

IT 180: C++ Programming

Instructor: **Rishi Saripalle**

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Office hours: **W 3:30 PM – 4:30 PM or by appointment**

Course Details:

Credit hours: 1

Required textbooks:

1. Absolute C++, 4th edition by Walter Savitch (Addison-Wesley).

Course Description

This course offers a complete introduction to the C++ programming language with hands-on experience through assignments on Linux. The course starts with fundamental C++ topics such as loops, conditions, arrays, and ends with advanced concepts such as templates. The course emphasizes on OOPS concepts and dynamic memory management in C++. The outcome is for the students to understand the fundamentals, and write complex programs in C. The course will also introduce the students to the Linux environment and its basic commands.

Course Goals

The goals of this course are to:

- Understand and implement project/programs in C++ language.
- Introduce students to the Linux environment; compiling and debugging of C++ in Linux.

Course Outcomes

After taking this course, students will be able to:

- Write simple to complex programs using the C++ language.

Course Expectations

- **Pre-requisites** - A C or better in IT 179. Students are expected to have at least two semesters' worth of programming experience in Java.

Role of the instructor

My primary method of teaching for this course will be in the form of lectures and programming examples. I will regularly demonstrate several programs as part of my lectures, so you are highly encouraged to attend all lectures to gain full benefit from this course. Apart from office hours, you can talk to me about any course-related issues before or after each class. I am also available for students outside class (by appointment) to discuss any individual course-related issues or brainstorm ideas relevant to the course.

material. I will try my best to be available to help you succeed in this course, but I have to see you try just as much to learn.

Student expectations

I expect all students to work regularly and aim for an A in this course. I will not use slides for all topics in this course, and often writing a program might be better for teaching a few concepts. I expect students to be pro-active in reading the book and other reference material. I will help you catch up if you feel you are falling short of the course expectations, but all the pro-active effort must come from you. Spending time disproportionate to the magnitude of the error/bug is normal, so be patient.

Platform

C++ programming is taught and done without using an IDE such as Eclipse or NetBeans. All the sample code (sample class programs and examples) and submitted assignments will be executed using the command line in the Linux environment. I strongly encouraged the students to spend time getting comfortable with Linux, a valuable job skill. You are not expected to have more than minimal prior exposure to UNIX, so please seek my help with it as needed. You will be expected to do some of the language learning on your own, so please factor this in the time you devote to every C++ assignment.

Course Details

- **Assignments** - The grade is divided as follows:
 - 4 Short home works - 50%
 - 2 Assignments - 25%
 - Final Exam – 25%
- **Exams:** The exams will ask you to apply learned concepts to problems that may not have been directly discussed in class. Both the in-semester exams will cover the material discussed until the class before the exam.
- **Grade:** Grades will be awarded as follows:
 - 900 - 1000 **A**
 - 800 - 899 **B**
 - 700 - 799 **C**
 - 600 - 699 **D**
 - 0 - 599 **F**

Grading will be on an absolute basis, which means your final letter grade will depend only on your performance.

- All assignments are to be submitted on time, and unless specified otherwise, all assignments and projects will be due at 11:55 pm on the due date. **There is no grace period for any course work.** Assignments that are submitted late will not be graded. Under extreme circumstances, I will allow an assignment to be submitted later than required. However you must meet me personally to explain the circumstances and take my permission well before the actual deadline. I will evaluate this on a case-by-case basis.

Class policies

- **Cheating/Plagiarism** - Cheating helps no one, and if caught, will cause you only trouble. **All work for this course has to be completed individually.** You are not allowed to seek from or provide any help

to any of your classmates regarding any aspect of the course that is supposed to be completed individually. All submitted text/code must be completely written by you. Legitimate references, if any, must be properly cited to get full credit. A reference should be detailed enough for me to access it to the extent that you were able to.

Copying code available on the Internet is not allowed, even if you provide me the link from where you got the code. If you are unsure about a particular method of working, **don't assume it is legitimate, check with me.** If you need help I am available to answer your questions and work with you. I have the liberty to ask you questions about your submitted work to verify that you have indeed worked on it by yourself.

Penalties for cheating will range from a zero for the entire assignment in question to an "F" for the course. Irrespective of the size of the offence a report will be filed and the incident will go on your academic record. If you think you are smart enough to copy and hide your act effectively, I would strongly recommend channeling your talent towards completing the assignment yourself instead.

- **Student Conduct** - Attendance for this course is highly recommended if you wish to gain maximum benefit from this course. Students attending the lectures are expected to maintain a positive learning environment. Students whose behavior is disruptive either to the instructor or to other students will be asked to leave.
- **Laptops:** Please confine the laptop's use to course-related material, and try not to distract others by the loud taps on your keyboard or music. **CELL PHONES ARE NOT ALLOWED**, except in case of an emergency.
- **Accommodations for Students with Disabilities** Students with disabilities are encouraged to contact Disability Concerns at 350 Fell Hall, 438-5853 (voice), 438-8620 (TTY) or online at <http://www.disabilityconcerns.ilstu.edu>. I am also available to address your course-specific concerns.

Course Calendar (tentative)

Week		Topic	Assignment
1	Class 1 (01/10)	C++ Intro: Basic Loops and Datatypes	
	Class 2 (01/12)	Functions & Arrays	Assigned: Short Assignment 1
2	Class 3 (01/17)	Arrays & Overloading	
	Class 4(01/19)	Structures and Class	
3	Class 5 (01/24)	Namespace and Constructors	Assigned: Short Assignment 2 & Assignment 1 Due: Short Assignment 1
	Class 6 (01/26)	Destructors & Operator Overloading	
4	Class 7 (01/31)	Operator Overloading	
	Class 8 (02/02)	Pointers and Dynamic Array	Assigned: Short Assignment 3 Due: Short Assignment 2

5	Class 9 (02/07)	Pointers and Dynamic Array	Assigned: Assignment 2
	Class 10 (02/09)	Exceptions & Abstraction	
6	Class 11 (02/14)	Exceptions & Abstraction	Assigned: Short Assignment 4 Due: Short Assignment 3 & Assignment 1
	Class 12 (02/16)	Inheritance and Polymorphism	
7	Class 14 (02/21)	Inheritance and Polymorphism	
	Class 15 (02/23)	Templates	Due: Short Assignment 4
8	Class 16 (02/28)	Templates & Template Library	Due: Assignment 2
	Class 17 (03/02)	Conclusion	