Course Syllabus

UTD

Course	CS/SE 7301.003
Course Title	Recent Advances in Computing — Computational Topology
Professor	Kyle Fox
Term	Fall 2020
Meetings	1:00pm–2:15pm, Mondays and Wednesdays

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	2:30pm–3:30pm, Wednesdays and 10:30am–11:30am Thursdays via MS Teams (tentative)
Other Information	Additional office hours available by request. Please email Kyle directly.

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 7301.003 2208 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 are no exams, but there is a project presentation (see below). We can arrange for Kyle to present a recording or slides if students cannot present during normal course hours. 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	CS 6363: Design and Analysis of Computer Algorithms or the equivalent is highly recommend. No prior topology knowledge is assumed.
Course Description	Course will cover various topics in computational topology such as embeddings of graphs; fast algorithms for standard problems that take advantage of these embeddings; and simplicial complexes, simplicial homology, and persistent homology for topological shape inference. Other topics to be determined by the interests or experiences of the instructor and students.
Learning Outcomes	Students will be able to understand or design algorithms for topics in computational topology. Students will use their knowledge of computational topology in a self-guided project such as performing research, writing a survey, or performing experimental evaluations of algorithms relevant to computational topology.
Required Texts & Materials	N/A
Suggested Texts, Readings, & Materials	Links to papers or relevant lecture notes will be provided on the course website as they become relevant.

Assignments & Academic Calendar

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

Course Policies

Grading (credit) Criteria	Three or four homework sets will be assigned during the semester. Students will also participate in some sort of project involving a short survey, implementation, or research. Students will propose their project midway through the semester via a two page paper. Results of the project will be described as a presentation at the end of the semester and further described in a longer paper.

Each homework assignment will be given equal weight. Grades are determined with a weighted sum of homework worth 40%, the project proposal worth 10%, and the final project presentation and report worth a total of 50%.

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.

Project proposals should be done individually, but pairs of students may work together on projects themselves. Three students working on a common project may be permitted, but discuss with Kyle first. Each group will do a single presentation and turn in a single final report.

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.

Final grades are determined by each student's performance relative to the class average. However, this course is a 7xxx level special topics course, so grading will be fairly lenient. Please email Kyle if you are concerned about your grade.

Requests for a regrade must be made within one week of the homework assignment being returned. The problem in question will be completely regraded, so the score may actually go down. |
Make-up Exams	N/A
Extra Credit	There are no plans to offer extra credit during this course.
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, the project proposal, and the final project 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.