Introduction to Computer Science 2
Syllabus 2021 Spring

1. (February 8.) Basic enumeration types, binomial coefficients, binomial theorem, Pascal's triangle.

2. (February 15.) Fundamentals of graph theory: basic definitions, connectedness, trees.

3. (February 22.) Spanning trees, BFS, Kruskal's algorithm.

4. (March 1.) Euler trails and circuits, Hamilton paths and cycles.

5. (March 8.) Colorings of graphs: vertex coloring, bounds on the chromatic number, Zykov's construction.

6. (March 22.) Interval graphs. Matchings. Gallai's theorems.

7. (March 29.) Matchings (cont'd). Theorems of König, Hall and Tutte.

8. (April 12.) Edge-chromatic number. Flows in networks.

9. (April 19.) Flows in networks (cont'd). Max flow-mincut theorem. Edmonds-Karp theorem.

10. (April 26.) Menger's theorems. Higher connectivity of graphs.

11. (May 3.) Shortest paths: Dijkstra's and Ford's algorithms.

12. (May 10.) DFS, DAG, longest paths in DAGs.