

**UNIVERSITY OF TEXAS AT DALLAS
COURSE SYLLABUS**

COURSE INFORMATION:

Course Number: CS 3345, Section 001 (Mon./Wed. 10:00am-11:15am)
Course Title: Data Structures and Introduction to Algorithmic Analysis
Credit Hours: 3
Term: Spring 2017

PROFESSOR CONTACT INFORMATION:

Name: Greg Ozbirn
Phone Number: 972-883-4725
Office Location: ECSS 3.608
Office Hours: 2:15 pm – 3:15 pm, Monday - Thursday.
Email Address: ozbirn@utdallas.edu
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**COURSE PRE-REQUISITES, CO-REQUISITES, AND/OR OTHER
RESTRICTIONS:**

Prerequisites: CE/CS/TE 2305 with a grade of C or better,
CE/CS/TE 2336 with a grade of C or better.
Prerequisite or co-requisite: CS/SE 3341 or ENGR 3341.

COURSE DESCRIPTION:

Analysis of algorithms including time complexity and Big-O notation. Analysis of stacks, queues, and trees, including B-trees. Heaps, hashing, and advanced sorting techniques. Disjoint sets and graphs. Course emphasizes design and implementation.

STUDENT LEARNING OBJECTIVES/OUTCOMES

Ability to use/analyze:

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

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	Jan 9, 11	Introduction, Chapter 1
3	Jan 16*, 18	Holiday*, Chapter 1
4,5	Jan 23, 25	Chapter 2
6,7	Jan 30, Feb 1	Chapter 3
8,9	Feb 6, 8	Chapter 3, Review
10,11	Feb 13, 15	Exam 1 (ch. 1-3), Chapter 4
12,13	Feb 20, 22	Chapter 4
14,15	Feb 27, Mar 1	Chapter 5
16,17	Mar 6, 8	Chapter 6
	Mar 13, 15	No Classes (Spring Break)
18,19	Mar 20, 22	Chapter 6, Review
20,21	Mar 27, 29	Exam 2 (ch. 4-6) , Chapter 7
22,23	Apr 3, 5	Chapter 7
24,25	Apr 10, 12	Chapter 8, Chapter 9
26,27	Apr 17, 19	Chapter 9
28,29	Apr 24, 26	Final Review
	May 8, 11am	Final Exam (comprehensive)

GRADING POLICY:

The grade will be determined as described below. The lowest assignment score and the lowest project score are dropped to account for mistakes in submission. 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. The department policy for attendance is as follows: missing three consecutive classes results in a letter grade reduction, and missing four consecutive classes results in an F in the course.

All assignments, projects and exams are to be individual efforts. You are not to collaborate with other students, give your work to 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>.