www.cs.tufts.edu/comp/163

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Office hours: email for appointment
(best: Tue., Wed., Thu. morn)
MY PREREQUISITES

* O-notation
* Recurrences, divide & conquer, recursion
* Trees + basic data structures
* Basic graph concepts ... Euler's thm.
* Proof by induction/contradiction
MY PLAN

* BROAD view of C.G. (w/ a few exceptions)
  more topics, fewer details

* 2 threads: 13 classes... ~25 sessions

* homework: 25
  midterm: 20
  final: 20
  project: 30
  interview: 5

  → 1pt per session
  handed out every 1-2 weeks
  due after ~10 days
MY PLAN

* BROAD view of C.G. (w/ a few exceptions) → more topics, fewer details

* 2 threads: 13 classes... ~25 sessions

* homework 25
  midterm 20
  final 20
  project 30
  interview 5

} each will cover ½ course
MY PLAN

* BROAD view of C.G. (w/ a few exceptions) 
  more topics, fewer details

* 2 threads: 13 classes ... ~25 sessions

* homework 25
  midterm 20
  final 20
  project 30
  interview 5

SOMETHING YOU ENJOY

Online demo, topic of your choice
Explain theory & implement

... or: solve an open problem
prepare an excellent presentation
(can be flexible)
MY PLAN

* BROAD view of C.G. (w/ a few exceptions) more topics, fewer details
* 2 threads: 13 classes ... ~25 sessions

* homework 25
  midterm 20
  final 20
  project 30
  interview 5 → 5 minute discussion in my office
TOPICS

MODEL OF COMPUTATION

Straightedge & compass

Basic geometric objects & operations

RRAM
Topics

Convex Hull

Computing & updating
TOPICS

(MINIMUM) WIDTH

DIAMETER

OF POINT SETS, POLYGONS ETC
ART GALLERY

HOW TO GUARD

TYPES OF GUARDS
TOPICS

SEGMENT INTERSECTION & PLANE SWEEP METHOD

OTHER INTERSECTION PROBLEMS
Topics

Triangulations

Algorithms & Properties
POINT LOCATION

TOPICS

A
B
C
D
E
F
TOPICS

HAM SANDWICH CUTS

BORSUK-ULAM thm.

Hairy Ball thm.
TOPICS

UNIT DISTANCE GRAPH

PAINTING THE PLANE

FUN PAUL ERDÖS PROBLEMS

e.g. Sylvester-Gallai thm
or distinct slope problem
or Erdös-Szekeres thm.
or empty k-gon
TOPICS

Voronoï Diagrams

&

Delaunay Triangulations
TOPICS

LARGEST EMPTY CIRCLE
SMALLEST ENCLOSING CIRCLE

PROXIMITY GRAPHS
LINEAR PROGRAMMING
(2D solution)

PARAMETRIC SEARCH
TOPICS

OTHER METRICS/DISTANCES

CURVE SIMILARITY (distance)

POLYGONAL APPROXIMATION
TOPICS

DATA DEPTH

SPANNERS & DETOURS
TEXTBOOK

- Good for some formal details of several topics but not mandatory

- Many topics not in book

- My notes will be online w/ many links