

# Key Objectives

- Teach you to do proofs by induction and by contradiction
- Teach you to think inductively, and use this approach to design provably correct algorithms
- Teach you think think logically
- Teach you to communicate clearly without too much notation (e.g., to write good pseudo-code) about algorithms, and why they are correct
- Teach you to recognize common graph-theoretic problems and use existing methods to solve real world problems
- Teach you to design new algorithms using basic algorithm design techniques (e.g., dynamic programming)
- Teach you to analyze running time and communicate this with Big-O notation