

## THEORY OF COMPUTING QUALIFIER SYLLABUS

The sole purpose of this syllabus is to delineate the material for the theory qualifying exam. You should feel free to use other sources to learn the material. Most of it is covered in at least one of CS 520, CS 577, CS 787, and CS 810. However, the material for the exam is defined by the list below and not by the latest offerings of the theory courses.

### Algorithms

- Cormen, Leiserson, Rivest, and Stein, *Introduction to Algorithms*, 2nd edition, McGraw-Hill, 2001: entire book.
- Motwani and Raghavan, *Randomized Algorithms*, Cambridge University Press, 1995: Part I.

### Complexity

- Sipser, *Introduction to the Theory of Computation*, 2nd edition, PWS Publishing Company, 2005: entire book.
- Arora and Barak, *Complexity Theory: A Modern Approach*, preliminary version available at <http://www.cs.princeton.edu/theory/complexity>, 2006: Part I.