The midterm will be on Th, 2-5, during class. The exam is closed book!
The midterm will cover chapters 1-4.3 of our text.

1. Given an English description of a language, produce a regular expression (or an FA, NFA with or without λ-transitions, or a CFG) for the language.

2. Same as above but the opposite direction.

3. Given an FA (NFA) produce a regular expression for the language accepted by the machine model (or vica versa).

4. Conversion of an NFA with λ transitions to an NFA without λ transitions.

5. Use subset construction for a converting an NFA without λ transitions to an FA.

6. State minimization of FA’s.

7. Given two FA’s find an FA that accepts the intersection (use the cross product construction).

8. Finding (pairwise) distinguishable sets with respect to a language or an FA.

9. Constructive proofs for closure properties of regular languages.

10. Proving languages non-regular using a version of the Pumping Lemma for regular languages or by giving a set of pairwise distinguishable words of infinite cardinality.

11. Decision problems and decision algorithms regarding regular languages.

12. Closure properties of regular languages.

13. Show that two minimum state FA’s are isomorphic or not.

14. There will be only very basic questions about context free grammars on the test (till Section 4.3).