

Course Syllabus

Course Information

CS 6301-002

Special Topics in Computer Science – Computational Geometry

Spring 2020

Professor Contact Information

Kyle Fox, Assistant Professor

Office Hours: Tuesdays 2:00pm–3:00pm, Thursdays 10:00am–11:00am

Office hours online only at <https://utdallas.webex.com/meet/kjf170230>

Additional office hours available by request.

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

CS 5343 (CS 6363 or equivalent recommended)

Course Description

Course will cover standard computational geometry topics such as computation of convex hulls and Voronoi diagrams, basic geometric algorithm techniques such as sweep line algorithms and use of duality, basic geometric data structures such as trapezoidal decompositions and binary space partitions, and geometric optimization algorithms. Some emphasis will be placed on the real world use of geometric algorithms. Specific topics will be determined by the instructor as the semester progresses.

Required Textbooks and Materials

Mark de Berg, Otfried Cheong, Marc van Kreveld, Mark Overmars:
Computational Geometry—Algorithms and Applications—Third Edition. Springer 2008

David M. Mount: **CMSC 754—Computational Geometry.** Available at <http://www.cs.umd.edu/class/fall2016/cmcs754/Lects/cmcs754-fall16-lects.pdf>.

Suggested Course Materials

The instructor will provide their own lecture notes on the course website <https://utdallas.edu/~kjf170230/preview/courses/6301.002.20s/>.

Assignments & Academic Calendar

Homework will be assigned every couple weeks. There will be four homework assignments released. 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. They will then submit a longer paper on their results at the end of the semester.

Grading Policy

Each homework assignment is given equal weight. Grades are determined by a weighted sum of the following three items.

Homework: 50% Project Proposal: 10% Final Project Report: 40%

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.

Course & Instructor Policies

Details on remaining course policies for assignments and writing of homework solutions can be found on the course website

<https://utdallas.edu/~kjf170230/preview/courses/6301.002.20s/>. A few key points can be found below.

Live lectures will be conducted online as a WebEx meeting. Details for attending each lecture will be given on eLearning at least 12 hours in advance of the lecture. Attendance in the meeting is not required, but it is highly recommended so you have a chance to ask questions during the lecture. **A recording of each lecture will be posted on a YouTube as soon as is available.** Students attending the live lecture and wishing to ask questions they would prefer remain private should wait until the recording has ended before asking these questions.

All assignments will be due on by the end of the day they are due. Starting March 15th, late submissions will be accepted with full credit at the discretion of the instructor.

Small groups of at most three 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 submissions, so each group should have exactly one of its member's turn in the assignment. The grade for the one submission will be given to all group members.

Project proposals should be done individually, but groups of up to three students may work together on the projects themselves. Each group should 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.

There may be a small amount of extra credit available. It will not affect the percentage cutoffs for students' grades, so it can only help you.

Requests for regrades 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.

It is the Computer Science Department's policy that absence in three consecutive lectures will result in the course grade being lowered by one letter and absence in four consecutive lectures will automatically result in a failing grade (F) in the course.

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.”

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.