

Algorithm Analysis and Advanced Data Structure

CPSC 3200 (31748)

Summer 2013

COURSE: CPSC 3200, 31748 - 0
TITLE: Algorithm Analysis and Advanced Data Structure
CLASS SCHEDULE: Tuesday/Thursday 09:00 AM – 01:10 PM
CLASS LOCATION: EMCS 312
CREDIT: 3 credit hours
PROFESSOR: Dr. Farah Kandah
OFFICE LOCATION: EMCS 314E
OFFICE PHONE: (423) 425 – 4395
OFFICE HOURS: By appointment
E-MAIL: Farah-Kandah@utc.edu

ADA STATEMENT:

Attention: If you are a student with a disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) and think that you might need special assistance or a special accommodation in this class or any other class, call the Disability Resource Center (DRC) at 425-4006 or come by the office, 102 Frist Hall <http://www.utc.edu/Administration/DisabilityResourceCenter/>.

If you find that personal problems, career indecision, study and time management difficulties, etc. are adversely affecting your successful progress at UTC, please contact the Counseling and Career Planning Center at 425-4438 or <http://www.utc.edu/Administration/CounselingAndCareerPlanning/>.

COURSE DESCRIPTION:

A study of data structures and the algorithms used to process them. Algorithms for handling strings, stacks, lists, trees and graphs. Sorting and searching techniques. Recursive and non-recursive algorithms. Efficiency considerations.

PREREQUISITES:

CPSC 2100 and **MATH 2030** or **MATH 3030** with minimum grades of **C** or department head approval.

Anyone who takes a course without the required prerequisites can be dropped from the course, and they may forfeit their fees.

COURSE OBJECTIVES:

- Understand and develop recursive algorithms. Implement recursive programs.
- Understand and implement classical sorting and searching algorithms.

- Understand and implement classical data structures and associated algorithms (trees, heaps, linked lists, graphs).
- Understand and implement applications of classical data structures.
- Demonstrate an understanding of "Big O" notation, and its mathematical definition.
- Determine the computational complexity of algorithms.
- Determine the memory storage requirements of data structures.
- Evaluate and compare options regarding algorithms, data structures and other aspects in the design, implementation and analysis of a software product.

GRADE WEIGHING SCHEME:

Component	Weight towards the final grade
Midterm	20%
Final Exam	30%
Assignments	40%
Quizzes	5%
Attendance	5%

GRADE DISTRIBUTION:

Grade	Range
A	90 - 100
B	80 - 89
C	70 - 79
D	69 - 60
F	Below 60

TEXTBOOK:

Required: Data Structures and Algorithms in Java, 5th Edition
by Michael T. Goodrich, Roberto Tamassia
ISBN 978-0-470-38326-1

COURSE WEBSITE AND COMMUNICATION:

- We will be using **utcOnline** system. You may access lecture notes, assignments, and your grades through this system. The instructor will also use **utcOnline** system to communicate with you via email. Therefore, it is very important that your UTC email address is current. If you do not read your UTC email, please have it go to the address you do read. **Failure to read an email will not relieve you of the responsibility of knowing the information.**
- If you have a problem with accessing your UTC email account, contact the Help Desk at (423) 425-4000.

MATERIAL:

Your **utcOnline** (Blackboard) account login information.
I highly recommend a flash drive (2GB or higher) to store your assignments and labs.

COURSE OUTLINE:

The course outline will be available at **utconline** (Blackboard) and will be updated weekly.
It is the student responsibility to follow up with the course outline.

ATTENDANCE POLICY:

- You are expected to attend all class meetings as it will be counted towards your final grade.
- If you must miss a test, for any reason, **it is your responsibility to notify the instructor BEFORE the test is given.**

GRADING POLICIES:

- **Assignments:**
 - Almost every week there will be an assignment. Exam and assignment questions will be extracted from the material covered from both the lectures and labs.
 - All home assignments will be announced in class and posted on utcOnline. If you miss class for any reason, it is your responsibility to find out what assignments you missed.
 - Assignments must be turned in through utcOnline. You will have at least 1 week to complete each assignment.
 - All assignments are to be turned in or before the **ASSIGNED DUE DATE.**
 - Discussion of concepts and ideas with others is encouraged. However, **ALL ASSIGNMENTS ARE NOT INTENDED AS A GROUP WORK UNLESS SPECIFIED BY THE ASSIGNMENT.** **Group or copied work would be construed as plagiarism.**
 - **LATE SUBMISSIONS** (Home or Lab Assignment) will be docked 50% during the next week after the due date. Assignment will not be accepted after one week from the due date.
 - **utcOnline** submissions are time-stamped.
- **Attendance:**
 - It is important that you come to class regularly since there might be class assignments, or pop quizzes that might not be announced earlier.
- **Exams:**
 - Cheating on an exam or plagiarizing others' work will result in a zero grade, and possibly further disciplinary action (grade "F" for this course).
 - If you cannot make an exam/test period for any reason, you must notify the instructor as far in advance as possible.
 - **If you dispute the grading of any material, you have two weeks from the date the grade is recorded to request a change in the grade. After this time, no alterations will be considered.**
- **Make-Up Tests/Assignments:**
 - In general there will be **NO** Makeup tests.
 - If you are unable to take a test, the grade of your final exam will be substituted for that grade.

- Failure to take the **FINAL EXAM** will result in a zero.
- There will be no make-up for quizzes or in-class assignments.

BEHAVIOR POLICY:

Disruptive behavior in the classroom will not be tolerated.

Cell phones will not be tolerated during lecture or lab.

Cell phone usage will result in a 0 for the lab or exam.

HONOR CODE:

Please uphold the academic honor code

(<http://www.utc.edu/Departments/fcouncil/FacultyHandbook/Ch5Handbook.pdf>).

Violations will be reported to the office of Student Development for investigation and penalties.