Data Structures for Problem Solving: Overview

VCSS-242, Winter 2009-2010

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Course Objectives

What this Course is About

The representation and properties of some important data structures that maintain data in programs

- Including: arrays, lists, stacks, queues, hash tables (maps/dictionaries), heaps, and balanced trees

We will create and use our own implementations of these data structures. We will not focus on data structure libraries this quarter (covered in VCSS-243)
Approach: Problem-Based

Problem Solving

We will continue to introduce and study concepts in relation to solving computational problems

Problem Solving Steps:

• Problem definition (abstraction)
• Solution design (design description, pseudo code)
• Solution implementation (programming, for this course in Python)
• Testing (pseudo code and implementations)
Lecture, Lab and Review Each Week

First Class Each Week: Lecture

The Class will be Split into Two Lab Groups

Group 1 will meet in class the first “lab day,” and have a review (supplemental instruction) session with a student leader for one hour on the second “lab day.” Lab and review sessions are required.

Group 2 will do the opposite.

Groups 1 & 2 will switch days after the midterm.
Grading and Evaluation

20% Labs (best 4 of 5)
30% Course Group Project (3 graded deliverables, 10% each)
20% Midterm Examination (written (13%), lab (7%)) - Week 5
30% Final Examination (2 hrs) - Week 11

Late Policy: If a submission is late, it will receive a grade of 0.

Academic Dishonesty: Students may discuss assignments and projects with others, but submitted work (written and code) must be created independently by each student/group, and not copied from another student/group, or from another source (e.g. from web pages). For suspected cheating or copying, the instructor will act in accordance with the Department of CS Policy on Academic Inegrity. Penalties: 1st offense: 0 on submission; 2nd offense: 0 in course; 3rd offense: suspension, and referral to judicial affairs.

Course withdrawals must be made by Friday of Week 8.
A-maze-ing Labyrinth
Help is Available From:

Your instructor (during office hours, or by appointment)

In your weekly Supplemental Instruction Session, you will review lab/project and lecture material with a student instructor

Student Lab Instructors (available during lab sessions) will assist with solution formulating and Python in-lab

The Computer Science Tutoring Center (schedule to be posted on ‘Schedule’ link on course web page) will have student lab assistants available to provide help with Python/programming language issues (Note: they will not help you write programs)
Final Administrative Details

There is no required text this quarter; we will be providing readings through MyCourses as needed. In some cases we will refer you to the textbook for PSI: Downey, Allen B. Python for Software Design: How to Think Like a Computer Scientist, Cambridge University Press, 2009

Assigned readings: see course schedule, on the course web page.


Disability Services: [http://www.rit.edu/dso](http://www.rit.edu/dso)

If you make special arrangements through disability services, please inform your instructor ASAP.