

Course Syllabus

Course Information

Course Number/Section: CS 3345.006
Course Title: Data Structure and Algorithm Analysis
Term: Spring 2024
Days & Times: MW 10:00 – 11:15 AM

Professor Contact Information

Dr. Ranran Feng
Office: ECS 4.209
Email: rrfeng@utdallas.edu
Office Hours: TuTh 10:00 AM – 11:00 AM (Or by appointment)

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Prerequisite: CE 2305 or CS 2305 or TE 2305 Discrete Math I.
Corequisite: CE 2336 or CS 2336 or TE 2336 Computer Science II.
Corequisite: CS 3341 Probability and Statistics, or equivalent.

Course Description

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

Programming language of choice: Java in our session.

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

Required Textbooks and Materials

Data structures and algorithm analysis, 4th ed., Mark Allen Weiss. Addison-Wesley (Pearson). (previous edition is acceptable)

Assignments & Academic Calendar

Important Dates:

Semester start – Jan 16th (Tuesday)

Census day, last day to drop w/o W – Mar 31st (Wednesday)

Exam 1 - March 6th (Wednesday)

Exam 2 - May 1st (Wednesday)

University Closings:

Martin Luther King Day – Jan 15th (Monday)

Spring Break- Mar 11 – 17

Assignment and Grading Policy

<i>Homework Assignment</i>	<i>40%</i>
<i>Quizzes</i>	<i>10%</i>
<i>Exam 1</i>	<i>20%</i>
<i>Exam 2</i>	<i>20%</i>
<i>Attendance</i>	<i>10%</i>

Assignment due dates: Assignments are due by 11:59pm on the due date.

Late Penalties for Assignments: For each day late, including weekends, 20 percent of the total possible points will be deducted. No work will be accepted/graded if it is more than three days.

Grade Dispute: All grade disputes must be reported within 1 week and resolved within 2 weeks of the grade in question being posted in eLearning.

I am responsible for grading your exam. If you have questions regarding your exams, please contact me.

Everything else will be graded by grader. Please address any grading concerns you have regarding these grades with the grader. When you email the grader with questions about your grade, please copy me on the email so that I am aware of the situation and can make sure it is resolved.

Academic Dishonesty

Mutually productive discussions between students are encouraged to facilitate learning, but students are expected to work on their graded assignments on their own. Please do not, participate in any exchange that involves solving an assignment with other students. If you collaborate on any assignment for any reason unless specifically permitted by the instructor, you will receive **ZERO in that assignment** and may be brought in front of the UTD OCSC(Community Standards and Conduct).

You can find more information regarding academic dishonesty policy here:

<https://www.utdallas.edu/conduct/dishonesty/>

Note that this includes copying code from the Internet or other resources without attribution. It is each student's responsibility to know and understand the University's policy regarding academic dishonesty.

What I Expect of Each Student

- **Ask for help.** Email me or stop by during office hours. I want you to succeed. I would rather point you in the right direction so that you can complete an assignment instead of you remaining quiet and failing an assignment.
- **Ask questions any time!** During lecture, before/after class, during office hours, etc. I will respond as soon as I can.
- **Take responsibility for your education.**
- **Attend every class.**
- **Practice time management skills.** All assignments (homework and projects) are designed to be worked on over a period of days or weeks. I expect that you will work on the assignment a little at a time rather than waiting until a day or two before it is due. Those that procrastinate will find this class to be much harder than it should be and will face the risk of below average grades.

Academic Support Resources

The information contained in the following link lists the University's academic support resources for all students.

Please refer to: <https://provost.utdallas.edu/syllabus-policies/#academic-support-resources>

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please refer to: <https://go.utdallas.edu/syllabus-policies>

*The descriptions and timelines contained in this syllabus are subject to change
at the discretion of the Professor.*