**CS 291 Exam Three Terms and Concepts**

**Hein Section 3.3 Grammars**

* Know how to do derivations given a grammar.
* Be able to find a grammar for a language given a description of the language.
* Understand how to show that a grammar is ambiguous by finding two parse trees for the same sentence.

**Hein Section 11.1 Regular Languages**

* Given a description of a language, be able to find a regular expression for it.
* Know how to do simple manipulations to show that two regular expressions are equivalent.

**Hein Section 11.2 Finite Automata**

* Given a DFA or NFA, be able to write down the transition table.
* Given a regular expression, be able to construct a DFA or NFA for recognizing that language.
* Given an FA, be able to find an equivalent regular expression.
* Understand Mealy Machines and Moore Machines and be able to show what their output would be given an input string.

**Hein Section 11.3 Constructing Efficient Finite Automata**

* Be able to find the *lambda closure* of an NFA state or set of states.
* Know how to convert an NFA into an equivalent DFA.

**Hein Section 11.4 Regular Language Topics**

* Know how to use the *Pumping Lemma for Regular Languages* to show that particular languages are not regular.