Required Texts:


Additional readings will be distributed in class or via the course Web page.

Suggested reading:

- *The Art of Debugging with GDB, DDD and Eclipse, Matloff and Salzman*, electronic version available through the library’s Safari Online subscription.

Course Description:

In CS 150 and CS 221, you have developed a solid set of programming skills and a good background in the Java programming language. As you continue with your CS major or minor, you will encounter problems that are larger in scale than the typical programs you have written, and that may have requirements that are not so easily met in the Java language. In this course, you will enhance your skill set by learning the C++ programming language (useful in CS 301 and several other upper level courses as well as for many real-world problems) and get an introduction to a number of tools and strategies that will prove useful as you tackle larger and more complex problems. We will talk about design strategies and Object-oriented techniques that ease the construction of larger scale programs, and reinforce your skills in systematic testing and debugging of software. In the latter half of the semester, you will work in a group on a sizeable project, going from design through implementation. The course is focused on developing useful, professional quality software, a worthwhile goal whether you eventually write software for a living or use programming as a tool in pursuit of some other goal.

Lab:

Lab sessions will be held each week of the semester. A description of each week’s lab will be handed out in advance, and you will be expected to plan your approach to the assignment before the start of that lab session.

Homework and Exams:

- Homework assignments, roughly one per week, to be collected and graded.
- I will use the course Web page and email for assignment-related information. It is your responsibility to check both frequently.

Grading Policy: Final letter grades will be assigned per the traditional 10-point scale (≥ 90% is at least an A–; < 90% but ≥ 80% is at least a B–; etc.), according to the following percentages:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>15%</td>
</tr>
<tr>
<td>Lab Assignments</td>
<td>25%</td>
</tr>
<tr>
<td>Individual programming assignments</td>
<td>30%</td>
</tr>
<tr>
<td>Group programming assignment</td>
<td>30%</td>
</tr>
</tbody>
</table>
Attendance Policy:

- You are expected to attend each class period and each lab session for its duration. If you must miss a class or lab, you are responsible for any associated material. If there is a class or lab that you must miss, please inform me in advance.
- Any student with an excessive number of absences is subject to a failing grade of V.

Honor Code:

- Unless provided to you by one of the instructors of this course, you are not permitted to view or use existing assignments, tests, or solutions in any form, whether they be from a previous offering of this or another course or Internet-available.
- Lab assignments and homework assignments may be discussed with others, but are subject to the empty hands policy:
  
  You may freely discuss ideas with other students, but each student must leave the discussion without any written or otherwise recorded material.

  You may not work directly with any other student on the completion of individual programming assignments. Any manifestation of copying another student's work for your own (whether digital, hand-written, oral, etc.) or working together on an assignment is not permitted.
- Failure to comply with these policies will be treated as an Honor Code violation.

Special Notes:

If you have a disability and want to discuss appropriate accommodations, or if your desire to observe a religious holiday presents a conflict with class activities, please contact me as soon as possible.

Course Outline: Following is a basic list of topics to be covered this semester. Additional topics may be added as necessary. The order of these topics is subject to change.

- C++ language introduction
- Generic programming
- Working with standard libraries
- Systematic testing and debugging
- Software design concepts
- Software development tools
- Object-oriented design
- Group project

Important Dates:

At this point, I do not intend to have tests or a final exam in this course. I reserve the right to change my mind about this.

Fall Break: Saturday–Tuesday 8–11 October
Thanksgiving Break: Wednesday–Sunday 23–27 November