

## Lecture 17 Outline

**Reading:** *text*, §16.1–16.2, 32

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1. Information flow
  - a. Information flow policy, confidentiality policy, integrity policy
  - b. Example
2. Entropy
  - a. Random variables
  - b. Joint probability
  - c. Conditional probability
  - d. Entropy (or uncertainty in bits)
  - e. Joint entropy
  - f. Conditional entropy
3. Entropy-based analysis
  - a. Flow of information from  $x$  to  $y$
  - b. Implicit flow of information
4. Non-lattice policies
  - a. Transitivity
  - b. Information flow policy
  - c. Confinement flow model
5. Transitive non-lattice policies
  - a. Quasi-ordered sets
6. Non-transitive policies
  - a. Dual mappings
  - b. Theorem: a dual mapping from a reflexive information flow policy into an ordered set is order-preserving