CSIS10B Programming Methods II: Java

Spring 2015

Time: Mon/Wed 3:00-5:15 PM **Room:** BMC 205 **Section:** 5057 **Units:** 4

Instructor: Tom Rebold **Office:** BMC-202B **Contact:** trebold(a)mpc(.)edu 645-1327

Office Hours: M/W 5:30 - 6:30, T/Th 12 noon - 1 pm in BMC202B, Friday 3-4 in PS103 (and online)

Class website: www.tomrebold.com/csis10b **Turn in your work:** here
Check uploads: here

Discussion board: for posting questions and suggestions (not solutions!) here

Text: Carrano, Data Structures and Abstractions with Java, 3rd edition, 2012 ISBN 9780136100911. Available in electronic form at: coursesmart.com Why you should get (and read) the text (One copy is on reserve at MPC library)

Course description:

Advanced Java programming experience covering design, implementation, and manipulation of data structures: arrays, strings, linked lists, stacks, queues, trees, sorting, and searching and hashing. Significant project required.

Prerequisite: CSIS 10A **Advisories:** ENGL 1A, MATH 40

Student Learning Outcome:

Students will be able to implement an abstract data type and use it in a programming solution.

Objectives: Students will be able to:

Upon satisfactory completion of this course, students will have demonstrated the ability to:

- Solve complex programming problems using data abstraction, standard data structures and associated algorithms.
- Apply techniques of object-oriented programming, generics, recursion, linked structures, and inheritance.
- Develop, maintain, and use software implementations of lists, stacks, queues, binary trees, heaps, graphs and hash tables.
- Test and debug complex programs using a debugger.

Pair Programming: All labs will be done with a partner. See video for more info.

Accommodations: If you need accommodations or have a disability, please talk with me for arrangements.

Schedule:

	Lecture	Assess	Video	Reading	Lab	Assignment & Quiz
2/2 2/5	Java Review -- Basics CSIS10A Final Exam F13 Defining a class	1	video video	Appendix A Appendix B	Lab1 download	Assignment1 download solns
2/9 2/11	Using Bags; Generics and Inheritance Bag (all) Using Stacks; Interfaces Stack	2	video video	Ch 1, App C Ch 5, App D	Lab2 download	
2/16 2/18	**Holiday** Arrays and Linked Nodes	3	video	App A, Ch 3	Lab3 download	Quiz 1 (Wed)
2/23 2/25	Using Queues Queue Using Lists; Files and Exceptions List	4	video video	Ch 10, App E Ch 12, App F	Lab4 download	Assignment2 download solns
3/2 3/4	Polymorphism, Finish labs 1-4 **Test 1 Practice Solutions**		video			
3/9 3/11	Making an Array Bag, Assert Making an Array List	5	video video	Ch 2 Ch 13	Lab5 download	
3/16 3/18	Making a Linked Bag Making a Linked List	6	video video	Ch 3 Ch 14	Lab6 download	Assignment3 download solns
3/23 3/25	Algorithm Efficiency Sedgewick Basic Sorting Sedgewick	7	video video	Ch 4 Ch 8	Lab7 download	
3/30 4/1	**SPRING BREAK**					
4/6 4/8	Recursion Advanced Sorting (MergeSort)(QuickSort)	8	video video	Ch 7 Ch 9	Lab8 download	Quiz 2 (Wed)

4/13 4/15	**Review** **CodingBatLists** **Test 2** Practice Solutions		video			Assignment4 download solns
4/20 4/22	Iterators Sorted List	9	video video	Ch 15 Ch 16	Lab9 download	Final Project
4/27 4/29	Dictionaries and Implementations Hashing and Dictionaries	10	video video	Ch 19, 20 Ch 21, 22	Lab10 download	Quiz 3
5/4 5/6	Trees, Expression Trees Binary Search Trees	11	video video	Ch 23, 24 Ch 25	Lab11 download	
5/11 5/13	Heaps & Priority Queues	12	video video	Ch 26	Lab12 download video	Quiz 4
5/18 5/20	Graphs (pdf) Implementations		video video	Ch 28,29	Lab13 download	
5/25 5/27	Work on Final Project Review1 SOLNS1 Review2 SOLNS2 SimpleBST.zip		video			Quiz 5
6/3	Final Exam (Wed) CodingBatListsTrees CodingBatFinal					

Resources:

- CSIS10B Guest Book
- Notes on Eclipse and BlueJ
- CSUMB "Ideas of March" Android competition
- Animations and Videos
- Google Interview Puzzles
- Bailey, Java Structures free online data structures text (source of final project ideas)
- Hoote, Lab Manual for Data Structures and Abstraction with Java, 2nd Edition
- Java Programming Notes
- Online Data Structures Lessons
- Coursera (Sedgwick) Algorithms Class
- CSIS10B Spring 2014
- Extra Lab Points

Attendance:

If you decide to drop, to avoid getting an F, please remember to remove yourself from the class using webreg. I often drop people who haven't participated in over a

week, but please don't count on that!

Class Work:

Weekly Online Assessments	5%
Weekly "Pair Programming" labs	5%
4 extended assignments	10%
5 quizzes	5%
2 Tests @ 20% each	40%
Final Project	10%
Final Exam	25%

Grades will be based on the following curve:

A - 90%
B - 80%
C - 65%
D - 50%

Homework Grading:

Each week there will be a number of textbook based and programming activities for you to solve outside of class. When you are finished, make a jar of your assignment folder, then upload it to the class website and print a copy to hand in. Your assignment grades will be based on the following rubric:

Assignment Success Score
(0 to 10 pts.) Proportion of problems solved
(plus 1 pt for extra work)

Deductions
(1/2 pt.) Lack of meaningful names used in declarations
(1/2 pt.) Lack of informative comments
(1/2 pt.) Poor or inconsistent formatting
(1/2 pt.) Poor choice of Java commands
(1/2 pt.) Improperly constructed .jar file

No points can be given for late assigments.

Important Note on Academic Honesty:

Working with others on assignments is a good way to learn the material and is encouraged. However, please do not think you can turn in someone else's work and get credit for it. If you fall behind in class you may request an extension provided you have an approved and documented reason for your absence, such as illness, work or family emergency. If you are asked by someone in class for your solutions, be aware that both the provider and the receiver are given zero points for the work involved and, if necessary, may be sent to the Dean of Students for a conversation about their status at MPC.