CS 2336: Data Structures and Algorithms
Spring 2024
Course syllabus

Class meetings
section 010: MWF 11:00–11:50 in MCS 111A&B

Instructor
Rob LeGrand
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office location: MCS 205I
office hours: online MTWRF 2:00–4:00 and by appointment

Textbook
Available in the ASU bookstore.

Description
Study of basic data structures and their applications such as: linear structures (arrays, lists, stacks, queues) and non-linear structures (trees, graphs); sequential and linked storage representation methods; sorting and searching algorithms; and techniques of algorithmic analysis.

Prerequisites
CS 1337 (Computer Science II) is a prerequisite for this course. Please see me if you haven’t taken it or if you’re unsure about your proficiency in C++ programming.

Grading breakdown
50% assignments (mostly programming)
50% exams (probably five, including final)

Student learning outcomes
Upon completion of this course, students will be able to
• have a better understanding of the C++ class concept.
• learn techniques of algorithm analysis.
• learn about recursion.
• learn how to use the C++ Standard Template Library (STL) vector container.
• learn programming techniques for sorting.
• learn programming techniques for searching.
• know how to use the STL stack adaptor.
• know how to use the STL queue adaptor.
• know how to use the STL deque container.
• know how to use the STL priority_queue adaptor.
**Class format**

This face-to-face class meets in a computer lab. As in CS 1337, we will be using the GNU C++ compiler on the csunix.angelo.edu server.

I will take attendance, and you will need to sit in the same place all semester. Class attendance is strongly encouraged. You have a duty to inform me as soon as you know that you’ll have to miss a class meeting.

You will generally be asked to work individually on assignments. Discussion and giving and receiving help are generally encouraged when working on assignments, but all work you turn in must be your own; anything you turn in you must understand thoroughly and be prepared to explain in detail. Whenever you work with anyone but me (including tutors) in any way, you must write fully detailed comments in your code describing the help: who helped, how they helped on which part(s), etc. Failure to do so is considered taking credit for work not done and thus cheating. I will be glad to help you on assignments and concepts when you need it.

Exams must be completed *entirely* independently. There will likely be five exams: four midterms and one final.

Blackboard (angeло.blackboard.com) will be used to keep track of grades and assignments. You should check Blackboard and your ASU e-mail at least once a day to make sure you’re not missing anything. In particular, your ASU e-mail is the only reliable way I have of contacting you outside of class, so please don’t neglect it.

**Safety**

I encourage wearing a mask and keeping as much distance from others as is reasonably possible. Keep an eye on ASU’s public health updates at www.angelo.edu/public-health.

For safety reasons, I will hold office hours online using Blackboard Collaborate. Please take advantage of face-to-face class meetings to ask questions and get help, but when you need help outside of class just get in touch and I’ll do what I can to help.

**Computer requirements**

You may use PCs in the computer labs, but I recommend that you have your own Windows 10 or 11 computer ready to use when you can’t get to a lab. You may need to download and install free software, such as the Respondus LockDown Browser. It is your responsibility to have and to use a reliable Internet connection; for best results, use an Ethernet cable to connect to your Internet source instead of relying on Wi-Fi. You will need a microphone to use Blackboard Collaborate for virtual office hours.
This schedule of topics should be considered approximate and tentative.

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<thead>
<tr>
<th>week of</th>
<th>topic</th>
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<tbody>
<tr>
<td>January 17th</td>
<td>review of class concept</td>
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<tr>
<td>January 22nd</td>
<td>review of class concept</td>
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<tr>
<td>January 29th</td>
<td>overloaded operators</td>
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<td>February 5th</td>
<td>overloaded operators</td>
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<td>February 12th</td>
<td>recursion</td>
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<td>February 19th</td>
<td>function templates</td>
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<td>February 26th</td>
<td>time complexity</td>
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<td>March 4th</td>
<td>algorithm analysis</td>
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<td>March 11th</td>
<td><em>spring break</em></td>
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<td>March 18th</td>
<td>vectors</td>
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<td>March 25th</td>
<td>vectors</td>
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<td>April 1st</td>
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<td>stacks</td>
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<tr>
<td>April 22nd</td>
<td>priority queues</td>
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<td>April 29th</td>
<td>deques</td>
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The final exam for this course is scheduled for Wednesday, May 8th, 10:30–12:30.

Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. By remaining enrolled in this course you agree not to commit academic misconduct as defined in section I.B.1 of the Student Handbook, available at [www.angelo.edu/student-handbook](http://www.angelo.edu/student-handbook).

- You must contact Student Disability Services in order to request and to implement academic accommodations.
- For ASU’s policy on absences due to religious holy days, see OP 10.19 at [www.angelo.edu/opmanual](http://www.angelo.edu/opmanual).
- I am obligated to report any knowledge of sexual misconduct to the Title IX office; see [www.angelo.edu/services/title-ix](http://www.angelo.edu/services/title-ix) for more.

This syllabus, including grade evaluation and course schedule, is subject to modification. In particular, the COVID-19 pandemic may require significant changes in course delivery and content on potentially short notice.