CSCI 261: Computer Science II

Professor
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Office hours by appointment

Meetings
MWF 11:00-10:50 and Tu 12:00-1:50 online. The final will be on Wednesday, May 12th at noon.

Course Description
And now we get serious.

The main subject of CS II is the “data structure” (sometimes called an “object” or “complex data type”). It is a complicated, abstract collection of data that includes primitive data, specialized functions to work on that data, and other data structures. It lies at the core of what is known as “object-oriented programming”, which is the major paradigm of modern software development.

We will be using the Java programming language (with which most of you are already familiar). Java is a modern, high-level language that is suitable for a wide variety of tasks. Almost anything that can be programmed, can be programmed in Java. It is also similar to many other programming languages, including C++, JavaScript, Perl, Python, PHP, and C#. The skills you learn here will be easily transferable to them.

The class will start with a review of Java and object-oriented programming. From there, we will cover many of the most common data structures used in modern programming. You will program many of these on your own, from scratch.

Topics Covered/ Learning Outcomes
You will be able to understand, implement, and use the following tools:

- Object-oriented programming.
- Recursion.
- Memoization.
- Sorting algorithms.
- Stacks & queues.
- Linked lists & trees.
- Search trees.
- Hashing.

Web Page
The class web page will be located at http://cs.pugetsound.edu/~aasmith/cs261/. Readings, assignments, links, and other valuable info will be posted there.

Text
Most readings will be online, posted to the web page. In addition, your textbook from CS I may be of use for supplementary readings.

Prerequisites
You should already have taken CSCI 161, or its equivalent.

Course Policies
There will be twelve assignments over the course of the class—usually one each week. You are free to talk to others in the class about them, but I expect what you finally turn in to be 100% your own work. Assignments will be penalized when multiple students turn in the same code. They will also be penalized by 20% for each working day (or fraction thereof) they are late, down to 40%. However, you will have five “extension days” during the semester to extend a deadline by one working day. They will be used automatically, unless you specify otherwise.

There will also be weekly lab assignments done in small groups. If your work compiles properly and appears to be a good-faith attempt, you will be given either 50% or 100%.
Otherwise you will get 0%. You may keep trying so long as you have less than 100%. Please show your work to be graded before leaving early.

You all should be aware of the Honor Code at the college. Please do not cheat—it will not go well for you. *Any suspected cheating will be immediately reported.*

Exams are closed book, and will be cumulative. You are allowed a calculator (or your phone, so long as it is in “airplane mode”) and one two-sided, letter-sized page of notes. They will be graded on a curve, with the highest score considered to be 100%.

**Grading**

Final grades will be determined as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homeworks</td>
<td>25%</td>
</tr>
<tr>
<td>Labs</td>
<td>10%</td>
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<tr>
<td>Midterm 1</td>
<td>20%</td>
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<tr>
<td>Midterm 2</td>
<td>20%</td>
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<tr>
<td>Final</td>
<td>25%</td>
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</tbody>
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In particular, notice how heavily weighted assignments are. *Missing assignments is the easiest way to get a lower grade.* Please be sure you do them, and on time. In addition, class participation and effort may help bump you up, if your final grade is borderline.

**Attendance**

I will not be keeping attendance (except on the first day). However, odds are that your attendance will correlate highly with your final grade.

**Required Boilerplate UPS Info**

*Student Accessibility and Accommodation:* If you have a physical, psychological, medical or learning disability that may impact your coursework, please contact Peggy Perno, Director of Student Accessibility and Accommodation, 105 Howarth, 253.879.3399. She will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

*Copyright and Fair Use:* Course materials are subject to the copyright law of the United States (Title 17 U.S. Code). They are for educational purposes only and limited to students enrolled in the course. Further reproduction or distribution is prohibited.

*Bereavement:* Students are normally eligible for, and faculty members are expected to grant, three consecutive weekdays of excused absences, without penalty, for the death of a family member, including parent, grandparent, sibling, or persons living in the same household. Should the student feel that additional days are necessary, the student must request additional bereavement leave from the Dean of Students or the Dean’s designee. In the event of the death of another family member or friend not explicitly included within this policy, a bereaved student may petition for grief absence through the Dean of Students office for approval. To request bereavement leave, a student must notify the Dean of Students office by email, phone, or in person about the death of the family member. When bereavement leave is approved, the Dean of Students office will notify the student and the Office of Academic Advising. In turn, Academic Advising will notify the students instructors and advisor of the dates of the excused absences for bereavement leave. When the student returns from leave, the student must submit to the Dean of Students office an obituary notice, a funeral or memorial program, or other documentation regarding the death of a family member. While this policy excuses a student from class attendance, the student remains responsible for missed academic work. Therefore, the student is to seek the advice of each instructor to consider the options and to establish a plan to compensate for coursework missed during bereavement leave. For more information, please contact the Dean of Students office.

**Miscellany**

If there are any special holy days that you will be taking off, please let me know as soon as you can so that we can work around them.

Please consider getting a flu shot—*especially* this year. Influenza kills, and disease can spread rapidly. (And you really don’t want to miss a week of class. Trust me.)

Finally...if there’s anything else I can do to help you, please let me know. I’m willing to go out of my way to make this a valuable class for you, but I can’t do that unless you talk to me.