Algorithms and Data Structures : CMPS3013

Instructor: Richard P. Simpson, Bolin 126E; Tel.: 397-4191;

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Prerequisite: Minimum grade of C in CMPS 2433 and CMPS 1063

Required Text: Data Structures and Algorithm Analysis in C++ Fourth Edition by Mark Allen Weiss

Optional Texts: Data Structures & Problem Solving with C++ by Frank Carrano, C++ How to program by Deitel & Deitel (for reference)

General: In this course you will continue a study of data structures and object oriented structures. The class will spend considerable time on analysis of algorithms (ie complexity) as well as take an in-depth look at a variety of tree structures, graphs, sorting and searching as well as an introduction to the standard template library. Quizzes (If you miss the quiz you cannot make it up) will hopefully be given most Wednesdays over previous weeks work or requested readings from the text. Projects will be given that involve the simulation/implementation/empirical analysis of selected data structures and algorithms. A few small projects called Baby App's (ACM programming contest type problems) may also be given and submitted to a website that tests the program.

Course Content: The material which constitutes this course will include lectures, software tutorials, handouts, research papers, films, and projects. The handouts will supplement the above text particularly in the area of algorithms. Students are responsible for all material regardless of class attendance. The class will meet in BSH 320. Windows and Visual Studio 17 with c++ is our working environment.

Course Grade Calculation: 3 major Exams 30%, Final exam 20%, homeworks and quizzes 10%, software projects 40%. If it turns out that not enough quizzes and homework is given to deserve 10 % the 10 percentage will be given to the exam percentage.

Attendance: Attendance will be taken at each class meeting by having students sign a roll sheet. I expect 100% attendance.

Homework & projects: Assignments will be regularly given to be done outside of class either in the labs on campus or at home on the students personal computer. All homework/projects must be turned in at the beginning of the class period in which they are due. Late homework/projects will be penalized. Not turning in the homework/projects will result in a severe reduction of the students grade.

Laboratory: There is no official laboratory. We will use local machines, your home computers and other resources on the web.

WordsOfWisdom: Almost every student who did poorly in this class over the years did so because he/she put off projects. You can get in so deep that digging your way out at the end of the semester is impossible. Consequently you must start each program the day that I give it. Capice! If you have problems understanding a project come see me early, not the day before it is due. The exams require serious study in order to perform well. This does not mean a few hours studying the day before the exam!

NOTE: All students should refer to the current MSU Student Handbook and Activities Calendar for university policies related to class attendance, academic dishonesty, student responsibilities, rights and activities.

Academic Policies:

Policy on Academic Honesty

The Department of Computer Science had adopted the following policy related to cheating (academic misconduct). The policy will be applied to all instances of cheating on assignments and exams as determined by the instructor of the course. (See below for link to MSU definitions.)

- 1st instance of cheating in a course: The student will be assigned a non-replaceable grade of zero for the assignment, project or exam. In addition, the student will receive a one letter grade reduction in course.
- 2nd instance of cheating in a course: The student will receive a grade of F in course & immediately be removed from course.
- All instances of cheating will be reported to the Department Chair and, in the case of graduate students, to the Department Graduate Coordinator.

Policy on Testing Process

The Department of Computer Science has adopted the following policy related to testing.

- All bags, purses, electronics (turned off), books, etc. will be placed in the front of the room during exams, or in an area designated by the instructor.
- Unless otherwise announced by the instructor, nothing is allowed on the desk but pen/pencil/eraser and test papers.
- No student is allowed to leave the room during an exam and return.

See Also:

MSU Student Handbook: Appendix E: Academic Misconduct Policy & Procedures

Campus Carry: Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Areas excluded from concealed carry are appropriately marked, in accordance with state law. For more information regarding campus carry, please refer to the University's webpage on campus-carry.