




Readings

Readings refer to chapters and/or sections of the course textbook:

 [Buy at Amazon](#) Cormen, Thomas, Charles Leiserson, Ronald Rivest, and Clifford Stein. *Introduction to Algorithms*. 3rd ed. MIT Press, 2009. ISBN: 9780262033848.


Courses ▾
About ▾
Donate ▾
Featured Sites ▾
Search

Advanced Search
SYLLABUS
CALENDAR
READINGS
PYTHON COST MODEL
BINARY SEARCH TREES
LECTURE VIDEOS
RECITATION VIDEOS
ASSIGNMENTS
EXAMS
RELATED RESOURCES
DOWNLOAD COURSE MATERIALS

LEC #	TOPICS	READINGS
Unit 1: Introduction		
1	Algorithmic thinking, peak finding	1, 3, D.1
2	Models of computation, Python cost model, document distance	1, 3, Python Cost Model
Unit 2: Sorting and Trees		
3	Insertion sort, merge sort	1.2, 2.1–2.3, 4.3–4.6
4	Heaps and heap sort	6.1–6.4
5	Binary search trees, BST sort	10.4, 12.1–12.3, Binary Search Trees
6	AVL trees, AVL sort	13.2, 14
7	Counting sort, radix sort, lower bounds for sorting and searching	8.1–8.3
Unit 3: Hashing		
8	Hashing with chaining	11.1–11.3
9	Table doubling, Karp-Rabin	17
10	Open addressing, cryptographic hashing	11.4
	Quiz 1	
Unit 4: Numerics		
11	Integer arithmetic, Karatsuba multiplication	
12	Square roots, Newton's method	
Unit 5: Graphs		
13	Breadth-first search (BFS)	22.1–22.2, B.4
14	Depth-first search (DFS), topological sorting	22.3–22.4
Unit 6: Shortest Paths		
15	Single-source shortest paths problem	24.0, 24.5
16	Dijkstra	24.3
17	Bellman-Ford	24.1–24.2
18	Speeding up Dijkstra	
	Quiz 2	
Unit 7: Dynamic Programming		
19	Memoization, subproblems, guessing, bottom-up; Fibonacci, shortest paths	15.1, 15.3
20	Parent pointers; text justification, perfect-information blackjack	15.3, Problem 15–4, Blackjack rules
21	String subproblems, psuedopolynomial time; parenthesization, edit distance, knapsack	15.1, 15.2, 15.4
22	Two kinds of guessing; piano/guitar fingering, Tetris training, Super Mario Bros.	

Unit 8: Advanced Topics		
23	Computational complexity	34.1–34.3
24	Algorithms research topics	

COURSES

- » Find by Topic
- » Find by Course Number
- » Find by Department
- » Audio/Video Courses
- » Online Textbooks
- » New Courses
- » Most Visited Courses
- » OCW Scholar Courses
- » This Course at MIT
- » Supplemental Resources
- » Translated Courses

ABOUT

- » About OpenCourseWare
- » Site Stats
- » OCW Stories
- » Media Coverage
- » Newsletter
- » Press Releases
- » OCW's Next Decade

DONATE

- » Make a Donation
- » Why Donate?
- » Become a Course Champion
- » Our Supporters
- » Other Ways to Contribute
- » Shop OCW
- » Become a Corporate Sponsor

FEATURED SITES

- » Highlights for High School
- » OCW Educator
- » MITx Courses on edX
- » Teaching Excellence at MIT
- » Open Education Consortium

TOOLS

- » Help & FAQs
- » Contact Us
- » Advanced Search
- » Site Map
- » Privacy & Terms of Use
- » RSS Feeds

ABOUT MIT OPENCOURSEWARE

MIT OpenCourseWare makes the materials used in the teaching of almost all of MIT's subjects available on the Web, free of charge. With more than 2,200 courses available, OCW is delivering on the promise of open sharing of knowledge.



© 2001–2014
Massachusetts Institute of Technology



Your use of the MIT OpenCourseWare site and materials is subject to our [Creative Commons License](#) and other [terms of use](#).

OUR CORPORATE SUPPORTERS

