

# Schedule

A week-by-week breakdown of the material.

## Week 1

**Day 1** Introduction

**Day 2** Graphs, Euler Circuits, Valence<sup>1</sup>

**Day 3** Hamiltonian Circuits, Complete Graphs<sup>2</sup>

**Day 4** Traveling Salesman Problem<sup>3</sup>  
Minimum Cost Spanning Trees<sup>4</sup>

**Day 5** Cut Property for MST's and Shortest-Paths Algorithms<sup>5</sup>  
Directed Graphs, Critical Paths<sup>6</sup>

## Week 2

**Day 1** Priority Lists, Scheduling, Independent Tasks<sup>7</sup>

**Day 2** Bin-packing, Vertex-Coloring<sup>8</sup>

**Day 3** MIDTERM 1

**Day 4** Linear Programming, Mixture Problems<sup>9</sup>

**Day 5** Transportation Problems, Tableaux<sup>10</sup>

## Week 3

**Day 1** Voting Systems, Majority Rules<sup>11</sup>

**Day 2** Voting with more than 3 candidates<sup>12</sup>  
Arrow's theorem<sup>13</sup>

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<sup>1</sup>[notes/graphs\\_euler.html](notes/graphs_euler.html)

<sup>2</sup>[notes/graphs\\_hamiltonian.html](notes/graphs_hamiltonian.html)

<sup>3</sup>[notes/graphs\\_tsp.html](notes/graphs_tsp.html)

<sup>4</sup>[notes/graphs\\_mst.html](notes/graphs_mst.html)

<sup>5</sup>[notes/cut\\_property\\_dijkstra.html](notes/cut_property_dijkstra.html)

<sup>6</sup>[notes/graphs\\_directed.html](notes/graphs_directed.html)

<sup>7</sup><notes/scheduling.html>

<sup>8</sup>[notes/bin\\_packing.html](notes/bin_packing.html)

<sup>9</sup><notes/linear.html>

<sup>10</sup><notes/tableaux.html>

<sup>11</sup>[notes/voting\\_majority.html](notes/voting_majority.html)

<sup>12</sup>[notes/voting\\_more\\_candidates.html](notes/voting_more_candidates.html)

<sup>13</sup>[notes/voting\\_arrow.html](notes/voting_arrow.html)

### **Day 3** Manipulability<sup>14</sup>

Impossibility, Chair's Paradox<sup>15</sup>

### **Day 4** MIDTERM 2

### **Day 5** Error-Correcting, Identification Numbers<sup>16</sup>

## **Week 4**

### **Day 1** Binary Codes, Parity Check<sup>17</sup>

### **Day 2** Data Compression<sup>18</sup>

### **Day 3** Cryptography<sup>19</sup>

### **Day 4** Wrap-up

### **Day 5** MIDTERM 3

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<sup>14</sup>[notes/voting\\_manipulability.html](#)

<sup>15</sup>[notes/voting\\_chairs.html](#)

<sup>16</sup>[notes/codes\\_ecc.html](#)

<sup>17</sup>[notes/codes\\_binary.html](#)

<sup>18</sup>[notes/codes\\_compression.html](#)

<sup>19</sup>[notes/crypto.html](#)