COLLEGE OF THE CANYONS

26455 Rockwell Canyon Road, Santa Clarita, California 91355 • (661) 259-7800 • www.canyons.edu

# Course Syllabus
# CMPSCI 182L – Data Structures/Program Design Lab
# Section #25382 – Spring 2017 Semester

**Course Description:** A review of primitive data types and their internal representation. Data structures built from primitive types such as arrays and records. Program design, Big O notation and algorithms: searching and sorting. Advanced data structures: stacks, queues, link lists, binary trees and hash tables.

**When and Where:** Lecture MW 2:00 PM – 3:20 PM, Lab MW 3:30 PM – 4:50 PM, HSLH-133

Please check the CMPSCI 182L Canvas website each week for:

- Important Announcements
- Project Assignments
- Project Due Dates

**Instructor:** Benjamin Riveira
**Office Hours:** Mon & Wed 12:45 PM – 1:45 PM, Fri 9:00 AM – 11:00 AM Seco Hall 305E, Tue & Thur 11:00 AM – 12:00 PM, Canyon Country Campus Room 507 (best to email for an appointment).
**Email:** benjamin.riveira@canyons.edu (please use your @my.canyons.edu email address)
**Web Page:** http://www3.canyons.edu/faculty/riveirab/

**Student Learning Outcomes:** Evaluate and compare computer data structures, and analyze each data structure's impact on algorithms, program design and program performance.

**Required Text:** *Data Abstraction & Problem Solving with Java,* Janet J. Prichard and Frank M. Carrano, Prentice Hall, 3rd Ed., ISBN-10: 0-13-212230-8.

**Grading:**

6 Programming projects, 30 points each, **180 Total Possible Points**
**Needed Point Totals: A** – 157 points, **B** – 135 points, **C** – 108 points, **D** – 90 points

**Class and Lab Etiquette:** Please silence all smartphones and electronic devices before entering the classroom. **No** smartphones or iPod/MP3 players are to be used during class lectures. Laptops and/or tablets may **ONLY** be used during lab time, or to take notes during lecture class. Browsing the Internet during lecture time is reserved for class-related web sites such as Blackboard. **Non-class related activities on lab computers are strictly prohibited**.

**Academic Dishonesty:** On programming projects, it is permissible to discuss solution approaches in a **general** sense with other students or the lab tutors. But when submitting a program for a grade, **the program must represent your own work**. **It cannot be a program written for you by someone else** and it **cannot be a direct copy of another student's program**, even if you worked in a group with that student. Penalties for academic dishonesty on a single programming project may result in a grade of "F" for the entire course. If you have any doubts about what is considered dishonest, please ask the instructor for guidance before taking such a serious risk. In general, full disclosure is the best policy on any submission. In other words, **if a friend helped you to complete a project, state this fact in writing at the beginning of the submission.** Such a submission may not earn full points, however.

**Attendance:** Attendance will be taken for all class meetings at the beginning of class. Should a student be tardy, it is the student's responsibility to sign in after class to inform me of their presence. Otherwise, the student will be marked as absent for the class. **The instructor reserves the right to drop a student after 2 consecutive absences.** However, it remains the student's responsibility (not the instructor's) to officially drop the course if necessary. The student should **not** assume that she/he **will** be dropped after these absences, nor should she/he assume that she/he will **not** be dropped.

**Late Programming Projects:** Programming project due dates are posted well ahead of time. If you anticipate that you will not be able to meet a project deadline, submit your work in progress on the due date. **Late project submissions are subject to a 10% penalty *per calendar day* past the posted due date.** Thus, if the posted due date for a project is on a Wednesday, but a student submits that project on the following Monday, five calendar days past the due date, the student's maximum score for that project will be 50%. **Absolutely no programming project will be accepted later than one week past its posted due date.**

**Important Dates:**

| | |
|---|---|
| Add Deadline | 2/19/17 |
| Drop w/o "W" | 2/19/17 |
| Drop w/Refund | 2/19/17 |
| Drop Deadline | 5/7/17 |
| Project 1 due | 2/27/17 |
| Project 2 due | 3/20/17 |
| Project 3 due | 4/17/17 |
| Project 4 due | 4/26/17 |
| Project 5 due | 5/8/17 |
| Project 6 due | 5/31/17 |

**Course Schedule (subject to change)**

| Week | Date | Topics covered | Reading Assignment |
|---|---|---|---|
| 1 | 2/6/17 | Review Course Syllabus | |
| | 2/8/17 | Review of programming principles, Review of recursion | Chapters 2, 3 |
| 2 | 2/13/17 | Data abstraction, **Project 1 assigned** | Chapter 4 |
| | 2/15/17 | Data abstraction | |
| 3 | 2/20/17 | President's Day Holiday | |
| | 2/22/17 | Data abstraction | |
| 4 | 2/27/17 | Linked lists, **Project 2 assigned** | Chapter 5 |
| | 3/1/17 | Linked lists, **Quiz 1** (In Lab) | |
| 5 | 3/6/17 | Linked lists | |
| | 3/8/17 | Linked lists | |
| 6 | 3/13/17 | Recursion | Chapter 6 |
| | 3/15/17 | Recursion | |
| 7 | 3/20/17 | Stacks, **Project 3 assigned** | Chapter 7 |
| | 3/22/17 | Stacks | |
| 8 | 3/27/17 | Stacks | |
| | 3/29/17 | **Midterm Exam** (In Lecture) | |
| 9 | 4/3/17 | Spring Break (Campus Closed) | |
| | 4/5/17 | Spring Break (Campus Closed) | |
| 10 | 4/10/17 | Queues | Chapter 8 |
| | 4/12/17 | Queues | |
| 11 | 4/17/17 | Trees, **Project 4 assigned** | Chapter 11 |
| | 4/19/17 | Trees | |
| 12 | 4/24/17 | Trees | |
| | 4/26/17 | Tables, **Project 5 assigned** | Chapter 12 |
| 13 | 5/1/17 | Tables, **Quiz 2** (In Lab) | |
| | 5/3/17 | Tables | |
| 14 | 5/8/17 | Graphs, **Project 6 assigned** | Chapter 14 |
| | 5/10/17 | Graphs | |
| 15 | 5/15/17 | Class Relationships | Chapter 9 |
| | 5/17/17 | Class Relationships | |
| 16 | 5/22/17 | Efficiency and sorting | Chapter 10 |
| | 5/24/17 | Efficiency and sorting | |
| Final | 5/31/17 | **Final Exam** | |

*Recent California Legislation guarantees admission to a California State University (CSU) campus for any community college student who completes an "associate degree for transfer". The Associate in Science for Transfer (AS-T) in* ***Math****,* ***Physics****,* ***Computer Science****, and* ***Geology****, or the Associate in Arts for Transfer (AA-T) in* ***Geography****, is intended for College of the Canyons students who plan to complete a bachelor's degree in a similar major at a CSU campus. Students must earn a C or better in all courses required for the major or area of emphasis. The College also offers associate degrees in* ***Biology****,* ***Computer Science****,* ***Engineering****, and* ***Math****. For more information on the suggested sequence of classes to be taken in order to obtain these degrees in two years, as well as information on when these courses are guaranteed to be offered, please visit: http://www.canyons.edu/Offices/MathScienceDiv/Pages/Classes.aspx*