

## Midterm Exam Review

## Ground rules

- Here:
  - Next class
  - 6pm – 8pm
  
  - Closed book / notes
  - 1 page study guide allowed
  
  - 6 questions
    - Grade will be sum of highest 5

## Material covered

- Essentially
  - Regular Languages
  - Chapters 3,4,5
  
  - You may see material in Chapters 1 & 2 but only in relation to regular languages

## Material covered

- Concepts
  - What is a regular language?
  - What is a finite automata?
  - What is the difference between a FA, N DFA, and N DFA- $\Lambda$
  - Know the formal description of above

## Material covered

- Algorithms:
  - Union, Intersections, Complements, and Differences
    - Given FAs construct FAs for union, intersection & difference
  - Removal of  $\Lambda$ - Transitions
    - Going from N DFA- $\Lambda$  to N DFA
  - Removal of non-determinism
    - Going from N DFA to FA
  - Kleene's Theorem Proof
    - Going from RE to N DFA - $\Lambda$
    - Going from FA to RE
  - Minimal Finite Automata
    - FA to FA with smallest number of states

## Material covered

- Proofs:
  - No formal proofs
    - May ask you to show something...but not formally prove something
  - EXCEPT
    - Using the Pumping Lemma is fair game.