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Computer Science & Engineering Syllabi

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Fall 2007

### CS 400/600: Computer Science

Eric Maston

*Wright State University - Main Campus*

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# Computer Science 400/600

## Fall 2007

### Wright State University

September 10, 2007

## Course Description

This is the initial course in the understanding of data structures. This course focuses on data structures with abstract data types, such as trees, stacks, queues and graphs. The course will use projects, developed on UNIX, to create a deeper understanding of data structure and their use.

## Goals

There are several goals in CS 400/600:

1. Develop deep understanding of data structures.
2. Learn how and when to use data structures in C++.
3. Understand theoretical analysis of algorithms.
4. Learn how to develop complex software programs.
5. Have some fun!

## Class Details

Lecturer: Eric Matson

Office: 336 Russ Engineering Center

Phone: 937-775-5108

Office Hours: Monday 4:30 - 6:00, Tuesday 1:00 - 2:00 at Russ 336 or by appt.

Email: [eric.matson@wright.edu](mailto:eric.matson@wright.edu)

Web: WebCT

Class: 6:05 - 7:20 (pm) Fawcett 204

Text: Algorithms in C++, 3rd. edition. Robert Sedgewick, ISBN 0201350882

Platform: Various tools on the UNIX operating system.

## Prerequisites

For this class, the official prerequisite is CS 242. Please let me know the first lecture if you do not meet this prerequisite, and we can talk about your preparation if it differs. This section of CS 400 will be taught using the C++ programming language.

## Grading

Homework Assignments 20%  
 Programming Projects 40%  
 Midterm Exam 20%  
 Final Exam 20%

The base scale is: A: 90-100, B: 80-89, C: 70-79, D: 60-69, F: 0-59. This is the highest requirement that will be used. The scales may be lowered or revised if necessary.

## Schedule

(always subject to changes) Always have readings scheduled for that day complete prior to the class meeting

#	Date	Topic	Reading
1	September 5	Introduction (NO CLASS)	Chapter 1
2	September 10	Review - ADT & Data Structures	Chapter 3
3	September 12	UNIX and development	
4	September 17	Algorithm Analysis	Chapter 2
5	September 19	Algorithm Analysis	
6	September 24	Lists, Stacks and Queues	Chapter 4.1 - 4.7
7	September 26	General Trees	Chapter 5.1 - 5.7
8	October 1	Binary Trees	
9	October 3	BST & Hcaps	
10	October 8	<b>Midterm Examination</b>	
11	October 10	Advanced Trees	Chapter 13
12	October 15	Advanced Trees	
13	October 17	Hashing	Chapter 14
14	October 22	Search	Chapter 12
15	October 24	Search	
16	October 29	Graphs	Chapter 5.8
17	October 31	Graphs	
18	November 5	Graphs	
19	November 7	Indexing, Sorting	
20	November 12	University Holiday - NO CLASS	
21	November 14	<b>Final Exam</b>	8:00 - 10:00 pm

## Policies and Notes

- Attendance: Attendance is not required, nor will it be taken after the first couple of lectures. If you are not a regular attendee, it will be your responsibility to seek out what material was covered in the lecture and learn it. Most of my exam questions will be taken directly from ideas covered during the lecture, so it greatly helps if you attend!
- I will utilize WebCT to post updates to the course, sample code, projects, announcements, schedule, etc. Get in the habit of checking it regularly.
- The prerequisites of the course are basic understanding of high-level development in C++ and object oriented concepts. If you are not confident in your skills or do not have the required prerequisites, then visit with me and I can evaluate how to catch your skills up the appropriate level and develop a plan to do so.
- **Always make back ups of all of your work. Never have just one copy of anything!** This way, when your dog eats your laptop the day before the final project is due, you will not have a problem (except getting a new laptop).
- If you are going to miss an exam, for any reason, discuss it with me in advance. If it is an emergency situation, please notify me as soon as possible.
- You can reach me a number of ways. Email is normally the best as I check it about 18 hours a day normally. You can also reach me by phone during the day at 775-5108. If you need human contact either stop in during my office hours, make an appointment, or just come by my office. If I am in and not on a deadline to get something else completed, I will normally try to help as much as possible.
- There are technologies we will use in this class that you may not already know, such as file transfer, command line, text editors, file systems, etc. We will cover some of these technologies as we go.
- The key to learning in this class will be spending time working through the problems. Don't wait until 2 hours before something is due to try to learn the concept and then write the program. This normally ends in a disaster! Stay up with the readings and try to work through some of the examples in the book.

## Academic Misconduct

In this class, the only way to truly learn the concepts is to do the work yourself. I encourage working with other people on the course concepts. When you begin to write the program, complete and submit your own work.

Work that has obviously been copied or in the more extreme case, when the original authors name has not even been changed, both parties will receive a 0 grade for that assignment. Both parties will also be turned over to the Office of Judicial Affairs.