes, Difference between C and C++
15. More about Classes, Object-Oriented Design
16. Final Review
17. Final Exam

Technical Proficiency

Technical proficiency in programming and software engineering should correspond to the prerequisite(s) of the course. As this is an intro to Computer Science course, students are not expected to be intimately familiar with their development platform of choice. It's okay if you're not able to write and debug code in C++. That is the goal of this course, to get you up to speed.

Technical proficiency with information technology, such as, but not limited to, the use of web-based online services, sending and receiving electronic mail, and desktop computer file systems, is assumed.

Grading

Plus and minus grading is not used when determining final grades.

Final grades are computed by first finding the average score in each category described in the table below on the right. All scores are normalized to a scale of 0 to 100 before being averaged. The average score for each category is then used to compute the weighted average according to the weights in the second table below.

Grade	% of Total Points
A	90–100%
B	80–89%
C	70–79%
D	60–69%
F	Below 59%

Category	% of Final Grade
Assignments	40%
Final	25%
Midterm	25%
Participation	10%

Graduate Grading

Graduate students that use this course on a graduate study plan must perform additional work and will be evaluated on a separate grading scale vis-à-vis their undergraduate counterparts.

An additional programming project is mandatory for all graduate students. The project is proposed by the student and approved by the instructor. Graduate students must have a project approved by the tenth week of the semester or face a penalty of –10% for each week it has not been approved similar to course rule. The final project is due on the last class meeting of the 14th week of instruction.

Plus and minus grading is not used when determining final grades.

Final grades are computed by first finding the average score in each category described in the table below on the right. All scores are normalized to a scale of 0 to 100 before being averaged. The average score for each category is then used to compute the weighted average according to the weights in the table below on the right.

Grade	% of Total Points
A	90–100%
B	80–89%
C	70–79%
D	60–69%
F	Below 59%

Category	% of Final Grade
Assignments	30%
Final Project	20%
Final	20%
Midterm	20%
Participation	10%

Assignments

Programming and written assignments will be discussed in class and posted to the course website in advance of their due dates. Each assignment description will include the assignment's grading rubric. Reading assignments are outlined in the syllabus and it is the responsibility of the student to stay up to date with the reading.

Written assignments must be typeset and presented in a professional manner. Presentation, spelling and grammar can be worth up to 30% of a written assignment's grade.

All programming assignments must be written in the C/C++ programming language, unless specified otherwise. Coding style must conform to professional norms. At a minimum, code must be commented, have descriptive names for identifiers, and contain a comment at the top of each file with pertinent information such as the student's name, email address, and assignment name. A plain text README.TXT must be included with each assignment submission summarizing and documenting the work submitted. For students unfamiliar with coding style, Google's style guides

are an excellent starting point, «<https://github.com/google/styleguide>», particularly their C++ style guide, «<https://google.github.io/styleguide/cppguide.html>».

At the start of the semester, the instructor will detail the platform and tools used to grade student assignments. It is the student's responsibility to ensure that the assignments execute to his or her satisfaction on the instructor's grading platform.

Exceptions are made on a case by case basis given enough time and evidence to weigh the merits of the application.

Attendance Policy

Attending class is mandatory. Missing class is not allowed unless it is excused by the instructor. Missing class as part of a documented accommodation is guaranteed to be excused. The ADA accommodated student must make a reasonable effort to coordinate any absences with the instructor.

Make Up Policy

Exams and quizzes cannot be taken after they have been given in class. Due to an act of nature, personal medical emergency, a family crisis, an act of terrorism, severe civil unrest, etc. students have 10 calendar days to petition the instructor to retake any exam/quiz or submit an assignment without late penalty.

Exceptions shall be made on a case by case basis, provided there is time to evaluate the merits of such an application.

Participation

In the context of this course, participation is defined as the following:

- Arriving to class prepared and on time.
- Taking notes.
- Actively listening to the lecture and asking questions when appropriate.
- Annotating code listings and handouts.
- Bringing any required materials to class.
- When needed/desired, seeking assistance to complete assignments.
- Barring an emergency, not leaving the class session early unless the instructor consents.
- Not distracting oneself or others with smartphones, games, online diversions, etc.
- Respecting and treating the instructor and the student's peers civilly.

Required Material

- A writing instrument
- A notebook
- A USB memory stick
- A personal computer with the requisite development tools or regular access to a computer lab

Academic Dishonesty

Students are encouraged to assist one another and discuss the course materials with your peers. It is your responsibility to be aware of and follow the spirit of CSU Fullerton's academic honesty policy which can be found at

«http://www.fullerton.edu/senate/publications_policies_resolutions/ups/UPS%20300/UPS%20300.021.pdf». Academic dishonesty will not be tolerated. The University Catalog and the Class Schedule provide a detailed description of Academic Dishonesty under *University Regulations*.

By submitting work for evaluation, you acknowledge that you have adhered to the spirit of the university's academic honesty policy and that your submission is an original work by you unless otherwise directed to work in groups. Failure to follow the spirit of the academic honesty policy will result in a severely negative evaluation of the work in question and may result in involving the Department Chair and the Judicial Affairs office to seek a disciplinary remedy.

ADA Accommodations

Any student who, because of a disability, may require special arrangements in order to meet course requirements must register with the Office of Disability Support Services within the first week of classes. The Office of Disability Support Services' website is

«<http://www.fullerton.edu/DSS/>». They can be reached by phone at 657-278-3117 or TDD at 657-278-2786. Their email address is «dsservices@fullerton.edu». Their office is located in University Hall, room 101. The instructor may request verification of need from the Dean of Students Office. Students requesting accommodations shall inform their instructors during the first week of classes about any disability or special needs that may require specific arrangements/accommodations related to attending class sessions, completing course assignments, writing papers or quizzes, tests or examinations.

Emergency Procedures

For your own safety and the safety of others, each student is expected to read and understand the guidelines published at «<http://prepare.fullerton.edu/campuspreparedness/>». Should an emergency occur, follow the instructions given to you by faculty, staff, and public safety officials. An emergency information recording is available by calling the Campus Operation and Emergency Closure line at 657-278-4444.

Instructional Continuity

Due to an event such as an epidemic or a natural disaster that disrupts normal campus operations, students must monitor the course Titanium site and their campus email address for any instructions and assignments that the instructor announces.

Laboratory Safety

Safety is no accident. Learning and following the appropriate safety practices and protocols is an integral part to all laboratory courses. Following the appropriate safety practices and protocols minimizes the chances of repetitive stress injuries, mishandling hazardous materials, and injury to self and others. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum. Additional campus laboratory safety information regarding hazardous materials is online at «<http://riskmanagement.fullerton.edu/laboratorysafety/>».

Extra Credit

There are no opportunities for extra credit.

Recording & Transcription of Class Content

Recording class content is governed by UPS 330.230, «http://www.fullerton.edu/senate/publications_policies_resolutions/ups/UPS%20300/UPS%20330.230.pdf». Each instructor must permit class content to be recorded or transcribed by students when mandated to do so by the Americans with Disabilities Act or by other federal or state laws. Any recording of class content is for private use and study and shall not be made publicly accessible without the written consent of the instructor and students in the class.

Course Rules & Classroom Management

Unless an agreement or accommodation is reached between the student and the instructor, these rules must be followed.

- Attendance at all regularly scheduled lecture and discussion section is mandatory.
- Do not eat during lecture.
- If it makes noise, silence it.
- Portable computer use is not allowed in lecture except for taking notes.
- The student is responsible to be aware of any course announcements including changes to due dates and requirements.
- Homework, programming assignments, etc. may not be submitted late.
- Third party work (code, artwork, etc.) may not be used in student work without prior instructor consent. Failure to gain and document instructor consent will be construed as willful academic dishonesty.
- When a third party's work is incorporated into student work after gaining instructor consent, failure to wholly document the work's origin, copyright and license will be construed as willful academic dishonesty.