Course Syllabus – Fall 2021

**Course**
CS 4349.006

**Course Title**
Design and Analysis of Computer Algorithms

**Professor**
Kyle Fox

**Term**
Fall 2021

**Meetings**
1:00pm–2:15pm, Mondays and Wednesdays in JO 4.102

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**Professor’s Contact Information**

**Office Phone**
(972) 883-4168

**Office Location**
ECSS 4.224 (meetings over MS Teams unless other arrangements made in advance)

**Email Address**
kyle.fox@utdallas.edu

**Office Hours**
Tuesdays 10:30am–11:30am and Wednesdays 3:00pm–4:00pm via MS Teams

**Other Information**
Please email Kyle directly for additional help or to request additional office hours.

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**TA’s Contact Information**

**Name**
Wenting Wang

**Email Address**
Wenting.Wang@UTDallas.edu

**Office Hours**
Mondays 9:00am–11:00am via MS Teams

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**General Course Information**

**Pre-requisites**
CS 3305 with a grade of C or better and (CE 3345 or CS 3345 or SE 3345)

From CourseBook: Asymptomatic analysis, recurrences, and graph algorithms. Algorithm design techniques such as greedy method, dynamic programming, and divide-and-conquer. Issues from computational complexity. Course emphasizes a theoretical approach.

**Learning Outcomes**

- Ability to use asymptotic notations, solve recurrences, perform algorithm analysis
- Ability to design, analyze, and prove correctness of algorithms based on Divide-and-Conquer techniques
- Ability to design, analyze, and prove correctness of algorithms based on Dynamic Programming techniques
- Ability to design, analyze, and prove correctness of algorithms based on Greedy techniques
- Ability to design, analyze and prove correctness of graph algorithms

**Required Texts & Materials**

**Suggested Texts, Readings, & Materials**
Jeff Erickson: *Algorithms*. Available at http://jeffe.cs.illinois.edu/teaching/algorithms/. (Main source for lecture material and homework problems.)
Assignments & Academic Calendar
Topics and deadlines will be added to the course website as the semester progresses. Students should expect one homework assignment to be released roughly once a week due one week after release with exceptions based mostly on university closures and exam dates.

Tentative Exam Schedule

<table>
<thead>
<tr>
<th>Exam Type</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm 1</td>
<td>Wednesday, October 6th</td>
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<tr>
<td>Midterm 2</td>
<td>Wednesday, November 17th</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Wednesday, December 15th</td>
</tr>
</tbody>
</table>

Course Policies

<table>
<thead>
<tr>
<th>Classroom Conduct Requirements Related to Public Health Measures</th>
<th>UT Dallas will follow the public health and safety guidelines put forth by the Centers for Disease Control and Prevention (CDC), the Texas Department of State Health Services (DSHS), and local public health agencies that are in effect at that time during the Fall 2021 semester.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Attendance</td>
<td>Regular class attendance is expected, and students who fail to attend class regularly are inviting scholastic difficulty. Your attendance helps Kyle to gauge how well the lecture is going, and it gives you an opportunity to ask questions as the lecture is being delivered. However, we understand you may not be able to attend all classes for any number of reasons. Kyle will broadcast each lecture live over MS Teams and later upload a video of the lecture to be made available via MS Teams. If you unable to attend class in person or simply want to review lectures you've attended, please watch these videos. <strong>You do not need to ask permission or offer an explanation for missing class.</strong></td>
</tr>
<tr>
<td>Class Recordings</td>
<td>Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the <a href="#">Student Code of Conduct</a>. Kyle intends to record meetings of this course. These recordings will be made available to all students registered for the course. If Kyle or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law.</td>
</tr>
<tr>
<td>Grading (credit) Criteria</td>
<td>Nine or ten homework assignments will be released during the semester. There will be two midterm exams and a cumulative final exam.</td>
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Each homework assignment will be given equal weight, and each student’s lowest scoring assignment will be ignored when calculating final grades. Grades are determined with a weighted sum of homework worth 30%, each midterm exam worth 20%, and the final exam worth 30%.

Pairs of students may work together and turn in homework as a single submission. Individual submissions are fine as well. Homework should be turned in via eLearning. eLearning is not well designed for group submission, so each group should have exactly one of its members turn in the assignment. The grade for one submission will be given to all group members.

It is expected that students be able to solve homework problems using only course material and the work within their homework group. If necessary though, students are permitted to use any outside source or person as long as they cite the source and rewrite the solution in their own words. A full citation of an article or website should describe the specific work or webpage used. Students may also work with others outside their group, but again, they must cite all collaboration with other students in the class outside their group. Properly cited and rewritten outside material is still worth full credit. Material not cited or not rewritten in students’ own words will be considered an act of academic dishonesty and suspected incidents will be reported to the Office of Community Standards and Conduct. Students do not need to cite anything from this course or prerequisite courses, but when in doubt, they should cite anyway just to be safe.

Exams are closed book, and no other sources, collaboration, or cheat sheets are allowed.

Final grades are determined by each student’s performance relative to the class average. However, there is no fixed curve. If everybody performs well, then everybody can get top grades. Please talk to Kyle about grades before considering dropping the course.

Requests for a regrade must be made within one week of the homework assignment or exam being returned. The problem in question will be completely regraded, so the score may go down.

| Make-up Exams | If you know about a conflict with the scheduled exam dates, please inform Kyle at least one week in advance to set a conflict exam time. Makeup exams for unexpected conflicts will be scheduled if you have a documented medical excuse. If you have or believe you may have a disability that requires a reasonable accommodation in the structure or administration of an exam, please consult with and get written documentation from the Office of Student AccessAbility (OSA) at least one week in advance of the exam. |
| Extra Credit | There may be a small amount of extra credit available through additional homework questions. Outside sources cannot be used for extra credit questions. The existence of extra credit points will not affect the percentage cutoffs for students’ final grades. |
| Late Work | Students must request extensions via email for any late work they plan to submit. Extensions of up to 24 hours for all homework assignments will be automatically approved, but the student must still make an explicit request. Longer extensions may be approved at the instructor’s discretion based on the circumstances involved. |
Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

“As a Comet, I pledge honesty, integrity, and service in all that I do.”

Academic Support Resources

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

Please go to [http://go.utdallas.edu/academic-support-resources](http://go.utdallas.edu/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 review the sections regarding the credit/no credit grading option and withdrawal from class.

Please go to [http://go.utdallas.edu/syllabus-policies](http://go.utdallas.edu/syllabus-policies) for these policies.

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