Books for Reference

The following is a list of books related to algorithms that may be useful for reference. This list, partially compiled by Prof. John Casey, contains both introductory texts as well as advanced books. Most of these books are available in Snell Library; some of these books are on the reserve list of the library.

Introductory books on algorithms


   This text is an implementation-oriented study of algorithms. The book also lists a number of sources for good implementations of various algorithms. Also, the book has a CD-ROM full of code, plus practical advice on choosing algorithms for large-scale problems.


   This text is a friendly, undergraduate-oriented book.


   “General reference, although the exposition is sometimes terse or sketchy.” – Leonidas Guibas


   This is a good undergraduate-level textbook on algorithms.


   A classic, yet a bit outdated now.


   Encyclopaedic work in three volumes: (1) Fundamental Algorithms, (2) Seminumerical Algorithms, (3) Sorting and Searching. A fourth volume is in progress. Knuth had originally planned for seven volumes.

   This set of books is one of the greatest collections in computer science.
   This is a collection of data and actual C programs implementing a variety of graph and related algorithms.

**Basic Mathematics**

   A standard textbook for discrete mathematics.
   Chapter 2 of this text (Proofs, Recurrences, and Analysis of Algorithms) is a useful chapter to look at.
   Another introductory book on discrete mathematics.
   This book covers a lot of the basic discrete mathematics that is useful throughout the course.
   This an old yet quite useful book on elementary discrete mathematics.
   This book provides a more thorough treatment than you probably had in your calculus textbooks.
   This book is an excellent elementary introduction to probability theory.
   This is a readable and intuitive introduction to probability theory.

**A few advanced books**

   An excellent set of lecture notes on advanced algorithms. The clear, concise, and elegant description makes it a compelling read for any course on advanced algorithms.
   A new handbook of algorithms with contributions on a variety of topics from leading researchers in the area.

This book contains algorithms for the computationally hard problems, with practical advice on what happens on real machines.


This book describes introductory as well as advanced techniques for analyzing algorithms.


This is an advanced book with succinct descriptions of lots of good ideas.

**Other fun books**


   This is a fun book to read. It provides a number of techniques for summations and solving combinatorial problems. All of the text is flanked by funny (and often distracting) graffiti.


   It's just what the title claims. The book originated as a popular TV series.


   Jon Bentley, one of the leading authorities on programming, provides suggestions for improving the code you write.