Syllabus

Department: Computer Science & Information Systems
Course Title: CSC 345 - Data Structures
Credit Hours: 3

Instructor's Name: R. A. Pilgrim
Office Location: Business Building 652
Phone Number: (270) 809-6220
E-Mail Address: bob.pilgrim@murraystate.edu
Web Page URL: http://csclab.murraystate.edu/bob.pilgrim/
Office Hours: see Web page

Catalog Description: Data structures and abstract data types including arrays, strings, lists, stacks, queues, trees and tree balancing algorithms; hashing techniques with applications to file processing; priority queues and heaps; sorting algorithms; graph algorithms; generalized algorithm design techniques. Emphasis will be placed upon object-oriented software design techniques to facilitate software reuse.

Purpose: To continue the understanding and mastery of computer programming in a high-level language, and to introduce and formalize the concepts and uses of algorithms with their associated data structures.

Student Learning Objectives: upon completion of this course the student should,

- be able to write programs that load and store data files
- have a strong foundation in computer programming using a high-level language
- understand the basic data structures including lists, stacks, queues, and trees
- be able to implement computer algorithms based on their functional descriptions

Course Outline:

Introduction & Review
Recursion
Dynamic Memory & Linked Lists
Generics & Collections
Introduction to Search & Sort
Stacks
Queues
Trees
Graphs

Analysis of Algorithms

Advanced Search & Sort

Hashing

Multithreading

General Problem-Solving Methods

**Instructional Activities** - Instructional activities include, lectures, and student directed projects. This course includes a separately listed project course (see Catalog Description).

**Resources** - Web Page, online lectures, project/homework/reading assignments.

**Grading Procedures** - Course grades will be based on the content and quality of submitted laboratory exercises, homework, projects, test scores and class participation. Letter grades are assigned on a 10-point scale. Tests will be a combination of take-home and in-class elements. Final exam is optional and can count up to 50% of your grade if needed.

- Homework………………………….. 30%
- Class Participation .................... 10%
- Tests/Quizzes.......................... 60%
- Final Exam .............................. 0/50%

**Attendance Policy** - The class role will be taken periodically. Students are expected to attend class regularly. Frequent absences could affect your homework/class participation grade. Late homework will not be graded for credit. Missed tests will be made up during the final exam.

**Text** - Course will be taught from online notes and selected readings from textbook(s).

**Prerequisites:** CSC145

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