

## CMPS 12B/M

### Introduction to Data Structures

### Summer 2016 (June 20 – August 12)

**Description:** Teaches students to implement common data structures and the algorithms associated with each data structure, through progressively difficult exercises. Topics include big “O” notation; pointers, recursion (induction), and dynamic allocation; linked lists and list processing; stacks, queues, binary trees and binary search trees; simple sorting techniques and simple search techniques. Students will gain a working knowledge of the elements of the Java and C programming languages. Prior experience with Unix is assumed. **Prerequisites:** CMPS 11 or 12A or CMPE 13. Concurrent enrollment in CMPS 12M is required.

**Time and Place:** TTh 10:00-12:30 Thimann Lecture 001

**Class Webpage:** <https://classes.soe.ucsc.edu/cmeps012b/Summer16/>

**Instructor:** Patrick Tantalo <http://users.soe.ucsc.edu/~ptantalo/>

**Office:** E2 257

**Office Hours:** TTh 3:00-5:00, W 4:00-6:00, or by appointment

**Email:** [ptantalo@soe.ucsc.edu](mailto:ptantalo@soe.ucsc.edu)

**Phone:** 831-459-3898

#### Teaching Assistants:

April Grow ([agrow@soe.ucsc.edu](mailto:agrow@soe.ucsc.edu))

Bharath Nagesh ([bnagesh@ucsc.edu](mailto:bnagesh@ucsc.edu))

#### LSS Tutor:

Olivia Johnson ([ocjohnso@ucsc.edu](mailto:ocjohnso@ucsc.edu))

**Recommended Text:** *Data Abstraction and Problem Solving with JAVA* (2<sup>nd</sup> edition) by Frank M. Carrano and Janet J. Prichard. Addison Wesley 2005 (ISBN 9780321304285). We will cover (roughly) the following sections: 3.1-3.5, 4.1-4.3, 5.1-5.3, 7.1-7.6, 8.1-8.5, 9.1-9.3, 11.1-11.4, 13.2.

#### Supplementary Texts:

*C for Java Programmers: A Primer* Charlie McDowell. Lulu.com 2007.

*Your Unix* (2<sup>nd</sup> edition) Sumitabha Das. McGraw-Hill 2006 (ISBN 978007250422).

*Java By Dissection* Ira Pohl and Charlie McDowell. Lulu.com 2006.

#### Coursework and Evaluation for CMPS 12B:

- **Programming Assignments:** Five assignments due at roughly 8 day intervals.
- **Midterm Exam 1:** Thursday July 7
- **Midterm Exam 2:** Thursday July 28
- **Final Exam:** Thursday August 11, 10:00-1:00pm

Coursework for 12B will be weighted as follows:

Programming Assignments	60%
Midterm Exam 1	10%
Midterm Exam 2	10%
Final Exam	20%

#### Coursework and Evaluation for CMPS 12M:

- **Lab Assignments:** Eight assignments due at roughly 6 day intervals. Topics covered will include: Makefiles, executable jar files, command line arguments, file input and output, Java generics,

introduction to the C language, data abstraction and information hiding in C. Some of these assignments will build on the 12B programming projects.

- **Final Exam:** The 12B final exam (Thursday August 11, 10:00-1:00pm) will contribute toward your grade for 12M.

Coursework for 12M will be weighted as follows:

Lab Assignments	80%
Final Exam	20%

Grading scale for both 12B and 12M:

A+	97%-100%
A	93%-96%
A-	90%-92%
B+	87%-89%
B	83%-86%
B-	80%-82%
C+	76%-79%
C	70%-75%
C-	67%-69%
D+	64%-66%
D	61%-63%
D-	58%-60%
F	0%-57%

Letter grade boundaries may be lowered at my discretion in order to eliminate some borderline cases.

### **Accommodations for Students with Disabilities**

If you qualify for classroom accommodations because of a disability, please get an Accommodation Authorization from the Disability Resource Center (DRC) and submit it to me in person outside of class (i.e. during office hours) within the first two weeks of the quarter. Contact DRC at 459-2089 (voice), 459-4806 (TTY), or <http://drc.ucsc.edu> for more information.

### **Academic Honesty:**

The Baskin School of Engineering has a zero tolerance policy for any incident of academic dishonesty. If cheating occurs, consequences may range from getting zero on a particular assignment to failing the course. In addition every case of academic dishonesty is referred to the students' college Provost, who sets in motion an official disciplinary process. Cheating in any part of the course may lead to failing the course, suspension or dismissal from the Baskin School of Engineering, or from UCSC.

What is cheating? In short, it is presenting someone else's work as your own. Examples would include copying another students' lab or programming assignment, or allowing your own work to be copied. You may discuss programs with fellow students, but your collaboration must be at the level of *ideas* only. You may freely give and receive help with the computer facilities, editors, the UNIX operating system, and the proper use and syntax of the Java and C programming languages; but you may not *copy, paste, email, transfer* or in any way share *source code*. If you do collaborate (legitimately) or receive help from anyone, you must credit them by placing their name(s) at the top of your program. Please go to [https://www.ue.ucsc.edu/academic\\_misconduct](https://www.ue.ucsc.edu/academic_misconduct) to see the University's policy on Academic Misconduct.

### **Some Important Summer Session Deadlines:**

Last day to drop: Monday June 27 (week 2)

Last day to withdraw: Friday July 22 (week 5)