

**UNIVERSITY OF MARY HARDIN-BAYLOR**  
**COMPUTER SCIENCE CLASS SYLLABUS**  
**Spring, 2011**

**GENERAL INFORMATION**

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Course Number:	<b>CISC 4305</b>
Course Title:	<b>Algorithms and Data Structure</b>
Number of Credits:	3
Location of Class:	<b>Davidson Building, Room 122</b>
Meeting Time:	<b>1:00 P.M. – 1:50 P.M. M,W,F</b>
Professor:	Dr. Edwin Armstrong.
Office:	Room 106 Davidson Building
Office Hours:	See Professor's schedule posted in Davidson
Office Phone:	(254) 295-5118
Email:	<a href="mailto:earmstrong@umhb.edu">earmstrong@umhb.edu</a>
Class web-page:	<a href="http://tinyRealm.com/">http://tinyRealm.com/</a>

**COURSE DESCRIPTION**

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This course examines the design and efficiency of algorithms from both the sequential and parallel perspectives. Their relationship to various problem solving strategies and techniques are investigated along with performance issues and analysis. This course will require a lot of out of class time; The average student spends between 3 -15 hours per week working on programs and projects (keep up and if you start falling behind, ask for help early). Assignments will be given out in class and posted on the CISC 4305 web-page, along with the BBS - used for class interaction and help; Web-link:  
<http://tinyRealm.com/~efa/cisc4305/>

**COURSE OBJECTIVES**

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This is not a beginning programming course; a previous structured language course either in JAVA, C or C++ is required. Some of the topics covered will be:

1. Introduction to Data Structures
2. Data Types - C-Style Types
3. "Abstract Data Types" (ADTs)
4. Stacks and Queues
5. Data processing and file I/O methods
6. Improving ADTs - Part 1: Templates and Standard Containers
7. Improving ADTs - Part 2: Recursion, Algorithm Analysis, and Standard Algorithms
8. Lists, Binary Trees, Sorting, etc

Course Goals:

Achieve personal understanding and the ability to effectively integrate Biblical and moral principles into the world of business and science.

Develop computer science skills necessary to pursue excellence and effectiveness within the field of computing.

Have a balance between the theoretical and the practical; a theoretical foundation of the hardware and software aspects of computer science, as well as the practical application and knowledge of current practice.

## COURSE MATERIALS:

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### Textbook:

#### Algorithms in a Nutshell

Author: George T Heineman, et al...

ISBN #: 978-0596516246, Publisher: O'Reilly Media, Copyright:2008

### Other items:

A flash drive is required for this class (a 4 Gigabyte drive is recommended).

## COMPUTING LABORATORY

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Our computer lab will have appropriate software installed to allow you to program in C++. Either Dev-C++ or Visual C++ is recommended. You are responsible for maintaining backup copies of all your programs. Our web-page at: <http://tinyRealm.com/> will be used to provide software and a BBS for class interaction.

## COURSE POLICY AND PROCEDURES

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1. Grading: The final grade calculation will be reached according to the distribution described in the UMHB Catalog. The final course grade will be computed by the following percentages:

Class participation & Daily Assignments	20%
Tests (2): + FINAL ( <b>lowest score dropped</b> )	30%
Laboratory Projects	50%
2. Attendance: The student is expected to attend **ALL** scheduled classes and will be held responsible for all class work and assignments. Continued absences will result in an unsatisfactory grade report for the course. To be counted present, a student must be in the classroom during the scheduled class or lab time for as least 80% of schedule time.
3. Tests: All students are required to be present for a test. If an extreme emergency occurs, and you cannot make the test time, the student should make every effort to contact the professor by email, telephone or in person to receive permission to miss the test. Permission will be granted only in the case of extenuating circumstances.
4. Makeup Tests: Students desiring a Makeup Test must make arrangements with the professor to take the test. A Makeup Test must be scheduled during office hours **BEFORE** the next scheduled test. If a student fails to take a Makeup Test before the next scheduled test, that student will receive a ZERO for the test missed.
5. Assignments: All assignments will be due on the **DUE-DATE (normally Monday's)**. They are due at the beginning of a class period.
6. Final Exam: The final exam will be comprehensive. **NO MAKEUP WILL BE GIVEN FOR THE FINAL EXAM.**