

15-456: Computational Geometry, Spring 2013

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Tentative Schedule

This schedule is very preliminary: the number of lectures and order of the topics are likely to change.

Lec.	Date	Day	Topic	Instr.	Reading
1	Jan 14	M	Introduction and Convex Hulls	BF	BKOS Chapter 1
2	Jan 15	T	Oriented Projective Geometry; Primitives	BF	Stolfi 87
3	Jan 18	F	The Line Intersection Problem; Sweepline	GM	Class Notes BKOS Chapter 2 Page 29
	Jan 21	M	Martin Luther King Day, No Class		
4	Jan 23	W	Graham Scan CH Algorithm	BF	BKOS Ch 2
5	Jan 25	F	RIC for CH	GM	Class Notes Lecture Notes
6	Jan 28	M	Polygon Triangulations	GM	Class Notes BKOS Ch 3
	Jan 30	W	Assignment 1 Presentations		
7	Feb 01	F	Arrangements	BF	BKOS Ch 8
8	Feb 04	M	Halfplane Intersections	BF	BKOS Ch 4
9	Feb 06	W	Planar Point Location; Trapezoidations I	GM	Class Notes Mount Chap 9 BKOS Ch 6
	Feb 08	F	Assignment 2 Presentations		
10	Feb 11	M	Planar Point Location; Trapezoidations II	GM	
11	Feb 13	W	Voronoi Diagrams	BF	BKOS Sec 7.1
12	Feb 15	F	Fortune's Algorithm	BF	BKOS Sec 7.2
13	Feb 18	M	Geometric Transforms	GM	Class Notes
14	Feb 20	W	Representing Topological Information	GM	Class Notes Brisson-93
15	Feb 22	F	QuadTrees and Mesh Generation	GM	Class Notes BKOS Chap 14
	Feb 25	M	Assignment 3 Presentations		
16	Feb 27	W	Delaunay Triangulations	BF	BKOS Ch 9
17	Mar 01	F	Closest Pair using Hashing	GM	Class Notes Har-Peled Chap 1
18	Mar 04	M	Delaunay Refinement	GM	Class Notes Wikipedia Page
19	Mar 06	W	Curves and Knots	BF	Sullivan
	Mar 08	F	Mid-Semester Break, No Class		
	Mar 11	M	Spring Break, No Class		
	Mar 13	W	Spring Break, No Class		
	Mar 15	F	Spring Break, No Class		
20	Mar 18	M	Fréchet Distance I	BF	Godau 1991
21	Mar 20	W	Fréchet Distance II	BF	Alt Godau '95

	Mar 22	F	Assignment 4 Presentations		
22	Mar 25	M	k-Centers and k-Medians I	GM	Har-Peled Chap 4
23	Mar 27	W	k-Medians II	GM	
24	Mar 29	F	Metrics	BF	
25	Apr 01	M	Homology I	BF	Class Notes Hatcher 2.1
26	Apr 03	W	Homology II	BF	
	Apr 05	F	Assignment 5 Presentations		
27	Apr 08	M	Shape of a Point Set I	BF	
28	Apr 10	W	Shape of a Point Set II	BF	
29	Apr 12	F	TBA	BF	
30	Apr 15	M	Epsilon-Nets Part I	GM	Class Notes Har-Peled Chap-5
31	Apr 17	W	Epsilon-samples and Epsilon-Nets Part II	GM	Har-Peled VC-notes
	Apr 19	F	Carnival, No Class		
32	Apr 22	M	Bezier Curves and Bossoms	GM	[Class Notes CAGD Chap-3 CAGD Chap-4]
33	Apr 24	W	Subdivision Surfaces	GM	[Class Notes Geri Pixar]
34	Apr 26	F	Approximate Nearest Neighbor	GM	[Class Notes Har-Peled Chap 17]
35	Apr 29	M	Brunn Minkowski inequality	GM	Har-Peled Chap 19]
36	May 01	W	Johnson-Lindenstrauss Lemma	GM	Class Notes
37	May 03	F	Assignment 6 Presentations		
	May 07	T	Final: May 7 5:30-8:30pm: WEH 5310		Project Presentations