CMSC 341

Course Introduction

Class missives

Course Website

`www.cs.umbc.edu/courses/undergraduate/341`

- Instructor: Jian Chen, ITE 357, jichen@umbc.edu, office hours: TuTh 1:00-2:00 pm or by appointment
- TA:
  - Graduate TAs: Akshay Grover, Padmavathi Komarina
  - Undergraduate TAs: Minhaz Mahmud and George Allison
- Class discussion group
  - Log on to blackboard to see it
- Grading
  - Distribution: 38% projects (6) + 12% homework (6) + 30% midterms (2) + 20% final exam.
  - Late penalty: 10% / day, no more than 2 days for homework and no more than 4 days for programming assignments; 2 free late days.
  - Participation: community spirit and participation credit (5%)
  - No cheating!

Student Honor Code

UMBC Student Honor Code

By enrolling in this course, each student assumes the responsibilities of an active participant in UMBC's scholarly community in which everyone's academic work and behavior are held to the highest standards of honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. Academic misconduct could result in disciplinary action that may include, ***but is not limited to***, suspension or dismissal. To read the full Student Academic Conduct Policy, consult the UMBC Student Handbook, the Faculty Handbook, or the UMBC Policies section of the UMBC Directory.

http://www.umbc.edu/provost/integrity/index.html

Textbook

- Data Structures and Algorithm Analysis in Java, 2/E
- **Mark Allen Weiss**, *Florida International University*

- ISBN: 0-321-37013-9
- Publisher: Addison-Wesley
- Copyright: 2007

- Textbook website - source code and errata page
  http://users.cis.fiu.edu/~weiss/ - dsaajava2

Prerequisites

- CMSC 202 – Object Oriented Programming
  - Class design
  - Method overloading and overriding
  - Generic container classes
- CMSC 203 – Discrete Math
  - Proof by induction
  - Permutations and combinations

Introduction

Data Structure

- What is a “data structure”?

  The organization of data and its storage allocation in a computer.

- How are they implemented?

  Libraries; programming languages

Abstract Data Type

- What is an ADT?

  Mathematical model for a certain class of data structures that have similar behaviors; or for certain data types of one or more programming languages that have certain behaviors.

Why Java?

- Java contains a Collections framework that consists of system classes that emulate many of the data structures that you will learn about in this course.
- Easier to program in Java than C++
- Popular industry standard
- More similar to C# than C++
- Platform Independent
- Easy to do GUI Programming

Course Tools - Ant

- Ant is a Java based tool for automating the build (compile, test) process
- Implemented using Java
  - Platform independent commands (works on Windows, Mac & Unix)
- XML based format
- Easily extendable using Java classes
- Ant is an open source (free) Apache project