

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 e-mail: rlegrand@angelo.edu webpage: www.cs.angelo.edu/~rlegrand/ office phone: 325-486-5422 office location: MCS 205I office hours: online MTWRF 2:00–4:00 and by appointment
Textbook	Tony Gaddis. <i>Starting Out with C++: From Control Structures through Objects</i> . 9th edition. Addison Wesley, 2017. ISBN: 978-0-13-449837-9. 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 <ul style="list-style-type: none">• 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) <code>vector</code> container.• learn programming techniques for sorting.• learn programming techniques for searching.• know how to use the STL <code>stack</code> adaptor.• know how to use the STL <code>queue</code> adaptor.• know how to use the STL <code>deque</code> container.• know how to use the STL <code>priority_queue</code> 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 (`angelo.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.

**Semester
schedule**

This schedule of topics should be considered approximate and tentative.

week of	topic
January 17th	review of class concept
January 22nd	review of class concept
January 29th	overloaded operators
February 5th	overloaded operators
February 12th	recursion
February 19th	function templates
February 26th	time complexity
March 4th	algorithm analysis
March 11th	<i>spring break</i>
March 18th	vectors
March 25th	vectors
April 1st	vectors
April 8th	stacks
April 15th	queues
April 22nd	priority queues
April 29th	dequeues

Final exam

The final exam for this course is scheduled for Wednesday, May 8th, 10:30–12:30.

**Academic
honesty**

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.

**Important
university
policies**

- 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.
- I am obligated to report any knowledge of sexual misconduct to the Title IX office; see www.angelo.edu/services/title-ix for more.

Modifications

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.