CS232: Data Structures

Instructor: Amber Stubbs, PhD (stubbs@simmons.edu)

Lectures: Tuesday, Thursday 11:00 AM – 12:20 PM, L225

Lab: Tuesday 12:30 AM – 1:50 PM, L225

Course description:
Considers topics including abstract data types and objects, strings, vectors, linked lists, stacks, queues, deques, sets, maps, trees, hash tables, and applications of data structures. Surveys fundamental algorithms, including geometric algorithms, graph algorithms, algorithms for string processing, and numerical algorithms. Discusses basic methods for the design and analysis of efficient algorithms

Textbook:
Java Software Structures: Designing and Using Data Structures (4th Edition)
by John Lewis and Joseph Chase
ISBN-13: 978-0133250121, ISBN-10: 0133250121
Note: you do not need the "with access" version of this book, so buying used 4th edition is fine. Please do not buy the 3rd edition.

Memberships:

All students must be current members of the Association for Computing Machinery:
https://campus.acm.org/public/qj/quickjoin/qj_control.cfm?form_type=Student

Grading:

- Attendance and participation: 10%
- Homework and labs: 30%
- Quizzes: 10%
- Midterm Project: 15%
- Midterms: 10%
- Final Project: 15%
- Final: 10%

Final grades will be assigned according to the following ranges:

Points (%) range	**Grade**		
94 - 100	A	74 - 76	C
90 - 93	A-	70 - 73	C-
87 - 89	B+	67 - 69	D+
84 - 86	B	64 - 66	D
80 - 83	B-	Below 64	F
77 - 79	C+		

Contact with the instructor:

Email is always the best way to get in touch with me. I will make every effort to respond to your emails within 24 hours (48 on the weekends). Please put "CS232" in the subject of any course-related email you send me. My office hours are listed on Moodle; if those hours do not work for you then please get in touch and we can

schedule an appointment. I have an “open door” office policy – if my door is open, feel free to stop by and ask a question, or just say ‘hi’!

Accommodations:

If you have a documented disability and anticipate needing accommodations in this course, it is your responsibility to register with the Disability Services office as soon as possible to ensure that requested accommodations may be implemented in a timely fashion. For more information or to request academic accommodations, contact the Disability Services Office located in Room E-108 of the Main College Building. They are available by phone at 617-521-2474 or you may email Tim Rogers at timothy.rogers@simmons.edu.

Title IX and the Simmons College Gender Based Misconduct Policy

Title IX Federal law states that all students have the right to gain an education free of gender based discrimination. Some examples of gender based discrimination, as defined by this law include sexual harassment or exploitation, sexual assault, domestic/dating violence, and stalking. In compliance with Title IX, Simmons College has a ‘Gender Based Misconduct Policy’ which defines these forms of misconduct, outlines College protocol and procedures for investigating and addressing incidences of gender based discrimination, highlights interim safety measures, and identifies both on and off campus resources. The policy and a list of resources is located here: http://internal.simmons.edu/students/general-information/title-ix/gender-based-misconduct-policy-for-students-faculty-staff-and-visitors. Additionally, the Gender Based Misconduct Policy has a Consensual Relationships clause that prohibits intimate, romantic or sexual relationships between students, faculty, staff, contract employees of the College, teacher’s assistants, and supervisors at internship/field placement sites.

Policies:

- Attendance at all lectures is mandatory.
  - Coming to class but spending the whole session on the Internet doesn't count
  - Missing classes will, therefore, affect your attendance and participation grade
- Homework will be assigned **each Tuesday and due the following Tuesday** before class.
  - Collaboration is encouraged but copying is cheating.
    - More specifically, you can discuss concepts and general approaches, but you shouldn't share actual code.
  - Assignments passed in after class has started will be recorded as "late" and will receive a point deduction. Assignments passed in after class has ended will not be accepted without prior permission
- Quizzes will be frequent and not necessarily announced ahead of time
- All students must respect and follow the Simmons Honor Code: http://www2.simmons.edu/handbook/conduct/honor-system.php
- Tests will include take-home projects as well as in-class exams. Make-ups will not be permitted except in unusual cases and must be arranged beforehand.

Other expectations:

Lecture material should be reviewed before the next class since any questions on old material will be addressed only at the beginning of class. The reading should be done (at least skimmed over) before it’s covered in lecture, and reviewed afterward. All assignments must be legible, well-formatted, on-time and relatively complete. Please, please, please make sure you observe the plagiarism rules for the take-home projects. Any students who pass in similar projects will be referred to the Honor Board.

CS 232 - Data Structures
Course Calendar*

*This is a tentative schedule and may be changed during the semester. An up-to-date version will be available at the course page on Moodle.

In general, homework will be assigned on **Tuesdays** and due before class the following **Tuesday.** Unless otherwise noted, readings for each week should be done by **Thursday**.

Week of:	**Topics/Events**:
September 4 (first day of class)	Tuesday: • Chapter 1: Software quality • Additional reading: unit testing http://www.vannevel.net/2015/03/31/introduction-to-unit-testing-what-is-unit-testing/ Thursday: • Appendix B: Object-Oriented Design (review)
September 10	Chapter 2: Analysis of Algorithms
September 17	**Midterm 1: Java review** **Lab: Eclipse debugger** Chapter 3: Intro. to Collections --Stacks
September 24	Chapter 4: Linked Structures – Stacks
October 1	Chapter 5: Queues **Midterm Project assigned**
October 8	**10/8: no classes (Monday)** Chapter 6: Lists
October 15	Chapter 9: Searching and Sorting **Midterm Project due: Oct 19**
October 22	**Midterm2: Oct 25** Chapter 10: Trees
October 29	Chapter 11: Binary Search Trees, Chapter 8: Recursion
November 5	Chapters 11 and 8 cont'd **11/12: Veteran's Day (but also a Monday and not a holiday)**
November 12	Chapter 12: Heaps and Priority Queues **Final projects assigned**
November 19	Chapter 13: Sets and Maps **11/21-11/23: Thanksgiving break**
November 26	Chapter 13 cont'd
December 3	Chapter 15: Graphs
December 10	**12/11: no class (Monday schedule)** **12/13: last day of class** **12/15, 11:59PM: final projects due**
December 17-21	Final exam (time and day TBA)