# Stuff from MAT118 that you know but don't need to memorize

- The winner of a plurality election receives the most first-place votes.

- In the Borda count, points given based on first choice, second choice, etc.

- In Instant Runoff (or plurality with elimination), candidates with the least votes are repeatedly removed.

- A candidate who wins all head-to-head competitions is the Condorcet winner.

- The pairwise comparison method (Copeland's Method) compares each candidate in head-to-head competitions.

- In a weighted voting system, a player who has no power is called a "dummy" and a player with all the power is a "dictator".

- The Banzhaf power index depends on who is the critical player in the (unordered) winning coalitions.

- The Shapely-Shubik power index depends on who is the pivotal player in sequential (ordered) voting.

- An Eulerian Circuit (or path) is one which contains each edge exactly once.

- A Hamiltonian Circuit (or path) contains each vertex exactly once.

- The nearest neighbor algorithm for solving the traveling salesman problem builds a Hamiltonian circuit by choosing the cheapest edge at each stage.

- The greedy algorithm (also called cheapest link) for solving the traveling salesman problem takes the cheapest edges (not in order), as long as they will eventually form a circuit.

- A spanning tree in a graph is a tree using some of the edges of the original graph to connect all of the vertices.

- A coloring of a graph assigns colors to its vertices so that no two vertices connected by an edge are the same color.

- The chromatic number of a graph $G$ is denoted $\chi(G)$ and is the minimum number of colors needed to color $G$.