Daily preparation guide

Study the material listed in the preparation section prior to attending class that day. Try to formulate precise questions concerning the parts you don’t understand or the importance of the material.

Thursday, August 18

Introduction:
- Classes begin
- Review of syllabus
- Review of order notation
- Review of logarithmic identities
- Review of sorting algorithms

Tuesday, August 23

Preparation:
- Chapter 3, *Growth of Functions*

Thursday, August 25

Prerequisite material

Tuesday, August 30

Prerequisite exam

Thursday, September 1

Preparation:
- Chapter 4, *Divide-and-Conquer* (skip section 4.6)

Monday, September 5

Preliminary assessment of programming assignment #1 due

Tuesday, September 6

Preparation:
- Chapter 6, *Heapsort*
- Chapter 7, *Quicksort*

Thursday, September 8

Preparation:
- Section 8.1, *Lower bounds for sorting*
Friday, September 9

Programming assignment #1 due

Tuesday, September 13

Preparation:
- Chapter 9, Medians and Order Statistics
- Example questions: http://beastie.cs.ua.edu/concepts/cs/al/lsort.html (questions 1 - 10)

Thursday, September 15

Preparation:
- Chapter 12, Binary Search Trees

Tuesday, September 20

Preparation:
- Chapter 13, Red-Black Trees
- Example questions: http://beastie.cs.ua.edu/concepts/cs/al/sbtrees.html

Thursday, September 22

Preparation:
- Problem 13-3, AVL trees
- Example questions: http://beastie.cs.ua.edu/concepts/cs/al/sbtrees.html

Tuesday, September 27

First concept exam:
- Prerequisite material
- Solving Recurrences
- Selection in linear time
- Self-balancing search trees

Thursday, September 29

Web search: memoization

Tuesday, October 4

Preparation:
- Chapter 15, Dynamic Programming
- Example questions: http://beastie.cs.ua.edu/concepts/cs/al/dynamic.html

Thursday, October 6

Preparation:
- Section 8.2, Counting Sort
- Example questions: http://beastie.cs.ua.edu/concepts/cs/al/lsort.html

Tuesday, October 11

Preparation:
- Section 8.3, Radix Sort
- Section 8.4, Bucket Sort
- Example questions: http://beastie.cs.ua.edu/concepts/cs/al/lsort.html
Thursday, October 13
Preparation:
  • Chapter 17, *Amortized Analysis*
  • Example questions: [http://beastie.cs.ua.edu/concepts/cs/al/amortized.html](http://beastie.cs.ua.edu/concepts/cs/al/amortized.html)

Tuesday, October 18
Preparation:
  • Web search, “Binomial Heaps”
  • Problem 19-2, *Binomial Heaps*
  • Example questions: [http://beastie.cs.ua.edu/concepts/cs/al/heaps.html](http://beastie.cs.ua.edu/concepts/cs/al/heaps.html)

Thursday, October 20
Second content exam:
  • Dynamic programming (including memoization)
  • Linear sorting
  • Amortized analysis
  • Binomial heaps

Tuesday, October 25
Preparation:
  • Sections 19.1 — 19.3, *Fibonacci Heaps*
  • Example questions: [http://beastie.cs.ua.edu/concepts/cs/al/heaps.html](http://beastie.cs.ua.edu/concepts/cs/al/heaps.html)

Wednesday, October 26
Preliminary assessment of programming assignment #2 due
(Postponed to Thursday, October 27)
Last day to drop a class

Thursday, October 27
Preparation:
  • Sections 19.4 — 19.3, *Fibonacci Heaps*
  • Example questions: [http://beastie.cs.ua.edu/concepts/cs/al/heaps.html](http://beastie.cs.ua.edu/concepts/cs/al/heaps.html)

Sunday, October 30
Programming assignment #2 due
(Postponed to Tuesday, November 1)

Tuesday, November 1
Preparation:
  • Chapter 21, *Disjoint Sets*

Thursday, November 3
Preparation:
  • Chapter 22, *Elementary Graph Algorithms*

Tuesday, November 8
Preparation:
  • Chapter 23, *Minimum Spanning Trees*
Thursday, November 10
Preparation:
  • Section 24.3, *Dijkstra’s Algorithm*

Tuesday, November 15
Preparation:
  • Section 34.1 — 34.3, *P and NP*
  • [http://beastie.cs.ua.edu/cs201/npc.html](http://beastie.cs.ua.edu/cs201/npc.html)

Thursday, November 17
Preparation:
  • Section 34.4 — 34.5, *NPC proofs and problems*

Monday, November 21
Pre:liminary assessment of programming assignment #3 due

Friday, November 25
Programming assignment #3 due

Tuesday, November 29
Dead week

Thursday, December 1
Dead week, last day of class

Thursday, December 8
Final exam (cumulative), 11:30am to 2:00pm