

## Topics For Exam 2

1. Grammars, derivations and parsing. We talked a little about context-sensitive grammars but the exam is only over context-free grammars. We talked about how to design grammars to determine the precedence and associativity of operators and those things will not be on the exam. I do expect you to be able to write a grammar from the description of a language, to derive a string from a grammar or to construct the parse tree for a string derived from a grammar.
2. PDAs. You should be able to construct them.
3. PDAs are equivalent to grammars. Given a grammar you should be able to construct and use an equivalent PDA. Given a PDA you should be able to produce a derivation of any string accepted by the PDA from the grammar we constructed that is equivalent to the PDA. In other words, I am unlikely to ask for the full grammar, but you should be able to derive strings in it.
4. You should be able to convert a grammar to Chomsky Normal Form and know why we do that.
5. You should be able to use the Pumping Lemma to show that a language is not context free.
6. To show that a language is context free find either a grammar or a PDA for it.
7. You should know the closure properties of context-free languages (unions? intersections? complements?)