Syllabus

CSE 431, Algorithms Analysis and Design

Fall Semester, 2000

Class time: 10 – 10:50 a.m., Mon. and Wed.

Building & **Room**: Park 440

Recitations

- R1: 11-11:50 a.m., Fri., Baldy 106
- R2: 3-3:50 p.m., Wed., Capen 250

Professor-in-Charge: Jinhui Xu

330 Bell Hall

Phone: 645-3180 ext. 132

E-mail: jinhui@cse.buffalo.edu

Office Hours: 1:30 – 2:30 p.m., MW

Teaching Assistant: TBA

Prerequisites:

Courses: CSE 250 (or an equivalent course in Data Structures).

Topics: A high level language such as C, C++, or Java.

Text:

T.H. Cormen, C.E. Leiserson, and R.L. Rivest, *Introduction to Algorithms*, McGraw-Hill, 1990.

Additional References:

R. Miller and L. Boxer, *Algorithms Sequential and Parallel, a Unified Approach*, Prentice-Hall, 2000.

U. Manber, *Introduction to Algorithms: A Creative Approach*, Addison-Wesley, 1989.

Topics to Be Covered (Tentative)

- Review of mathematical induction, growth of functions, and recurrences
- Data structures
- Sorting
- Algorithms design strategies
  - Divide-and-conquer
  - Dynamic programming

  - Greedy method

- Graph algorithms
  - Graph traversals
  - Shortest paths
  - Minimum spanning trees

- Advanced topics
  - Computational Geometry
  - Parallel Algorithms
  - NP-completeness

Course Work and Grading:

Homework*: 45% (6-8 problem sets)

One Mid-Term: 20% (in class)

Final: 30%

Class Attendance: 5%

* No late homework will be accepted. Students are allowed to discuss the assignments, but no student is allowed to look at another student's solutions from any written source. If anyone is in doubt, please consult the Professor-in-Charge for clarification.