

CMSC 221 Data Structures Syllabus

Spring 2017

Course Information

Instructor Information

Instructor: Jory Denny
Email: jdenny@richmond.edu
url: <http://www.mathcs.richmond.edu/~jdenny>
Office: Jepson 226
Office Hours: TWTh 3:30pm-5:30pm; Other times by appointment

Brief Teaching Philosophy: To state it simply, I believe in learning real world skills and attempting to solve real world problems, i.e., challenges. However, I do not believe in ruining someone's grade because they did not succeed 100%. To facilitate this, we will be using a "flipped" style of class — this implies you should complete reading assignments **BEFORE** coming to class.

Lab Assistant: Shiv Toolsidass
Email: shiv.toolsidass@richmond.edu

Section Information

CMSC 221-02

Lecture:	TTh	1:30pm-2:45pm	Ryland Hall 215
Lab:	W	1:30pm-3:30pm	Media Resources Center LL1
Final:	F Apr. 28	9:00am-12:00pm	Ryland Hall 215

Requirements

Prerequisite: CMSC 150 Introduction to Computing, or equivalent
Corequisite (Recommended): CMSC 222 Discrete Structures for Computing

Textbook

Required: *Data Structures and Algorithms in Java*, Michael T. Goodrich, Roberto Tamassia, and Michael H. Goldwasser, Wiley, Sixth Edition, 2014.

Additional Resources: <http://www.wiley.com/college/goodrich>

Course Website

<http://www.mathcs.richmond.edu/~jdenny/Courses/221>

Course Outcomes

After taking this course a student will be able to:

- Define, implement, and analyze the complexities of the following abstract data types:
 - Linear data structures: Stacks, Queues, Lists, Priority Queues
 - Trees
 - Maps, Dictionaries, Hashing, Search Trees
 - Graphs
- Define, implement, and analyze the complexity of common algorithms involving searching, sorting, and selection.
- Understand the uses and trade-offs of various algorithms and data structures.

Course Content and ***Tentative*** Schedule

During the semester we will discuss the following topics:

Week	Topic	Reading
1	Introduction, Fundamental Data Structures	Ch 1, 2, 3
1, 2	Stacks, Queues, Deques	Ch 6
2	Lists and Iterators	Ch 7
3, 4	Trees	Ch 8
4, 5	Priority Queues	Ch 9
6	Midterm 1	
6, 7, 8	Maps, Dictionaries, and Hashing	Ch 10
8, 9	Search Trees	Ch 11
10, 11	Sorting and Selection	Ch 12
12	Midterm 2	
12, 13, 14	Graphs	Ch 14

Note the schedule is subject to change.

Assignments and Grading

All assignments will be announced in class and details will be posted on the course web page. If you miss class for any reason, it is *your* responsibility to find out what you missed.

Your grade will be based on five components:

1. **Quizzes** — **10%** — There will be in-class quizzes over reading material for the course.
2. **Homework Assignments** — **20%** — There will be ten out-of-class homework assignments. These will be turned in through hard copy.
3. **Programming Assignments** — **20%** — There will be four out-of-class programming assignments. These will be turned in through a hard and soft copy.
4. **Exams** — **40%** — There will be two mid-term exams (10% each) and one final exam (20%).
5. **Culture Assignment** — **10%** — Each student is complete two culture assignments this semester. This is to give the student the opportunity to explore extra topics and computing interests.

Final grades will be assigned according to the following scale:

Final Grade	Percentage (x)
A ⁺	$96.5\% \leq x$
A	$92.5\% \leq x < 96.5\%$
A ⁻	$89.5\% \leq x < 92.5\%$
B ⁺	$86.5\% \leq x < 89.5\%$
B	$82.5\% \leq x < 86.5\%$
B ⁻	$79.5\% \leq x < 82.5\%$
C ⁺	$76.5\% \leq x < 79.5\%$
C	$72.5\% \leq x < 76.5\%$
C ⁻	$69.5\% \leq x < 72.5\%$
D ⁺	$66.5\% \leq x < 69.5\%$
D	$62.5\% \leq x < 66.5\%$
D ⁻	$59.5\% \leq x < 62.5\%$
F	$x < 59.5\%$

Policies

Contact with Lab Assistants

All email contact with lab assistants should CC the primary instructor of the course.

Course Conduct

The student will be respectful to the instructor, lab assistants, and other students. Misconduct will not be tolerated. This includes excessive phone usage, napping, rude commentary, or other disrespectful behavior.

Attendance and Late Assignments

Attendance at all lecture and lab sessions is advised. There will be no make-up exams and no late assignments accepted unless permission from the instructor is sought **in advance**, when possible. **No exceptions!**

Collaboration and Using Resources

For the assignments in this class, discussion of concepts with others is encouraged, but all assignments must be done on your own, unless otherwise instructed. Reference every source you use, whether it be a person, a book, a paper, a solution set, a web page, etc., plagiarism is strictly forbidden. **You must write up your assignments in your own words. List all sources for programs inline in comments or in a comment at the top of the file. For culture assignments, properly quote words used and cite sources at the end of it.**

Academic Integrity

All students are expected to be in accordance with the student honor code. <http://studentdevelopment.richmond.edu/student-handbook/honor/the-honor-code.html>. Note, cheating, lying, plagiarism, academic theft, etc. are not tolerated. If you know another student is breaking the code it is your responsibility to report them to me and the university.

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal antidiscrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the appropriate university coordinator, <http://disability.richmond.edu>.