

CSE 341 - Programming Languages - Autumn 2012

Potential midterm exam topics (and study checklist)

(list subject to updating up until a week before the test)

General Concepts

- types:
 - static vs. dynamic typing
 - type safety
 - type inference
 - polymorphism
- functional vs. imperative languages; functional subset of language
- higher-order functions
- closures
- equality vs. identity (and when it matters)
- compile time vs. run time
- recursion; tail recursion

Haskell

- functions, including higher-order functions, currying, and anonymous functions
- lexical scoping
- types: polymorphic types; type inference, declarations; user-defined types, including recursive types; type classes; inheritance
- referential transparency
- lazy evaluation; infinite data structures
- pattern matching
- list comprehensions
- monads; I/O in Haskell
- correct Haskell vocabulary (For example, "do" in Haskell defines a block. Haskell does not have loops, assignments, or statements.)
- applicative vs. normal order evaluation

Racket

- constructing and navigating list structures
- scoping issues (lexical scoping, global variables, parameters, let, let*, environments)
- function definition; anonymous functions; special forms
- recursion; tail recursion
- eval and apply
- programs as data
- side effects in Racket
- the MUPL interpreter

Non-Topics

These topics won't be on the midterm (but may be on the final):

- Racket macros; macro hygiene
- functions with variable number of arguments; improper lists
- quasi-quoting
- lexical vs. dynamic scoping
- exception handling