

CS 2433 – Introduction to C/C++ | Spring 2020

Instructor

Name	Lecture	Office Hours	Email
Dr. Sadiq Albuhamood	MWR 09:30 -10:15 MSCS108		albuham@okstate.edu

Teaching Assistants (TA)

Name	Office Hours	Email

Importance of C/C++

The C language has formed the basis for many languages including C++, Java, JavaScript, Go, Rust, Limbo, LPC, C#, PHP, Python, Perl, Verilog, C-shell, etc. However, learning C/C++ is still an asset to a programmer, for several reasons:

- C/C++ are middle level languages, combine features of high-level and low-level languages.
 - Can be used for low-level programming, such as scripting for drivers and kernels.
 - Supports functions of high-level programming languages, such as scripting for software applications.
- C/C++ are structured programming languages which allows a complex program to be broken into simpler programs.
- C/C++ are highly portable languages and is often the language of choice for multi-device, multi-platform app development.
- C/C++ have a rich function library.
- C/C++ are powerful, efficient and fast languages, that finds a wide range of applications:
 - GUI applications to 3D graphics for games to real-time mathematical simulations.
- C/C++ have stood the test of time. There are billions of lines of C/C++ out there running in many of the software / applications.
- C/C++ in particular are used frequently for embedded devices.

Course Objectives

- Develop a basic understanding of the programming environment.
- Improve programming skills of the students.
- Design, write and implement programs in C/C++.
- Give students a basic understanding of Object-Oriented Programming.

Course Outcomes By the end of the course, the students will be able to:

- Write good C/C++ code.
- Use good programming style for writing code in C/C++.
- Design C/C++ programming solutions to problems.
- Acquire basic understanding of algorithms.

Textbook

In this particular course an online textbook and assignment system, called zyBooks will be used. Most of the assignments and programs will be covered through zyBooks and zyLabs, so it is a must to subscribe on zybooks. The following is how to subscribe:

1. Sign in or create an account at learn.zybooks.com
2. Enter zybook code: **OKSTATECS2433BuhamoodSpring2021**
3. Subscribe:
 - a. Subscription cost is \$77.
 - b. The cutoff to subscribe is April 18th 2021.
 - c. Subscriptions will last until May 14, 2021.

Instructor Response Time

Response time is 24-48 hours for all student inquiries. Providing grades and/or feedback for assignments will take up to 2 weeks of the assignment due date.

Your emails are important to me. To ensure that I see your email, please make sure to begin the subject line with the course number in square brackets, followed by the message subject; for example: [CS 2433] Unable to compile a source code

Participation Expectations

This class will be challenging, and require a significant amount of time. You are, after all, learning a new language. The only way to become proficient is to do a lot of it. The typical rule of thumb is that you should expect to spend 2-3 hours studying the materials. This means that in addition to viewing the lectures, you should plan to spend 6-9 hours per week on average reading the text, writing the assigned programs, and other studying. Some weeks may require even more time than this.

zyBook reading of recommended topics and participating in some activities.

Exercises are given on most lectures to help improve understandings and be familiar with important skills. It will be in the form of a 10-minutes exercise that is open book and open notes and you are encourage to consult with a colleague in solving it.

Quizzes are given weekly and will be taken online on Canvas. The quizzes will specifically go over points from the week's slides. The quizzes will be timed at 5 minutes (10 minutes with accommodation).

Lab Assignments (Labs) are due during the Friday Class. Lab assignments must be shown to your Teaching Assistant for grading. Some lab assignments will be turned into a zyBook auto grader that will assign the grade.

Programming Assignments (Programs) are to be submitted on the designated folder on Canvas. Programs will be evaluated line by line and a score is going to be given based on the logic of the Program and whether it runs and provides the correct output.

Exams will be three monthly exams during the semester at the normal lecture time. All of these exams will be taken online.

Late work policy

Instructor may accept assignments turned in after the due date with a penalty (**-10% per day**). **No assignment will be accepted after one week of the due date or after the answers are published or shown in the lecture.**

Grading Policy

Your grade in this course will be calculated according to the completion of the following assignments:

Assignment	Number	Points	Total	Percentage
Exercises	13	3	39	4%
Quizzes	13	7	91	9%
Labs	12	25	300	30%
Programs	6	35	210	21%
Exams	3	70	210	21%
Final	1	150	150	15%
Total			1000	

Final grades will be assigned according to the following scale:

Grade	Points Earned
A	>900
B	800 – 899
C	700 – 799
D	600 – 699
F	<600

Assignment submissions

Programs must be submitted to Dropbox on Canvas. The code will be inspected for proper style, compiled, and executed on a few test cases. Code may be submitted and passed off multiple times, as long as the Canvas late submission window is open. After the last submission date, all submitted programs will be graded. All submitted source code will be checked for plagiarism. Plagiarized assignment will receive 0.

Collaboration

Discussion of concepts, ideas, and techniques is allowed. After discussion, each student must write up his/her own solution. Copying another person's work, in part or whole, is not allowed. Giving another student your work, in part or whole, is considered cheating as well. If you are unsure whether your collaboration is acceptable, speak with the instructor in advance. The internet is a great place to find out how to do things in Java, and we encourage you to use it for that purpose. However, copying a whole program or assignment, or a large chunk of one, and turning it in as your own work is cheating. Think about the purpose of an assignment. If what you are doing bypasses the purpose of the assignment, then it is probably cheating. Any violation of academic integrity would result in a undroppable grade of zero for that assignment and an additional reduction of one letter grade in the course and a report to the university administration. Major violations will result in a grade of F!.

Getting Help: There are quite a few ways to get help in this class. Here are some of them:

- Come to the office hours of the instructor or TAs.
- Free tutoring is available on campus through the Lasso center (<https://lasso.okstate.edu/tutoring>).
- If you feel you may want study support, form a study group.
- If you find yourself getting behind, don't just drop out of the class. Instead, come in and discuss your options with the instructor or TAs. Do this early. It's hard to help you if you have missed a third of the semester's work.

Development Environment

- Cygwin compiler from Cygwin.com
- Netbeans (<https://netbeans.org/>) is a helpful tool that can be used to code and detect errors on early stages.

Course Schedule

Legends: E=Exercise Q= Quiz L=Lab P=Program

Date	Reading	Topics	Assignments
1/18		MLK HOLIDAY	
1/20	Syllabus	Syllabus	E1
1/22	zyBook 1	Introduction to C/C++	L1
1/25	zyBook 2	Variables/Assignments	Q1
1/27			E2,
1/29			L2, P1
2/1	zyBook 3,4	Branches , loops	Q2
2/3			E3
2/5			L3
2/8	zyBook 5	Arrays/Vectors	Q3
2/10			E4
2/12			L4, P2
2/15		Review	Q4,E4

2/17			L5
2/19		Exam1	Exam1
2/22	zyBook 6	Functions/methods	Q5
2/24			E6,
2/26			L6, P3
3/1	zyBook 7	Objects /classes	Q6
3/3	6-weeks grade due		E7
3/5			L7
3/8	zyBook 8,9	Pointers/Streams	Q7
3/10			E8
3/12			L8, P4
3/15		Review	Q8, E9
3/17			L9
3/19		Exam2	Exam2
3/22	zyBook10	Inheritance	Q9
3/24			E10
3/26			L10, P5
3/29	zyBook 11	Recursion	Q10
3/31			E11
4/2			L11
4/5	zyBook 12	Exception	Q11
4/7			E12
4/9			L12, P6
4/12	zyBook 13, 14	Templates /Containers	Q12
4/14			E13
4/16			L13
4/19		Review	Q13, E14
4/21			L14
4/23		Exam3	Exam3
4/26	zyBook 15	Searching and sorting	
4/28			
4/30	Review	Final Review	Practice for the Final
5/5		Final: 08:00 - 09:50	
5/14		Final grades due from faculty	

Disabilities act: If any student feels that he/she has a disability and needs special accommodations of any nature whatsoever, the instructor will work with you and Student Disability Services, 315 Student Union, to provide reasonable accommodations to ensure that you have a fair opportunity to perform in this class. Please advise the instructor of such disability and the desired accommodations at some point before, during, or immediately after the first scheduled class period.

University Syllabus Attachment

Syllabus attachment: Other useful information, such as important dates throughout the semester, can be found on the [OSU-Stillwater syllabus attachment](#) .