

COP 3502C-01 – Computer Science I - Fall 2011 Syllabus

Course Prerequisites: COP 3502C

Class Time: Monday, Wednesday, Friday 9:30 – 10:20am

Class Location: CL1-104

Course Web Page: <http://www.cs.ucf.edu/courses/COP3502/Fall2011>

Lecturer: Sarah Buchanan

Office: HEC – 201

Email: sbuchanan@knights.ucf.edu

Office Hours: WF 10:30am – 12:00pm, **or by appointment**

Teaching Assistants:

Pierre LaBorde

pierrelaborde@gmail.com

Lab Sections:

Section 11 Lab: M 10:30am-11:20am COMM 114

Section 12 Lab: M 11:30am-12:20pm COMM 114

Office Hours:

Tuesday, Thursday 10am-12pm, HEC 313

Yuan Li

liy@cs.ucf.edu

Lab Sections:

Section 13 Lab: M 1:30pm- 2:20pm COMM 114

Section 14 Lab: M 2:30pm- 3:20pm COMM 114

Office Hours:

Thursday, Friday 9am-10:30am, HEC 231.

Baber Aslam

ababer@eecs.ucf.edu

Lab Sections:

Section 15 Lab: M 4:30pm- 5:20pm COMM 111

Section 16 Lab: M 5:30pm- 6:20pm COMM 111

Office Hours:

Tuesday 4pm-7pm, HEC 250.

Course Objective:

- 1) Provide an introduction to the field of computing:** The central concept that underlies computer science is the design and implementations of *algorithms* to solve specific problems.
- 2) Provide Conceptual Content and Software Skills:** The lecture component focuses on conceptual tools for constructing and analyzing algorithms – Time Complexity and recursion, while the lab component focuses on implementation issues involved in C programming.

- 3) **Introduce elementary data structures:** Arranging data in arrays, linked lists, stacks, queues, binary trees, binary heaps and hash tables.
- 4) **Introduce searching and sorting techniques.**

Textbook: Data Structures, Algorithms & Software Principles in C by Thomas A. Standish. ISBN-13: 978-0201591187.

Grading: The final letter grade will be based upon the five items listed below. Homework assignments will be due over WebCourses. There will be five assignments that will contain written problems and programs. Each assignment will be introduced in class and then posted on the class web page and WebCourses. All homework assignments are to be done in C. **Collaboration is not allowed on any homework assignment.** The grading scale will be based on the class average, standard deviation and overall difficulty of the assignments and exams. Note: plus/minus grades will be issued, when deemed appropriate.

Grading:

Item	Percentage
Exam #1	20
Exam #2	20
Final Exam	20
Homework Assignments	25
Lab Participation/Programs	15

In order to pass the class (get a C or higher) you must earn at least 40% on the final exam.

Recitations

You are required to attend one recitation per week. Please only attend the recitation for which you are signed up. If there is a conflict, you can ask me about switching sections the first week of class but no later. Each week you will either have a worksheet with problems to work on, or a program. You will work on a worksheet or program during class and your TA will help you during the period. Each sheet/program is worth 1% of your grade, for a total of 10%. To get credit for this, you must show your work at the end of the recitation to your TA. The remaining 5% of your lab grade will be from pop quizzes. There will be 7 pop quizzes during the semester, 5 of the best grades will be used. There are NO make ups for pop quizzes.

Programming/Homework Assignments

All programming assignments will be turned in over WebCourses. Extensions will only be granted in unusual circumstances. (Note: The TA can't grant you extensions, only the course instructor can.) All programs must be done in C (no exceptions). Complete write-ups may accompany all programming assignments – details will be provided with each assignment. Details of the requirements of the homework write-ups will be given later.

Late Assignment Policy

Late homework assignments will be accepted for the first four homework assignments, but will be assessed a late penalty. In particular, assignments will be accepted up to 48 hours after the due date of the assignment. If an assignment is less than 24 hours late, a 10% penalty will be assessed. If an assignment is in between 24 and 48 hours late, a 20% penalty will be assessed.

NO late assignments will be accepted on the last homework assignment.

Additional Class Policies:

- 1) **Help on Programming Assignments – See the TA's:** The TA's are your points of contact for help on the programming assignments and for questions about grades on the programming assignments (since they will be the ones grading).
- 2) **Cheating:** Cheating will not be tolerated. BOTH people are responsible when an assignment is copied - the one who gave the assignment and the one who copied it. It is also considered cheating if you copy a solution off of the internet. Cheating can consist of as little as a few lines of copied code. If you get stuck, ask a TA for help immediately – it is our job to help and your responsibility as a student to ask for help. Cheating on an exam or assignment results in a -25% grade on that exam or assignment.
- 3) **Attendance:** I will randomly take attendance throughout the semester in order to encourage you to attend class. This attendance will count as bonus points on your Final Exam (up to 5 points). I may take attendance 7 or 8 times, for a maximum of 5 bonus points. So it is possible to miss a couple attendances without being penalized.
- 4) **Exams:** Individual exam and assignment grades will not be curved, however at the end of the semester the 10 point grading scale (90-100 A, 80-90 B, etc.) may be adjusted to a more lenient grading scale, in order to get a more even bell-shaped distribution. Of course it may NOT be adjusted, so to play it safe assume on the normal grading scale.

Tentative Lecture Schedule

All sections listed in this chart below refer to sections of the textbook. Typically, lectures will follow the material in the text, but occasionally material will be added into lectures that is NOT in the text. For this reason, class attendance is important. This is a general time frame only and is subject to the needs of the class. It will be altered without notice, but will generally follow the same progression. At the end of each class you will be told what we will be discussing during the next class period. We will attempt to place notes on the course web site (prior to each day's class) which will be the basis for that day's lecture.

Tentative Lecture Schedule

<u>Week</u>	<u>Monday Class</u>	<u>Monday Lab</u>	<u>Wednesday Class</u>	<u>Friday Class</u>
8/22 – 8/27	Review, Syllabus	No lab – 1 st week of class	Binary Search, Sorted List Matching	Dynamic Mem Allocation
8/29 – 9/2	Recursion	Recursion Lab	More Recursion	Recursive Permutation Algorithm
9/5 – 9/9	No Class - Labor Day	No Class – Labor Day	Floodfill, fast exponentiation <u>HW #1 DUE</u> <u>ASSIGN HW#2</u>	Base Conversion
9/12 – 9/16	Linked List Intro	Linked Lists Lab	Linked Lists Operations	More Linked Lists
9/19 – 9/23	Algorithm Analysis	Advanced Linked Lists Lab	More Alg Analysis	More Algo Analysis
9/26 – 9/30	Summations <u>HW #2 DUE</u> <u>ASSIGN HW#3</u>	Alg Analysis Lab	<u>Review for Exam 1</u>	<u>EXAM #1</u>
10/3 – 10/7	Go over Exam #1 Recurrence Relations, Iteration Technique	Recurrence Relations Lab	More Recurrence Relations	Stacks
10/10 – 10/14	Stacks/Queues	Stacks/Queues Lab	Queues	Binary Trees <u>HW #3 DUE</u> <u>ASSIGN HW#4</u>
10/17 – 10/21	Binary Trees (Deletion)	Binary Trees Lab	More Binary Trees	HashTables
10/24 – 10/28	HashTables	More Binary trees lab	<u>Review Exam #2</u> <u>Withdraw Deadline</u>	<u>Exam #2</u>
10/31 – 11/4	Functions Sorting – n squared	Sorting Lab	MergeSort	QuickSort <u>HW#4 DUE</u> <u>ASSIGN HW#5</u>
11/7 – 11/11	QuickSelect	MergeSort/ QuickSort Lab	Heaps	VETERAN'S DAY
11/14 – 11/18	Heaps/Heapsort	Heaps Lab	AVL Trees	Avl Trees Insertion
11/21 – 11/25	AVL Trees Deletion	AVL Trees Lab	THANKSGIVING	THANKSGIVING
11/28 – 12/2	Intro to Backtracking	Backtracking Lab	Intro to Graphs <u>HW #5 Due</u>	Last Day of Class – <u>Exam Review</u>
12/5-12/9				<i>FINAL EXAM</i> Friday, 12/9 7am – 9:50am