COURSE SUMMARY: Performance analysis considerations in design of algorithms and data structures; Order of magnitude analysis, recurrence relations, probabilistic analysis, divide and conquer; searching, sorting and graph processing algorithms.

COREREQUISITE: (CSE 560 2231 or CSE 321) and (CSE 2321 or Math 366) and (Math 2566 or Math 566) and (Stat 3470 or Stat 427).

TEXT (required): Introduction to Algorithms, Second or Third Edition by Cormen, Leiserson, Rivest and Stein.

COURSE NOTES (required): Order from SBX (or directly from www.zippublishing.com.)

CARMEN: https://carmen.osu.edu.

SEQUENCE OF TOPICS (tentative):
1. Analyzing algorithms (CLRS, Chapter 1).
2. Asymptotic notation (CLRS, Chapter 3).
3. Insertion sort (CLRS, Sections 2.1, 2.2).
4. Recurrence relations (CLRS, Sections 4.1, 4.2).
5. Merge Sort (CLRS, Section 2.3).
7. Binary Search Trees (CLRS, Chapter 12)
8. Red Black Trees (CLRS, Chapter 13)
9. Graphs and graph algorithms (CLRS, Chapter 22).
10. Minimum spanning trees (CLRS, Chapter 23.)
11. Shortest paths (CLRS, Section 24.3).
12. Probabilistic analysis (CLRS, Chapter 5).
13. Quicksort (CLRS, Chapter 7).
14. Median find (CLRS, Chapter 9).
15. Hashing (CLRS, Chapter 11).
16. NP-completeness (CLRS, Chapter 34)
GRADING: HW 25%, Quiz 10%, Midterm 25%, Final 40%. Attendance: bonus. Letter grades will be assigned on a curve.

Exam Schedule:
Quiz: Wednesday, Sept. 12
Midterm exam: Friday, Oct. 5
Final exam: Wednesday Dec 12, 4:00pm-5:45pm

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.