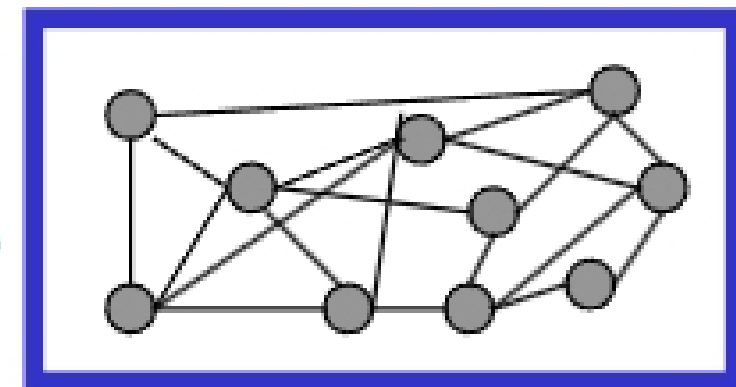


Today's topics

- Graphs
 - Basics & types
 - Properties
 - Connectivity
 - Hamilton & Euler Paths
- Reading: Sections 8.1-8.5

Simple Graphs

- Correspond to symmetric, irreflexive binary relations R .
- A simple graph $G=(V,E)$ consists of:
 - a set V of vertices or nodes (V corresponds to the universe of the relation R),
 - a set E of edges / arcs / links: unordered pairs of [distinct] elements $u,v \in V$, such that uRv .



*Visual Representation
of a Simple Graph*

Example of a *Simple Graph*

- Let V be the set of states in the far-southeastern U.S.:
 - *I.e.*, $V = \{FL, GA, AL, MS, LA, SC, TN, NC\}$
- Let $E = \{ \{u, v\} \mid u \text{ adjoins } v \}$
 $= \{ \{FL, GA\}, \{FL, AL\}, \{FL, MS\}, \{FL, LA\}, \{GA, AL\}, \{AL, MS\}, \{MS, LA\}, \{GA, SC\}, \{GA, TN\}, \{SC, NC\}, \{NC, TN\}, \{MS, TN\}, \{MS, AL\} \}$

