Course Syllabus

Course	CS 6363.003
Course Title	Design and Analysis of Computer Algorithms
Professor	Kyle Fox
Term	Spring 2021
Meetings	1:00pm–2:15pm, Tuesdays and Thursdays

Professor's Contact Information

Office Phone	(972) 883-4168
Office Location	ECSS 4.224 (all meetings will likely be online)
Email Address	kyle.fox@utdallas.edu
Office Hours	10:30am–11:30am, Wednesdays and 2:30pm–3:30pm Thursdays via MS Teams
Other Information	Additional office hours available by request. Please email Kyle directly.

TA's Contact Information

Name	Gregory Van Buskirk
Email Address	greg.vanbuskirk@utdallas.edu
Office Hours	12:00pm–2:00pm, Mondays via MS Teams

Course Modality and Expectations

Instructional Mode	Remote: Synchronous online lectures delivered during the day and time of class over MS Teams.
Course Platform	All live lectures and office hours will be held over MS Teams. See links posted in the CS 6363.003 2212 team. Videos of live lectures will be saved in the Lectures channel for later viewing.
Expectations	If possible, students should attend live lectures so they can ask questions or comment as material is being delivered. No explanation is required or expected if students miss some or even all of the live lectures.
Asynchronous Learning Guidelines	Recorded lectures will be provided in the Lectures channel on MS Teams as soon as they are available. Homework deadlines will be the same for students chosing or not chosing the ansynchronous option. There will be two midterm exams and a final exam administered to all students over eLearning. See https://www.utdallas.edu/fall-2020/asynchronous-access-for-fall-2020/ for some frequently asked questions about asynchronous learning.

COVID-19 Guidelines and Resources

The information contained in the link lists the University's COVID-19 resources for students and instructors of record.

Please see http://go.utdallas.edu/syllabus-policies

Classroom Conduct Requirements Related to COVID-19

UT Dallas requires that all students must wear a face covering that covers the nose and mouth in all university buildings and classrooms. To help protect the health and safety of students, instructors, and the University community, students who choose not to wear a face covering may not attend class in person but may attend a course remotely. Anyone attending class in person without a face covering will be asked to put one on or leave. Instructors may end the class if anyone present refuses to appropriately wear a face covering for the duration of class. Students should also be sure they are at least six feet away from their fellow students and faculty, and seated in a seat that is designated to ensure that distance. Students who either refuse to wear face coverings appropriately or to adhere to other social distancing protocols may face disciplinary action for Student Code of Conduct violations. Students who are unable to comply with the university policies including wearing a face covering should consult the Comets United webpage for further instructions.

Students who have tested positive for COVID-19 or may have been exposed should not attend class in person and should instead follow required disclosure notifications as posted on the university's website (see "What should I do if I become sick?" webpage)

Class Attendance

The University's attendance policy requirement is that individual faculty set their course attendance requirements. Regular and punctual class attendance is expected regardless of modality. Students who fail to attend class regularly are inviting scholastic difficulty. In some courses, instructors may have special attendance requirements; these should be made known to students during the first week of classes. These attendance requirements will not be used as part of grading (see Class Participation below for grading information).

In-person participation records may be used to assist the University or local public health authorities in performing COVID-19 occurrence monitoring. Please note – in-person attendance requires consistently adhering to University requirements, including wearing a face covering and other public safety requirements related to COVID-19, as presented in this syllabus. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Class Participation

Regular class participation is expected regardless of course modality. Students who fail to participate in class regularly are inviting scholastic difficulty. A portion of the grade for this course is directly tied to your participation in this class. It also includes engaging in group or other activities during class that solicit your feedback on homework assignments, readings, or materials covered in the lectures (and/or labs). Class participation is documented by faculty. Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Class Recordings

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 Student Code of Conduct.

NOTE: if the instructor records any part of the course, then the instructor will need to use the following syllabus statement:

The instructor may record meetings of this course. Any recordings will be available to all students registered for this class as they are intended to supplement the classroom experience. 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. If the instructor 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. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Class Materials

The instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course, however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in 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 Student Code of Conduct.

General Course Information

Pre-requisites, Co-requisites, & other restrictions	The prerequisite courses are CS 5333: Discrete Structures and CS 5343 Algorithm Analysis and Data Structures. **This section of the course is intended to prepare students for the QE exam, and therefore lecture material and homework and exam questions may be more difficult compared to other sections.**
Course Description	The study of efficient algorithms for various computational problems. Algorithm design techniques. Sorting, manipulation of data structures, graphs, matrix multiplication, and pattern matching. Complexity of algorithms, lower bounds, NP completeness. (Specific algorithm examples may vary at Kyle's discretion.)
Learning Outcomes	Students will have ability to use asymptotic notations, use and solve recurrences, and perform algorithm analysis. Students will have ability to understand, design, analyze, and prove correctness of algorithms based on divide-and-conquer techniques Students will have ability to understand, design, analyze, and prove correctness of algorithms based on greedy techniques Students will have ability to understand, design, analyze, and prove correctness of algorithms based on dynamic programming techniques Students will have ability to understand, design, analyze, and prove correctness of graph algorithms including those for network flows Students will have ability to understand and prove NP-completeness of problems
Required Texts & Materials	Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein: **Introduction to Algorithms, 3rd Edition.** MIT Press 2009 (official required book for all CS 6363 sections) Jeff Erickson: **Algorithms**. Available at http://jeffe.cs.illinois.edu/teaching/algorithms/. (main source for lecture material and homework problems)
Suggested Texts, Readings, & Materials	Links to additional lecture notes will be provided on the course website.

Assignments & Academic Calendar

Topics and deadlines will be added to course website as the semester progresses.

Course Policies

Grading (credit) Criteria	Four or five homework sets will be assigned during the semester. There will be two midterm exams and a cumulative final exam. Each homework assignment will be given equal weight. 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**. They may also work with students 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 the instructor 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 actually 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 feel 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 extra homework questions. Outside sources cannot be used to for extra credit questions. The existence of extra credit points will not affect the percentage cutoffs for students' grades, so it can only help.
Late Work	Students ***must request*** extensions via email for any late work they plan to submit. Extensions of up to 48 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.

Class Attendance	If possible, students should attend live lectures so they can ask questions or comment as material is being delivered. No explanation is required or expected if students miss some or even all of the live lectures.
Classroom Citizenship	Please mute your mic during lecture unless you are asking a question or commenting.
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.*
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 go to 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.