

C Sc 70010 Fall 2026 — Algorithms Syllabus

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Fall 2026, Wednesdays 11:45am–1:45pm

<http://www.sci.brooklyn.cuny.edu/~amotz/algorithms.html>

Tentative Syllabus: Analysis of Algorithms, Divide and Conquer, Introduction to Graphs, Order Statistics, Sorting, Greedy Algorithms, Graph Traversals, Minimum Spanning Trees, Tours in Graphs, Graph Coloring, NP-Completeness.

References:

- The traditional main textbook: “Introduction to Algorithms (4th edition),” by Cormen, Leiserson, Rivest, and Stein, MIT Press. (The 3rd edition, 2nd edition, and even 1st edition are also good).
<http://mitpress.mit.edu/algorithms/>
 - Video lectures from MIT:
<https://ocw.mit.edu/courses/6-006-introduction-to-algorithms-fall-2011/resources/lecture-videos/>
- New(er) textbook: “Algorithms Illuminated,” by Tim Roughgarden, Cambridge University Press.
<https://www.algorithmsilluminated.org/>
 - YouTube lectures from the author:
<https://www.youtube.com/playlist?list=PLXFMmlk03Dt7Q0xr1PIAriY5623cKiH7V>
- A more advanced book: “Algorithm Design,” by Kleinberg and Tardos, Addison-Wesley.
<https://www.pearson.com/en-us/subject-catalog/p/algorithm-design/P200000003259/9780137546350>
 - Video lectures from Princeton:
<https://www.cs.princeton.edu/~wayne/kleinberg-tardos/>
- A free online textbook: “Algorithms,” by Dasgupta, Papadimitriou, and Vazirani, McGraw-Hill.
<http://algorithmins.lsi.upc.edu/docs/Dasgupta-Papadimitriou-Vazirani.pdf>
- One of the popular books: “Algorithm Design and Applications,” by Goodrich and Tamassia, Wiley.
<https://www.wiley.com/en-sg/Algorithm+Design+and+Applications%2C+1st+Edition-p-9781118335918>
- A creative book: “Introduction to Algorithms: A Creative Approach,” by Manber, Addison-Wesley.
<https://dl.acm.org/doi/book/10.5555/534662>
- Insights vs. proofs: “How to Think about Algorithms,” by Edmonds, Cambridge University Press.
<https://www.cambridge.org/highereducation/books/how-to-think-about-algorithms/1CE2FC59FCA3F83F4C5176F3A5C7699A#overview>
- A book by authors from another community: “Computer Algorithms: Introduction to Design and Analysis (3rd edition),” by Baase and Van Gelder, Addison-Wesley.
https://books.google.com/books?id=GIcQgAACAAJ&newbks=0&hl=en&source=newbks_fb
- A book with problems, hints, and solutions: “Problems on Algorithms” (free online copy), by Parberry and Gasarch.
<https://ianparberry.com/books/free/poa.pdf>