

**UNIVERSITY OF TEXAS AT DALLAS
COURSE SYLLABUS**

COURSE INFORMATION:

Course Number: CS 5343, Section 001 (Mon./Wed. 1:00pm-2:15pm)
Course Title: Algorithmic Analysis and Data Structures
Credit Hours: 3
Term: Fall 2016

PROFESSOR CONTACT INFORMATION:

Name: Greg Ozbirn
Phone Number: 972-883-4725
Office Location: ECSS 3.608
Office Hours: 2:30 pm – 4:00 pm, MW
Email Address: ozbirn@utdallas.edu
Website: www.utdallas.edu/~ozbirn

**COURSE PRE-REQUISITES, CO-REQUISITES, AND/OR OTHER
RESTRICTIONS:**

Prerequisites: CS 5303 and CS 5333.

COURSE DESCRIPTION:

Formal specifications and representation of lists, arrays, trees, graphs, multilinked structures, strings and recursive pattern structures. Analysis of associated algorithms. Sorting and searching, file structures. Relational data models.

STUDENT LEARNING OBJECTIVES/OUTCOMES

- 1) Ability to use/analyze Asymptotic notations, recurrences, algorithm analysis
- 2) Ability to use/analyze Lists, stacks, queues, hashing, priority queues
- 3) Ability to use/analyze Binary search trees, Balanced binary search trees
- 4) Ability to use/analyze Graphs, Depth-first search, Topological ordering
- 5) Ability to use/analyze Breadth-first search, Dijkstra's algorithm
- 6) Ability to use/analyze Algorithms of Prim and Kruskal, Disjoint-set Union-Find problem
- 7) Ability to understand algorithm design techniques

REQUIRED TEXTBOOKS AND MATERIALS:

Data Structures and Algorithm Analysis in Java, (Third Edition), by Mark Allen Weiss, Published by Addison-Wesley, 2011, ISBN-10: 0132576279, ISBN-13: 978-0132576277

SUGGESTED COURSE MATERIALS

Extra material may be posted on eLearning.

ASSIGNMENTS & ACADEMIC CALENDAR

Class	Date	Material Covered
1,2	Aug 22, 24	Introduction, Chapter 1
3,4	Aug 29, 31	Chapter 1, Chapter 2
5	Sep 5*, 7	Holiday*, Chapter 2
6,7	Sep 12, 14	Chapter 3
8,9	Sep 19, 21	Chapter 3, Review
10,11	Sep 26, 28	Exam 1 (ch. 1-3), Chapter 4
12,13	Oct 3, 5	Chapter 4
14,15	Oct 10, 12	Chapter 5
16,17	Oct 17, 19	Chapter 6
18,19	Oct 24, 26	Chapter 6, Review
20,21	Oct 31, Nov 2	Exam 2 (ch. 4-6), Chapter 7
22,23	Nov 7, 9	Chapter 7, Chapter 8
24,25	Nov 14, 16	Chapter 9
	Nov 21, 23	Fall Break (no classes)
26,27	Nov 28, 30	Chapter 9, Chapter 10
28,29	Dec 5, 7	Chapter 10, Final Review
	TBD	Final Exam (comprehensive)

GRADING POLICY:

The grade will be determined as described below. The lowest assignment score and the lowest project score are dropped. No other bonus work, make-up work, dropped scores, or other means of raising your grade should be expected. At the end of the semester, it is possible that grades may be curved, but a curve should not be expected.

Exam 1	15%
Exam 2	15%
Final Exam	25%
Assignment Average	20%
Project Average	25%

Letter grades are determined using the standard 10-point range for each letter, then dividing this range into three equal parts to determine the +/- designation.

COURSE & INSTRUCTOR POLICIES:

Assignments and projects must be turned in on time. Each hour late will result in a deduction of 10 points. It is your responsibility to upload your work early enough to avoid possible problems uploading to eLearning. It is your responsibility to ensure that you have submitted the correct items. It is recommended that you double-check your submission to ensure it is correct.

Exams must be taken on time. Exceptions require advance approval by the instructor. It is up to the instructor to determine whether an exception will be made, and will depend largely on proof of extraordinary circumstances. Otherwise, a missed exam will either incur a substantial penalty or be recorded as a zero.

Exams have time limits. Students who continue to write on the exam after time is called or who start writing before the exam begins are subject to a penalty.

Students are expected to attend all class lectures. If absent, the student is still responsible for any material covered or anything said which the student missed. Attendance may be taken and is subject to department attendance policies.

All assignments, projects and exams are to be individual efforts. You are not to collaborate with other students, or to discuss solutions with other students prior to submission. Copying of assignments, projects and exams, in whole or in part, from other students in this semester or previous semesters will be considered to be an act of scholastic dishonesty.

Grades are not based on needs or consequences, but are based only on performance.

UT DALLAS SYLLABUS POLICIES AND PROCEDURES

The information found at the link below constitutes the University's policies and procedures:

<http://go.utdallas.edu/syllabus-policies>

These descriptions and timelines are subject to change at the discretion of the Professor.

Syllabus Addendum

Each student in this course is expected to exercise independent scholarly thought, expression and aptitude. This addendum to the course syllabus is provided to assist you in developing and maintaining academic integrity while seeking scholastic success.

General Comments:

- All academic exercises (including assignments, essays, laboratory experiments and reports, examinations, etc.) require individual, independent work. Any exception(s) will be clearly identified.
- Be sure your name or identifying number is on your paper.
- Complete and turn in academic exercises on time and in the required format (hardcopy, electronic, etc.).
- Retain confirmation of document delivery if submitted electronically.
- Retain all research notes and drafts until the project or assignment has been graded.
- Obtain written authorization from your instructor prior to submitting a portion of academic work previously submitted for any academic exercise. (This includes an individual or group project submitted for another course or at another school.)

Essays and Significant Papers:

Be prepared

- To present periodic drafts of work in process
- To correctly and completely reference all sources of information using the citation format prescribed
- To turn your completed assignment in timely and in the prescribed manner (electronic, hardcopy, etc.)

Examinations:

Be prepared

- To leave all personal belonging at the front of the room or other designated location (this includes cell phones, turned off of course, and beverage containers)
- To present your UTD Comet Card
- To remove your cap or hat
- To remove the batteries from any electronic device (e.g. calculator)
- To exchange blue books or bring them early as required
- To change seating
- To sign out when exiting the testing room
- To be escorted for lavatory use

All episodes of suspected scholastic dishonesty will be reported according to University policy. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such

dishonesty harms the individual, all students and the University, policies on scholastic dishonesty will be strictly enforced. Penalties that may be assessed for scholastic dishonesty may be reviewed in *Subchapter D. Penalties* at <http://www.utdallas.edu/student/slfe/chapter49.html>.