

CS 2433 – C++ Programming

Session: Fall/2020

Sections and lectures:

Lectures will be conducted in the room **MSCS 108**, in Stillwater as follows:

On the first week (2 meeting times for each section):

CRN 64248 - MSCS 108, at 3:00-3:30 p.m., on Tuesday & Thursday

CRN 66932 - MSCS 108, at 3:45-4:15 p.m., on Tuesday & Thursday

On the remaining weeks (one meeting time for each section):

CRN 64248 - MSCS 108, at 3:00-4:15 p.m., on Tuesdays

CRN 66932 - MSCS 108, at 3:00-4:15 p.m., on Thursdays

Instructor:

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Course description

C++ programming language types, operators, expressions, control flow, functions, structures, pointers, arrays, UNIX interface. Basic object-oriented programming using C++ and the related language syntax and functionality.

Course objectives

By the end of the course, all students should be able to

- write good C and C++ code,
- use good programming style when writing code,
- design programming solutions to problems.
- acquire a basic understanding of algorithm performance issues.

Course Prerequisites

CS 1113: Computer Programming I or equivalent.

Course Website

You can access the Canvas site for this course directly via the link <https://canvas.okstate.edu> or at my.okstate.edu then use the link to Canvas on that page. You will need to log in using your OSU email address and password.

Textbook:

In this class, an online textbook and assignment system, called ZyBooks will be used. Most of the home assignments and program assignments will be covered through ZyBooks and ZyLabs, so it is must to subscribe on ZyBooks. Following steps is to be followed for completing the registration:

1. Sign in or create an account at learn.zybooks.com
2. Enter zyBook code: **OKSTATECS2433EldowFall2020**
3. Select your section (**Section 1-CRN 64248** or **Section2-CRN 66932**)
4. Subscribe

A subscription is \$77. Students may begin subscribing on Aug 03, 2020 and the cutoff to subscribe is Nov 21, 2020. Subscriptions will last until Dec 18, 2020.

Additional Reading (Optional):

- *The C Programming Language, Second Edition*, by Kernigan and Ritchie.
- C Primer Plus, Sixth Edition, Stephen Prata.
- Programming: Principles and Practice Using C++, Second Edition, by Bjarne Stroustrup.
- Absolute C++, Sixth Edition, by Walter Savitch.
- *Professional C++, Fourth Edition*, by Marc Gregoire.
- *Practical C++ Programming, Second Edition*, by Steve Oualline.

Additional Online Resources:

- <http://www.cplusplus.com> , <http://www.cplusplus.com/reference/>
- Bjarne Stroustrup's page on C++: <http://www.stroustrup.com/C++.html>.
- Tutorial topics in C++: <http://www.learncpp.com.html>.
- Video tutorials: <https://www.youtube.com/playlist?list=PLAE85DE8440AA6B83>.
- Notes on Object-oriented design: https://en.wikipedia.org/wiki/Object-oriented_design.

Useful Software:

- Bloodshed Dev-C++ IDE (<http://www.bloodshed.net/devcpp.html>).
- jEdit (<http://jedit.org/index.php?page=download>), a powerful text.
- Code Blocks (<http://www.codeblocks.org/>) - a lightweight IDE.
- The atom editor (<https://atom.io>) - a good free code editor.
- Notepad++ (<http://notepad-plus-plus.org>) - a lightweight text editor for Windows.

Grading:

| | |
|-------------------------------|------------|
| Homework Assignments | 30% |
| Programming Assignments | 30% |
| Quizzes & In-Class Activities | 10% |
| Midterm Exam | 15% |
| Final Exam | 15% |

Grading Scale:

| | |
|-----------------------|----------|
| for score x in 90 _ x | A |
| 80 _ x < 90 | B |
| 70 _ x < 80 | C |
| 60 _ x < 70 | D |
| x < 60 | F |

Homework Assignments:

There will be homework on each chapter that might be completed using various participation and reading activities (PA) and challenging activities (CA) available in zybooks. **Homework assignments will be due at 3.00 p.m. on next Tuesdays or Thursdays, depending on sections (the start of class).**

Programming Assignments:

Programming assignments are one of the important components of this course. The reason is simple: you learn a programming language best by using them. These assignments should be accomplished using the zylabs or the departmental csx server. **Programming assignments will be due at 11:59 p.m. on next Fridays.**

Quizzes and in-class activities:

In some classes, **there will be quizzes (through Canvas) or in-class activities.** Attendance is also important for this class; you will get some points after attending each class.

Exams:

There will be one midterm exam during the semester at the normal lecture time, which will cover the first half of the class topics. There will also be a final exam during finals week, which will cover the second half of the class topics. ***The final exam will be will be online proctored exams (approx. \$15-20) and will be using Examity through Canvas only.***

Student Expectations:

To do well in the class, students are expected to

- Keep up with the zyBooks material, including the participation activity (PA) and challenging activity (CA) as well as zyLabs.
- Read or view the instructional material posted to Canvas frequently.
- Ask for help if any of the material covered in class is not clear.
- Complete the programming assignments and submit them before their deadlines.
- Regularly check e-mails and course website for announcements.

E-mail Policy:

E-mail is the preferred communication medium. Use “**CS 2433**” as the start of the subject/title for all e-mail communications.

Late Submission & Make-up Policy:

No make-up exams will be scheduled except in extreme cases. If you are going to miss an exam or quiz, contact the instructor in advance. Exceptions can be made if a serious family or personal emergency arises.

Assignments may be turned in late, but not more than one week. All the late submissions may lose a percentage of their graded point values according to the following schedule:

| | |
|------------|-------------|
| On time : | 0% |
| 1-2 days : | 10% |
| 3-4 days : | 20% |
| 5-7 days : | 40% |
| > 7 days : | 100% |

Academic Dishonesty:

Scholastic conduct must be acceptable, that is, students are expected to do their own work.

Discussion of homework assignments is encouraged, but students must work independently on their program submissions. Sharing of code is strictly forbidden. Violations of academic integrity rules will result in significant punishments, up to and including a final course grade of an F! (F-shriek, indicating an academic integrity violation on your permanent transcript). 4

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 the Office of Disabled Student Services, 326 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.

Other Policies due to COVID19:

Students should refer to any new polices from university, college and department regarding the COVID19.

Course Outline (Tentative Schedule):

| <u>Week</u> | <u>Reading chapters and Topics</u> | <u>Homework (H), Program (P), Quiz (Q)</u> |
|--------------------|---|---|
| Aug 17-21 | Overview of Zybooks and Zylabs Ch1 - Introduction to C++ | H1, P1 |
| Aug 24-28 | Ch2 - Variables | H2, P2 |
| Aug 31-Sep 4 | Ch3 - Branches | H3, P3 |
| Sep 7-11 | Ch4 - Loops | H4, P4, Q1 |
| Sep 14-18 | Ch5 - Arrays | H5, P5 |
| Sep 21-25 | Ch6 - Functions | H6, P6, Q2 |
| Sep28 -Oct 2 | Ch7 - Objects and Classes | H7, P7 |
| Oct 5-9 | Mid-Term Exam (on Tuesday or Thursday depending on sections) | |
| Oct 12-16 | Ch8 - Pointers | H8, P8 |
| Oct 19-23 | Ch9 - Streams | H9, P9 |
| Oct 26-30 | Ch10 - Inheritance | H10, P10, Q3 |
| Nov 2-6 | Ch11 - Recursion | H11, P11 |
| Nov 9-13 | Ch12 - Exceptions | H12, P12, Q4 |
| Nov 16-20 | Ch13 – Templates & Ch14 - Containers | H13, P13 |
| Nov 23-27 | Fall Break and University Holiday (No classes) | |
| Nov 30-Dec 4 | Ch15 - Searching & Sorting Algorithms | H14 |
| Dec 7-11 | Final Exam (TBA) | |