CSE 2331  
Foundations II: Data Structures and Algorithms  
Spring, 2019

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COURSE SUMMARY: Design/analysis of algorithms and data structures; divide-and-conquer, sorting and selection, search trees, hashing, graph algorithms; probabilistic analysis; randomized algorithms; NP-completeness.

PRE-REQUISITE: CSE 2231 and CSE 2321 and (STAT 3460 or STAT 3470).

CO-REQUISITE: MATH 3345.


COURSE NOTES: Electronic copy posted on carmen.  

CARMEN: [https://carmen.osu.edu](https://carmen.osu.edu)

EXAMS:  
Midterm I: Thurs, Feb. 14, 8-10 p.m., 35 Hitchcock  
Midterm II: Thurs, Mar. 28, 8-10 p.m., 35 Hitchcock  
Final exam: Tues, Apr. 30, 6-7:45 p.m.

SEQUENCE OF TOPICS (tentative):  
1. Asymptotic notation review (CLRS, Chapter 3).  
2. Analyzing algorithms review (CLRS, Chapters 1, 2).  
3. Recurrence relations (CLRS, Sections 4.1, 4.2).  
4. Probabilistic analysis (CLRS, Chapter 5).  
5. Quicksort (CLRS, Chapter 7).  
6. Median find (CLRS, Chapter 9).  
7. Hashing (CLRS, Chapter 11).  
10. Red Black Trees (CLRS, Chapter 13).  
11. Minimum spanning trees (CLRS, Chapter 23).  
12. Shortest paths (CLRS, Section 24.3).  
14. Table doubling (CLRS, Sections 17.4).  
15. Union-find data structures (CLRS, Chapter 21).  
16. NP-completeness (CLRS, Chapter 34).  

(over)
REVIEW EXERCISES: Posted on carmen⇒CSE2331⇒Modules⇒Exercises.

VIDEOS:
- Videos of review session: Posted on carmen⇒CSE2331⇒Modules⇒Review session videos.

GRADING:
Attendance 5%, Homeworks 15%, Midterm I 20%, Midterm II 25%, Final 35%.

Homeworks may include programming assignments.

Students are expected to attend class regularly. In the event that a student must miss a class, the student is responsible for finding out what assignments were made, what due dates were announced, and what material was covered. Late homework will NOT receive credit.