CS 2433 – C/C++ Programming

Instructor
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Virtual Office Hours: TR 11:00 am – 12:30 pm (Central Time) or by appointment.

Description

This is an online course. All lectures, resources, assignments, and correspondence are accessed online through Canvas at canvas.okstate.edu. Sign in using the O-Key username and password provided to you by OSU. Once you sign in, you will see the Canvas Dashboard, which provides a list of links for the courses you are enrolled in. Our course is listed as CS 2433 - C/C++ Programming Online Fall 2023. Click on that link to go to the course homepage.

Why Learn 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 that combine features of high-level and low-level languages.
- It 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 that allow a complex program to be broken into simpler programs.
- C/C++ is highly portable and often the language for multi-device, multi-platform app development.
- C/C++ has a rich function library.
- C/C++ are powerful, efficient, and fast languages that find many applications.
- GUI applications from 3D graphics for games to real-time mathematical simulations.
- C/C++ has 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, is used frequently for embedded devices.

Course Objectives

Some of the main objectives of the course are as follows:

- Develop a basic understanding of the programming environment.
- Improve the programming skills of the students.
- Allow students to 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 a good programming style for writing code in C/C++.
- Design C/C++ programming solutions to problems.
- Acquire a basic understanding of algorithms.

Textbook

An online textbook and assignment system called zybooks will be used in this particular course. Most of the assignments and programs will be covered through zybooks and zylabs, so it is a must to subscribe to zybooks. The following steps are to be followed to complete the registration:

1. Sign in or create an account at [learn.zybooks.com](http://learn.zybooks.com)
2. Enter zybook code: OKSTATECS2433JainFall2023
3. Subscribe:
   - Subscription cost is $99.
   - Students may begin subscribing on Aug 07, 2023.
   - The cutoff to subscribe is Nov 25, 2023.
   - Subscriptions will last until Dec 22, 2023.

Additional Reading (Optional)


Additional Online Resources

- Bjarne Stroustrup’s page on C++: [http://www.stroustrup.com/C++.html](http://www.stroustrup.com/C++.html)
- Video tutorials: [https://www.youtube.com/playlist?list=PLAE85DE8440AA6B83](https://www.youtube.com/playlist?list=PLAE85DE8440AA6B83)
- Notes on Object-oriented design: [https://en.wikipedia.org/wiki/Object-oriented_design](https://en.wikipedia.org/wiki/Object-oriented_design)

Useful Software

- Bloodshed Dev-C++ IDE ([http://www.bloodshed.net/devcpp.html](http://www.bloodshed.net/devcpp.html)). (Recommended)
- The atom editor ([https://atom.io](https://atom.io)) - is a good free code editor.
Instructor Response Time

As this is an online course, it is expected that all correspondence should be done through Canvas. But, if you need to contact me individually, the most preferred way is through email. I will try my best to respond to you within 24 hours, though sometimes it could be as long as 48 hours or more, especially in case of a weekend or holiday. To ensure that I perceive your email, please make sure to begin the subject line of your email with the course number in square brackets, followed by the message subject; for example:

[CS 2433] Unable to view grades on Canvas

For those of you located in other than my time zone (Central Time, GMT-6), please be aware that this also may affect the time it takes me to respond to your emails.

Providing grades and/or feedback for assignments may take up to 2 weeks of the due date.

Participation Expectations

Students should expect this course to be more challenging and take much effort. You will learn a basic programming language course, and the only way to become proficient is to practice developing programs for different problems.

The typical rule of thumb is to expect to spend 2-3 hours for every hour of online class. You should plan to spend 6-9 hours per week on average reading, doing homework/quizzes, and other assignments.

To do well in this course, students are expected to

- Keep up with the zyBooks material, including the participation activity (PA), challenging activity (CA), and zyLabs.
- Read or view the instructional material posted to Canvas frequently.
- Ask for help if any of the material covered is not clear.
- Complete the homework/quizzes/assignments and submit them before their deadlines.
- Regularly check Canvas for announcements.

Grading Policy

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

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Value in Points (Max)</th>
<th>Percentage of Total Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>300</td>
<td>30%</td>
</tr>
<tr>
<td>Programming Assignments</td>
<td>300</td>
<td>30%</td>
</tr>
<tr>
<td>One Mid-term Exam</td>
<td>200</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>200</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1000</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
Final grades will be assigned according to the following scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage Earned</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90 – 100%</td>
</tr>
<tr>
<td>B</td>
<td>80 – 89.99%</td>
</tr>
<tr>
<td>C</td>
<td>70 – 79.99%</td>
</tr>
<tr>
<td>D</td>
<td>60 – 69.99%</td>
</tr>
<tr>
<td>F</td>
<td>0 – 59.99%</td>
</tr>
</tbody>
</table>

**Quizzes**

There will be Quizzes after completing section(s) / chapter(s), which may also be completed through Canvas.

**Programming Assignment**

- All programming assignments should be done **ONLY** through zybooks (zylabs).
- 10% penalty of available points per day late. However, you cannot receive negative points for an assignment.
- An Incomplete programming assignment may not be considered for grading.
- If you will miss an exam or assignment, contact the instructor in advance.
- Exceptions can be made if a serious family or personal emergency arises.

**Exams**

There will be one midterm exam during the semester and a final exam during finals week; Both exams will be online proctored exams (approx. $20-30 each) and will be using Examity through Canvas only. You must have a Computer/Laptop with a webcam, microphone, speaker, and Internet connection. More information regarding Examity is available on the Students Quick Guide on Canvas.

**Collaboration**

Discussion of concepts, ideas, and techniques is acceptable. After discussion, each student must write up his/her own solution. Copying another person’s work, in part or whole, is prohibited. Giving another student your work, in part or whole, is also considered cheating. If you are unsure whether your collaboration is acceptable, speak with the instructor beforehand. Take care that your solutions are not exposed to or by other students.

Students who do not comply with the collaboration policies described above will be assigned sanctions in accordance with OSU policy 2-0822 (Academic Integrity). Depending on the circumstances of the violation, the sanctions may result in a score of zero on an assignment, a final grade of F! for the course, or dismissal from the OSU graduate program. The violation will be reported to the appropriate institutional officials in all instances.
Disabilities Act

Suppose any student feels that he/she has a disability and needs special accommodations. In that case, the instructor will work with you and Student Disability Services, 315 Student Union, to provide reasonable accommodations to ensure 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.

Tentative Course Schedule

<table>
<thead>
<tr>
<th>Week#</th>
<th>Module</th>
<th>Platform</th>
<th>Duration</th>
<th>Quizzes &amp; Assignments</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>CH-1: Introduction to C/C++</td>
<td></td>
<td>Aug 21 – Aug 25</td>
<td>Quiz-1 &amp; Assignment-1</td>
<td>Aug 29</td>
</tr>
<tr>
<td>2.</td>
<td>CH-2: Variables/Assignments</td>
<td>“C”</td>
<td>Aug 28 – Sept 1</td>
<td>Quiz-2 &amp; Assignment-2</td>
<td>Sept 5</td>
</tr>
<tr>
<td>3.</td>
<td>CH-3: Branches</td>
<td></td>
<td>Sept 4 – Sept 8</td>
<td>Quiz-3 &amp; Assignment-3</td>
<td>Sept 12</td>
</tr>
<tr>
<td>4.</td>
<td>CH-4: Loops</td>
<td></td>
<td>Sept 11 – Sept 15</td>
<td>Quiz-4 &amp; Assignment-4</td>
<td>Sept 19</td>
</tr>
<tr>
<td>5.</td>
<td>CH-5: Arrays</td>
<td></td>
<td>Sept 18 – Sept 22</td>
<td>Quiz-5 &amp; Assignment-5</td>
<td>Sept 26</td>
</tr>
</tbody>
</table>

| MID-TERM EXAM (Based on CH-1 to CH-6) on Oct 4 & 5 |

<table>
<thead>
<tr>
<th>Week#</th>
<th>Module</th>
<th>Platform</th>
<th>Duration</th>
<th>Quizzes &amp; Assignments</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>CH-7: Structure and Pointers – Part-1</td>
<td>“C”</td>
<td>Oct 2 – Oct 6</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>11.</td>
<td>CH-10: Streams</td>
<td>“C++”</td>
<td>Oct 30 – Nov 3</td>
<td>Quiz-10 &amp; Assignment-10</td>
<td>Nov 7</td>
</tr>
<tr>
<td>12.</td>
<td>CH-11: Vectors</td>
<td></td>
<td>Nov 6 – Nov 10</td>
<td>Quiz-11 &amp; Assignment-11</td>
<td>Nov 14</td>
</tr>
<tr>
<td>13.</td>
<td>CH-12: Inheritance</td>
<td></td>
<td>Nov 13 – Nov 17</td>
<td>Quiz-12 &amp; Assignment-12</td>
<td>Nov 28</td>
</tr>
</tbody>
</table>

| Students Fall Break - Nov 20 to Nov 24 |

<table>
<thead>
<tr>
<th>Week#</th>
<th>Module</th>
<th>Platform</th>
<th>Duration</th>
<th>Quizzes &amp; Assignments</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.</td>
<td>CH-13: Exceptions and Templates</td>
<td>“C++”</td>
<td>Nov 27 – Dec 1</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>15.</td>
<td>CH-14: Containers CH-15: Additional Topics</td>
<td>“C++”</td>
<td>Dec 4 – Dec 8</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

| FINAL EXAM (Based on CH-1 to CH-15) on Dec 12 & 13 |

Fall 2023 (Online)