

COMP 166 Data Structures Syllabus Spring 2012

Professor: Dr. Shushuang Man
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Office Hours: M.W: 10:30AM-12:00PM, 2:30PM-3:00PM
 T: 10:30AM-12:00PM, 1:30PM-3:00PM
 F: 10:30AM-12:00PM
Lecture Meeting Hours: M.W.F: 9:30AM-10:20AM. SS202
Lab Meeting Hours: T: 9:00AM-10:15AM, SM230
Text: Kenneth A. Lambert, Fundamentals of Python: From First Programs Through Data Structures. Course Technology Incorporated, 2009, ISBN 13: 978-1-4239-0218-8
Prerequisite: COMP165
Requirement: Concurrent enrollment of COMP166 and comp166L

Objectives: Continuation of Fundamentals of Programming in Python; Topics include: Object-oriented design, Classes, Class inheritance, Data structures (List, Stack, Queue, Tree) within the framework of object-oriented programming, Sorting and searching. Hands-on laboratory exercises will be integrated into the course through COMP166L.

Grading: There will be frequent labs and programming assignments, a team programming project, online or in-class quizzes, a midterm and a final exam during the semester. The quizzes will be announced one day before the quiz. Students should read book before and after class for each topic covered in a class period. The weights of grades are as follows:

Labs/Assignments/project:	20%	Quizzes:	25%		
Midterm:	25%	Final Exam:	25%	Attendance:	5%

Policies: You are expected to attend all of the classes for this course. If you have to miss a class for any reason, you are responsible for all material covered in lectures as well as assignments in your absence. **No make ups for quizzes.** If you must miss an exam with a reasonable excuse, you will need to contact the instructor before the exam in order to schedule a make-up. **Labs, assignments, and project have to be submitted through corresponding D2L drop box before its deadline.** A Drop box will be closed after its specified deadline. **Late submission of labs/assignments/project will NOT be accepted.** The grade that a team member received for a team assignment/project depends on both the quality of the assignment/project and how much contribution the team member made toward the assignment/project. Therefore, team members of the same team for the same assignment/project may receive different grades. Each team has to document the works team members have done. You are to work alone on all assignments, quizzes and exams. You should be familiar with the SMSU's academic dishonesty policy. Evidence to the contrary may result in failure in the course and/or other penalties.

Tentative Schedule

Month	Date	Day	Chapter	Topics
Jan. Week1	9	M	Review	Review: Python online tutorial
	10	T	Warm up lab	Review: Python online tutorial
	11	W	Review of Ch8	Class, object, how to use a class (Circle class)
	13	F	Review of Ch8	UML to class implementation: Circle class
Week2	16	M		MLK Day No Classes
	17	T	Lab1 (Ch8)	UML to Class implementation
	18	W	Review of Ch8	The concept and usage of class inheritance by example
	20	F	Review of Ch8	Class inheritance implementation by examples
Week3	23	M	Ch11.1-11.2	Algorithm measuring and complexity analysis
	24	T	Lab2 (Ch8)	Class inheritance implementation
	25	W	Ch11.3	Searching algorithms
	27	F	Ch11.4	Selection sort, bubble sort, and insertion sort
Week4	30	M	Ch11.5-11.6	Fibonacci numbers algorithms: recursive versus linear
	31	T	Lab3 (Ch11)	Index sorting / Comparison count for sorting algorithms
Feb	1	W	Ch12.1	Software design with UML
	3	F	Ch12.2-12.3	Documentation and testing
Week5	6	M	Ch13.1-13.2	Overview of collections, Arrays
	7	T	Lab4 (Ch13)	Working on Arrays
	8	W	Ch13.3-13.4	Operations on Array, 2D arrays (Grids)
Week6	10	F	Ch13.5	Linked structures
	13	M	Ch14.1-14.2	Introduction to Stack and Stack interface
	14	T	Lab5 (Ch14.4)	Stack implementation and testing
	15	W	Ch14.3	Stack application
Week7	17	F	Ch14.4	Stack implementation
	20	M		President's Day No Classes
	21	T	Lab6 (Ch14)	Stack application
	22	W	Ch15.1-15.2	Introduction to Queue and Queue interface
Week8	24	F	Ch15.3	Queue applications
	27	M	Ch15.4	Queue implementation
	28	T	Lab7 (Ch15.6)	Priority Queue
	29	W	Review ch8, 11-15	Review for midterm exam: Chapter 8, 11,12,13,14,15
March	2	F	ch8, 11-15	Midterm Exam
Week9	5-9	M-F		Spring Break
Week10	12	M	Ch16.1-16.2	Introduction to List and List interface
	13	T	Lab8 (Ch15)	Queue Application
	14	W	Ch16.1-16.2	Introduction to List and List interface
	16	F	Ch16.3	List applications
Week11	19	M	Ch16.4	Indexed List implementation
	20	T	Lab9 (Ch16)	List implementation
	21	W	Ch16.5	Positional List implementation
	23	F	Ch16.6	Iterators

Month	Date	Day	Chapter Pages	Topics
March	26	M	Ch17 (in SM230)	Quick sort, group work
	27	T	Ch17 (in SM230)	Merge sort, group work
	28	W		Student Advising Classes held 5:30 pm on
	30	F	Ch17 (in SM230)	Shell sort, heap sort, group work
April Week12	2	M	Ch17.2.1-17.2.3	Recursive list processing
	3	T	Ch17	Group Presentations: Sorting Algorithms
	4	W	Ch18.1-18.3	Tree overview, the shape of binary trees
	6	F	Ch18.4	Binary tree applications(heap, binary search tree, expression tree)
Week13	9	M	Ch19.1-19.2	Unordered collections: Sets and Dictionaries
	10	T	Team project	Conceptual Design Presentation
	11	W	Ch19.3	Hashing Strategies
	13	F	Ch20.1-20.3	Introduction to Graph
Week14	16	M	Ch20.4	Graph traversal
	17	T	Team project	Team Working day
	18	W	Team project	Team Working day
	20	F	Team project	Team Working day
Week15	23	M	Team project	Team Project testing and documentation
	24	T	Team project	Team Project Presentation
	25	W	Final Exam Review	
	27	F	Reading Day	Last Day of Class
Final Exam	May 2nd	W	12:00pm - 1:50pm, ss202	