CS381—Introduction to the Analysis of Algorithms

(http://www.cs.purdue.edu/homes/spa/cs381.html)
TR 1:30–2:45 in *EE 270*

Professor:	W. Szpankowski
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Office:	CS 122, 49-46703
Office Hours:	TR 3:30–4:30 or by appointment

Texts:

[M] U. Manber, *Introduction to Algorithms*, Addison-Wesley, 1989.

or

[B] S. Baase and A. Van Gelder, *Computer Algorithms: Introduction to Design and Analysis*, Addison-Wesley, 1999.

Useful books:

- T. Cormen, C. Leiserson, R. Rivest and C. Stein, *Introduction to Algorithms* (Second Edition), McGrew–Hill Company, Boston, 2001.
- R. L. Graham, D. E. Knuth and O. Patashnik, *Concrete Mathematics. A Foundation for Computer Science*, Addison-Wesley, Reading, MA 1994.
- R. Sedgewick and P. Flajolet, *An Introduction to the Analysis of Algorithms*, Addison-Wesley Publishing Company, Reading, MA, 1995.
- W. Szpankowski, *Average Case Analysis of Algorithms on Sequences*, John Wiley & Sons, New York, 2001.

Approximate Course Outline (see the CS381 web page for details):

- Mathematical background (summation formulas, mathematical induction)
- Analysis of Algorithms (Big "Oh" notation)
- Recurrences (methods of solutions, divide-and-conquer)
- Sorting (heapsort, quicksort, sorting by comparison)
- Graphs and digraphs (depth-first and breadth-first search, shortest paths, biconnected and strongly connected components)
- String matching algorithms (Knuth-Morris-Pratt algorithm and Boyer-Moore algorithm)
- Dynamic programming

Course Work and Grading Policy

The course work consists of homeworks, one midterm and the final. The final grade is based on **35**% homeworks, **30**% midterm and **35**% final.

No late assignments will be accepted. (**Homeworks will be collected by the end of the class on the due date**.) If you want to re-grade your homework, please contact your TA within 10 days of receiving the homework back. No re-grading after this time. No incomplete.