

# CS 473G: Algorithms (grad section), Fall 2003

TuTh 11:00 - 12:15, SC

**Instructor:** Sariel Har-Peled (sariel@uiuc.edu), SC 3306

**Teaching Assistants:** Phillip Mienk (mienk@uiuc.edu) SC 1113

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

	Mon	Tue	Wed	Thu	Fri	Out of town
Sariel			14-15			
Phillip Mienk	15-16				15-16	

**Course web page:** <http://www.cs.uiuc.edu/class/sp06/cs473g/> 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 Sariel'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. If you feel a need for a book, the CLRS book would be a good reference book, but it would cover only parts of the stuff covered in the lectures.
- Thomas H. Cormen, Charles Leiserson, Ronald L. Rivest, and Clifford Stein. *Introduction to Algorithms*, 2nd Ed. MIT Press/McGraw Hill, 2001. **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	Reading	Due		
Tue	1/17	1. NP Completeness I	CLR 36, CLRS 34			
Thu	1/19	2. NP Completeness II				
Tue	1/24	3. NP Completeness III				
Thu	1/26	4. dynamic programming	CLR 16, CLRS 15			
Tue	1/31	5. more dynamic programming				
Thu	2/2	6. Approximation algs I	CLR 37, CLRS 35			
Tue	2/7	7. Approximation algs II				
Thu	2/9	8. Approximation algs III				
Tue	2/14	9. Sorting networks I	CLR 28, CLRS 27			
Thu	2/16	10. Randomized Algorithms I				
Tue	2/21	11. Rand. Alg. II				
Thu	2/23	12. Rand. Alg. III - Min Cut				
Tue	2/28	In class midterm.				
Thu	3/2	13. Rand. Alg. IV - Treaps, Verif., String match	CLR 27, CLRS 26			
Tue	3/7	14. Rand. Alg. V - Hashing				
Thu	3/9	15. Network flow I				
Tue	3/14	16. Network flow II				
Thu	3/16	17. Network flow III				
Tue 3/21 Thu 3/23		— <i>Spring Vacation</i> —				
Tue	3/28	18. Network flow IV	CLR 23 CLR 32, CLRS 30			
Thu	3/30	19. Union-find				
Tue	4/4	20. Fast Fourier Transform				
Thu	4/6	21. Lower Bounds				
Tue	4/11	22. Matchings I				
Thu	4/13	23. Matchings II				
Tue	4/18	24. LP I				
Thu	4/20	25. LP II				
Tue	4/25	26. Learning - Perceptron				
Thu	4/27	27. Data Structures I - LCA				
Tue	5/2	28. Data Structures II / Steiner forest problem				
Tuesday	5/09	Final Exam			1:30-4:30 PM	