

CSC 210: Data Structures

Fall 2007

OVERVIEW OF COURSE CONTENT

Welcome to CSC 210, Data Structures! This class is one of the most important classes you will take during your tenure as a computer science major/minor. We will focus on data structures such as lists, stacks, queues, and trees. In addition, you will be introduced to recursive programming and will look at different sorting and searching algorithms. By the end of the semester, you will thoroughly understand the fundamentals of all of these data structures, you will know when to choose one over another, and you will be able to write programs that effectively use these data structures.

Prerequisites: CSC 170, MPG 4, and one of MAT 122, MAT 145, or MAT 171.

INSTRUCTOR INFORMATION:

Instructor:	Shana Watters
Email:	watterss@augsborg.edu
Phone:	612-330-1142
Office:	Sverdrup 203F
Office Hours:	Monday: 10:45 am – 11:45 am Wednesday: 1:30 pm – 2:30 pm By appointment (email or call to set up appointment)

Please feel free to stop by my office at other times during the day and not just during my regular office hours. In addition, you may also phone or send email at any time with questions.

CLASS INFORMATION:

Class Day:	Monday, Wednesday, and Friday
Class Time:	12:10 pm – 1:10 pm
Classroom:	Sverdrup 204
Lab Day:	Thursday
Lab Time:	1:30 pm – 3:30 pm
Labroom:	Sverdrup 204
Important Dates:	Tuesday, September 18: Last Day to Drop Class without Notation: Friday, November 2: Mid-term grades due Registrar Friday, November 9: Last Day to Change Grade Option or Withdraw from Class Monday, December 17: Final Exam (10:15 am – 12:15 pm) Friday, December 28: Final grade due Registrar

REQUIRED MATERIAL:

- 1) Nell Dale, Daniel T. Joyce, & Chip Weems. *Object-Oriented Data Structures Using Java*. Second Edition. Jones and Bartlett Publishers, Sudbury, Massachusetts. 2006. (ISBN 0-7637-3746-1)
- 2) Access to Java
- 3) Access to Moodle

We will be using Moodle for this course. To access Moodle, you will need access to AugNet. Contact the IT department at Augsburg if you do not have a login and password for AugNet (this is the same login and password used for "augsborg.edu" web-mail). If you have another e-mail account you will still need to get an Augsburg login from IT, You can request a login and password by contacting the IT department by one of following ways;

- a) <http://www.augsburg.edu/stucomp/>
- b) email: stucomp@augsborg.edu
- c) phone: 612-330-1400
- d) visit: Student Computing Desk on the second floor (link level) of the library.

ATTENDANCE POLICY:

Attendance is important for this class. To encourage attendance, you will be given 10 in-class quizzes, activities, or participation exercises over the course of the semester each worth .5% of your overall grade. If you will be absent from class, please notify the instructor as soon as possible. You may contact the instructor via the telephone or email.

GRADES:

10 in-class quizzes, activities, and participation; .4% each	4%
8 Homework Assignments/Labs; 7% each	56%
Project	7%
3 Exams; 11% each	33%
Total	100%

Using the above percentages, 90% and up will earn you some level of A, 80% and up some level of B, 70% and up some level of C, 60% and up some level of D. These cutoffs are the baseline grading system. In most cases, changes are not required but in certain cases the cutoffs may be lowered. As the course progresses, the instructor will discuss with the class any changes to this grading system.

HOMEWORK:

You will be assigned a homework assignment to work on during each lab. These homework assignments will help you assess your understanding of the material, will improve your programming skills, and will help develop your critical thinking skills. . There will be a total of 8 homework assignments, one for each chapter covered. Each assignment will be worth 7% of your overall grade.

Each homework assignment will normally involve writing programs in the programming language *Java* and answering questions related to the chapter's material being covered. To receive full credit for your work, you must include a listing of your program and a copy of the actual output printed by your programs.

Collaboration Policy: You are encouraged to **talk** to your fellow students about the homework problems. Many of the problems are difficult and collaboration may help you understand the problem. However, when you are writing your solutions to the homework problems, you are required to do the following two things:

- 1) you must state on your homework the students' names that you discussed the problem with
- 2) you must write up your homework solutions by yourself; you are not allowed to copy the answer of another student

Late Homework Policy: Homework will not be accepted late unless prior arrangements have been made with the instructor. Homework will be turned in at the start of class.

If you know you will be absent on a due date, inform the instructor and turn in the assignment by the due date and time. You may send the instructor your homework via email or drop it off at the instructor's office.

EXAMS:

There will be 3 open book/open notes exams. Each exam will be held at the start of the class and will be 75 minutes long. Each exam will be worth 11% of your overall grade. The exams will be based on the material covered by the assigned readings, lectures, discussions, homework/labs, self-quizzes, and in-class quizzes and activities.

To help ensure that students are prepared for the exam, a review will be held during the class that is in the week prior to the exam itself.

PROJECT

There will be one project. The purpose of the project is to help build your skills in analyzing algorithms. You will be given 4 sorting algorithms and will implement them in Java. Your implementations will add counters so you will be able to compare the algorithms. You will hypothesize how the sort algorithms should compare, run your Java programs with given inputs, and determine how the algorithms actually compare. You will write up your findings and substantiate your hypotheses based on your results.

Collaboration Polic for Project: Although the project needs to be completed by yourself, you are encouraged to **talk** to your fellow students about the project. Talking does not mean copying someone else's work or using their code to run your inputs. When you are writing up your findings, you are required to do the following two things:

- 1) you must state on your project's write-up the students' names that you discussed the project with
- 2) you must write up the findings by yourself

ACADEMIC HONESTY

All work submitted must represent your own individual effort. You are encouraged to discuss course material, approaches to homework problems, and the project with classmates and the instructor, but you should never misrepresent someone else's work as your own. It is also your responsibility to protect your work from unauthorized access. Collaboration on exams, copying homework solutions from your classmates, or copying homework solutions from the web is cheating and grounds for failing the course. Any student caught cheating will receive as a minimum a "zero" on the exam or homework and may be given an F as a class grade.

For further information on Augsburg's Academic Honesty Policy, please see the Student Guide at <http://www.augsburg.edu/studentguide/> . You will be required to sign a statement indicating that you understand these policies.

SPECIAL NEEDS AND ACCOMMODATIONS:

If you have a disability that requires special needs, please contact me by the second class and provide documentation of what you require from either the Augsburg College Access Center (ACCESS) or the Center for Learning and Adaptive Student Services (CLASS). We will work together to accommodate your needs.

ACCESS

Mortensen Hall, Room 13

Monday – Friday

8:00 a.m. – 4:30 p.m.

612-330-1350

CLASS

2211 Riverside Avenue CB #57

612-330-1053

class@augsborg.edu

SCHEDULE:

Week	Date	Topics	Homework Assignments
1	9/5-9/7	Syllabus Overview Introduction Ch 2: Abstract Data Types (ADTs)	Lab 1 (ADTs): Assigned
2	9/10-9/14	Ch 3: The Stack ADT	Lab 1 (ADTs): Due Lab 2 (Stack): Assigned
3	9/17-9/21	Ch 3: The Stack ADT	
4	9/24-9/28	Ch 4: Recursion	Lab 2 (Stack): Due Lab 3 (Recursion): Assigned
5	10/1-10/5	Ch 4: Recursion	
6	10/8	Exam 1 covering Ch 2, 3, and 4	
6	10/10-10/12	Ch 5: The Queue ADT	Lab 3 (Recursion): Due Lab 4 (Queue): Assigned
7	10/15-10/19	Ch 5: The Queue ADT	
8	10/22-10/25	Ch 6: The List ADT	Lab 4 (Queue): Due Lab 5 (List): Assigned
8	10/26	Midterm Break - No Class	
9	10/29-11/1	Ch 6: The List ADT	
9	11/2	Exam 2 covering Ch 5 and 6	
10	11/5-11/9	Ch 7: More Lists	Lab 5 (List): Due Lab 6 (More Lists): Assigned
11	11/12-11/16	Ch 7: More Lists	
12	11/19-11/21	Ch 8: Binary Search Trees	Lab 6 (More Lists): Due Lab 7 (BST): Assigned
12	11/22-11/23	Thanksgiving Break – No Class	
13	11/26-11/30	Ch 8: Binary Search Trees	
14	12/3-12/7	Ch 10: Sorting and Search Algorithms	Lab 7 (BST): Due Lab 8 (Sort/Search): Assigned
15	12/10-12/14	Ch 10: Sorting and Search Algorithms	Lab 8 (Sort/Search): Due by end of Lab
16	12/17	Exam 3 covering Ch 7, 8, and 10 (Finals Week)	