

CS 473G: Algorithms (grad section), Fall 2007

TuTh 11:00 - 12:15, SC 1304

<http://www.cs.uiuc.edu/class/fa07/cs473g/>

Instructor: Sarel Har-Peled (sarel@uiuc.edu), SC 3306

Teaching Assistants: Reza Zamani (zamani@uiuc.edu)

Tentative Office Hours: These may change later in the semester.

	Mon	Tue	Wed	Thu	Fri	Out of town
Sarel	17-18					
Reza	TBD					

Course web page: Lecture notes, homeworks, solutions, handouts, grades, and important announcements will be posted here. Except for exams, this is the last piece of paper we will hand out in class! Please read the Homework Instructions and FAQ.

Newsgroup: `class.cs473g`

The newsgroup is an online forum for students to ask each other and the course staff questions about the course material. We will also post important announcements here: bugs in homework problems, deadline extensions, etc. *Read the newsgroup at least once a day!*

Prerequisites:

Students are assumed to have working knowledge of the material taught in CS 225 and CS 273. This is *not* the same as merely having passed; hence Homework Zero. If you are an undergraduate and you have not taken these courses, you need Sarel's permission to enroll.

Coursework:

Grades will be based on 6-10 homeworks (20%) (dropping the lowest), one in-class midterm (30%), and a final exam (50%). All major grades (i.e., midterm, final, and homeworks overall grade) in the course would be normalized to the scale between 0..100. Extra credit would be given for pointing out errors in the class notes and similar stuff.

Textbooks:

- CS 473 lecture notes from previous semesters are available online through the course web page. The lecture notes will be updated (and new notes will be added) online as the course progresses. Jeff Erickson also have excellent set of class notes on similar topics. If you feel a need for a book (because of religious or other considerations), any of the Harry Potter books or CLRS would be a good reference, but they cover only parts of the stuff covered in the lectures.
- Algorithm Design by Jon Kleinberg and Éva Tardos (Addison-Wesley, 2005). Recommended **but not required**.
- Algorithms by Sanjoy Dasgupta, Christos Papadimitriou, and Umesh Vazirani (McGraw-Hill, 2006).
- Thomas H. Cormen, Charles Leiserson, Ronald L. Rivest, and Clifford Stein. *Introduction to Algorithms*, 2nd Ed. MIT Press/McGraw Hill, 2001. **Not really recommended**.

Academic Honesty:

Cheating of any form or magnitude would be handled with the utmost severity and might result in a 'F' grade in the course, or a zero grade in the homework or exam involved. **Do not cheat!**

Tentative Course Outline

Lecture topics are subject to change. Exam dates are not.

		Date	Topics	Due
1	Thu	8/23	NP Completeness I	hw0
2	Tue	8/28	NP Completeness II	
3	Thu	8/30	NP Completeness III	
4	Tue	9/ 4	dynamic programming	hw1
5	Thu	9/ 6	more dynamic programming	
6	Tue	9/11	Greedy Algorithms - Matroids	
7	Thu	9/13	Matroids II	
8	Tue	9/18	Approximation algs I	
9	Thu	9/20	Approximation algs II	
10	Tue	9/25	Approximation algs III	hw2
11	Thu	9/27	Sorting networks I	
12	Tue	10/2	Randomized Algorithms I	
	Thu	10/4	In class midterm	
13	Tue	10/9	Rand. Alg. II	hw3
14	Thu	10/11	Rand. Alg. III - Min Cut	
15	Tue	10/16	Rand. Alg. IV - Treaps, Verif., String match	
16	Thu	10/18	Rand. Alg. V - Hashing	
17	Tue	10/23	Network flow I	
18	Thu	10/25	Network flow II	hw4
19	Tue	10/30	Network flow III	
20	Thu	11/1	Network flow IV	
21	Tue	11/6	Union-find	
22	Thu	11/8	Fast Fourier Transform	
23	Tue	11/13	Lower Bounds	
24	Thu	11/15	Matchings I	hw5
		Tue 11/20 Thu 11/22	<i>— Thanksgiving Vacation —</i>	
25	Tue	11/27	Matchings II	hw6
26	Thu	11/29	LP I	
27	Tue	12/4	LP II	
28	Thu	12/6	Learning - Perceptron	
	Tuesday	December 11	Final Exam	