

CSE 341 Final Exam Topic List

March 7, 2006

The following are the major topics that may be covered on the CSE 341 final exam, which will take place Monday, March 13 at 8:30 am. There will be time to review in sections this Thursday. An additional review session will be held Sunday, March 12, at 3 pm in EE1 037.

The final exam will lean towards topics covered since the midterm, but anything in the course might appear on the final, particularly relationships between newer and older material. So, in addition to the new items below, you will want to refresh your memory of previous topics.

- Scheme basics: syntax, evaluation, special forms (define, lambda, conditionals, let), variable length argument lists (varargs)
- Binding forms (define, parameters, let and its variations)
- Parameter passing mechanisms: call-by-value, call-by-name, call-by-need (lazy evaluation)
- Use of closures to realize thunks, streams, and memoization
- Basic idea of continuations; continuations as exceptions
- Implementation strategies: basic difference between compilers and interpreters
- Scheme implementation: environments, eval/apply, using closures to implement higher-order functions
- Type systems design and tradeoffs; static vs. dynamic typing
- Smalltalk basics: concepts and vocabulary including syntax, messages, classes and methods, blocks (closures), `self` and `super`
- Smalltalk name resolution, dynamic dispatch (meaning and basic implementation ideas), late binding
- Classes as objects in Smalltalk — difference from other languages, e.g., Java
- Other object-oriented programming issues: fragile superclasses, multiple inheritance, multimethods
- Typing and subtyping issues in object-oriented languages; types vs. classes; parametric polymorphism vs. subtyping