

# LEMOYNE-OWEN COLLEGE

## DIVISION OF NATURAL AND MATHEMATICAL SCIENCES

Syllabus for COSI 335 A  
*COMPUTER ALGORITHMS*  
 Spring Semester, 2008

**Pre-requisites:** COSI240 & COSI 330.

**Text:** Cormen, Leiserson, Rivest and Stein, *Introduction To Algorithms*, Second Edition, McGraw-Hill Book Company, 2001, ISBN 0-07-013151-1

**Class Meeting:** TTh 11:00 a.m. to 12:20 p.m., GOH 114

**Instructor:**

<i>Name:</i>	Valerie Chu, Ph.D.
<i>Office:</i>	GOH 400 D
<i>Phone:</i>	435-1378
<i>Office Hours:</i>	MWF 8:20 to 9:00 a.m. & 11:00 a.m. to 1:00 p.m. TTh 8:30 to 9:30 a.m. & 12:30 to 1:00 p.m.
<i>Email:</i>	<a href="mailto:valerie_chu@loc.edu">valerie_chu@loc.edu</a>
<i>URL:</i>	<a href="http://biobio.loc.edu/chu/web/">http://biobio.loc.edu/chu/web/</a>

**Course Description:**  
 Investigation of various algorithms, their properties, applications, and corresponding data structures.

**Objectives:**  
 Students will learn how to design computer algorithms from the existing algorithms, also, to analyze the efficiency and best of representative algorithms.

**Course Outline:**

<i>Weeks</i>	<i>Chapters</i>	<i>Topics</i>
1	1	<a href="#"><u>The Role of Algorithms in Computing</u></a>
	2	<a href="#"><u>Getting Started (Insertion Sort &amp; Merge Sort)</u></a>
2	3	<a href="#"><u>Growth of Functions (Asymptotic notation)</u></a>
	4	<a href="#"><u>Recurrences</u></a> Example of counting steps
3		<i>Review and mid-term test I</i>
4, 5, 6	6	<a href="#"><u>Heapsort</u></a>
	7	<a href="#"><u>Quicksort</u></a>
	8	<a href="#"><u>Sorting in Linear Time</u></a>
7, 8, 9	10	<a href="#"><u>Elementary Data Structures (Stack, Queue, and Linked List)</u></a>
	12	<a href="#"><u>Binary Search Trees</u></a>
	13	<a href="#"><u>Red-Black Trees</u></a>
10		<i>Review and mid-term test II</i>
11	16, 15	<a href="#"><u>Greedy Algorithms and Dynamic Programming</u></a>
12	22	<a href="#"><u>Elementary Graph Algorithms</u></a>
13	23	<a href="#"><u>Minimum spanning trees</u></a>
14		<i>Review and mid-term test III</i>
15		<i>Comprehensive Final Exam</i>

**Instructional Strategies:**

Students will engage in learning activities, which will include assigned readings, class presentation, and computer laboratory work. All announcements will be posted in the web site, <http://biobio.loc.edu/chu/web/>.

**Course Requirements and Evaluation Procedures:**

Several quizzes, two mid-term tests and a final comprehensive examination will be given. There are **no make-up tests** except for a valid document from a doctor; however, a note from home is not acceptable.

- Three **mid-term tests** and a **final comprehensive examination** will be given. There are no make-up tests except for a valid document from a doctor, however, a note from home is not acceptable. Programming or written assignments will be assigned frequently. It has to be sent through the e-mail by the deadline (noon of the due day). **Late assignments will receive the following penalties:** 1 day late, minus 10 points; 2 days late, minus 20 points; 3 days late, minus 30 points; ...and so on until zero credit. Students are responsible to check a return e-mail for assignment credits. If a student has turned in assignments and there is no response from the instructor, the student has to contact the instructor directly; otherwise, the student would get a zero credit for the assignment. **Duplication of programming or written assignments will not be permitted. Duplicated programming assignments as well as the original will be assigned a grade of "F"**.
- Students are also required to give a **class presentation** in 15 minutes each and write a **short report** on a topic relevant to this course. The outline of presentation should be submitted and uploaded to web-site before the talk. Every report from this class will be posted on the web-site, too. The topics of presentations can be any material related to each previous lecture. Students are encouraged to implement any algorithm from textbook and present it. A good hands-on comparison will help understanding more than mathematical expressions.
- The score of the final examination can be used to replace the lowest score of the mid-term examinations.

The course grade will be calculated on the following distribution:		Grades will be recorded in numerical form until the final averages are determined at the end of the semester.	
Homework	20%	<i>Grading Scale</i> will be	
Presentation	10%	90 to 100	A,
Report	10%	80 to 89	B,
Mid-term Tests	45% (15% for each)	70 to 79	C,
Final Exam	15%	60 to 69	D,
		others	F.

**Attendance Policy:**

If as many as **4 classes** are missed without excuse, the course grade will be reduced by one letter. If as many as **6 classes** are missed without excuse, the student will fail the course. An absence from class will be excused only if a written doctor's excuse or a written statement concerning a death in the family is supplied. Coaches or other faculty for legitimate events provides other valid excuses.

**Four classes tardy** will be counted as one missing class.

**Policies Related To Students With Disabilities:**

The facility of Gibson-Orgill hall is equipped an entrance ramp and elevator to accommodate students with physical disabilities. Special arrangements can be made for students with other disabilities or impairments (i.e., deaf, mute, etc.)

If you need course adaptations or accommodations because of a disability, if you have emergency medical information to share, or if you need special arrangements in case the building must be evacuated, please make an appointment with Jean Saulsberry, Director of Student Development as soon as possible (901) 942-6205. The Student Development Office is located in the Alma C. Hanson Student Center, room 208.