CMSC 221 Data Structures
Syllabus

Spring 2018

Course Information

Instructor Information

Instructor:	Jory Denny
Email:	jdenny@richmond.edu
url:	`http://www.mathcs.richmond.edu/~jdenny`
Office:	Jepson 226
Office Hours:	M 1:00pm-4:00pm; T 3:00pm-5:00pm; Other times by appointment

Brief Teaching Philosophy: I believe in learning real world skills and attempting to solve challenging real world problems. However, I do not believe in ruining someone's grade because they did not succeed 100%.

Section Information

CMSC 221-02

Lecture:	TR	1:30pm-2:45pm	Media Resources Center LL1
Lab:	W	3:00pm-5:00pm	Media Resources Center LL1
Final:	R May 3	9:00am-12:00pm	Media Resources Center LL1

Requirements

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

Textbook

Required:	*Data Structures and Algorithmis 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 Schedule

During the semester we will discuss the following topics:

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

Note: 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 — 30%** — There will be ten out-of-class programming assignments. These will be turned in through a hard and soft copy.

4. **Exams — 30%** — There will be three exams (10% each between two midterms and one final).

5. **Culture Assignment — 10%** — Each student is to 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	$x < 59.5\%$

Note: The number of hours per week put in the course is not part of the grading equation.
In other words, an A is about content mastery, not about working hard. A B is about content understanding.
A C is generally earned when content is misunderstood. So you can work really hard and still receive a C.

Policies

Course Conduct

The student will be respectful to the instructor, lab assistants, and other students. Misconduct will not be tolerated. This includes, but is not limited to, excessive phone usage, napping, rude commentary, etc.

Attendance and Late/Missed Assignments

Attendance at all lecture and lab sessions is advised.

No late assignments will be accepted unless permission from the instructor is sought *in advance*, when possible. Exceptions are typically only given for medical reasons. "Late" is defined as one second past the start of the class period. Printer errors are not a valid excuse.

There will be no makeup options for quizzes or exams. Depending on the circumstance, either a 0 will be given, or the next quiz/exam will count twice. Discuss with the instructor accordingly.

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.

Collaboration and Using Resources

For the assignments in this class, white-board/verbal discussion of concepts with others is allowed and encouraged, however the writeup must be in your own words.

Plagiarism is strictly forbidden. Reference every source you use, whether it is a person, a book, a paper, a solution set, a web page, etc. Do not cite the instructor or the course textbook, those are assumed.

Specifically to cite sources – on assignment coverpages list the general sources used, e.g., `stackoverflow.com`. In the assignment body (code or paper) cite sources in APA format, e.g., the specific stack overflow post. In source code this information can be placed in a comment line/block. For homework and culture assignments, use proper quotation and cite sources at the end in a bibliography section.

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.