**CPE 203** **– Midterm**  
**Study Guide**

\*\* Disclaimer \*\*

This list is not necessarily exhaustive. Just because it isn't on the list doesn't mean it won't be on the midterm.

Basic Classes / Terminology

* instance variables
* class vs. object
* constructors
* declaring constants
* static
* final
* public / private / protected
* primitives - boolean, int, double, etc
* arrays (creating, iterating through)
* common classes - String, Math, ArrayList, HashMap, etc.
* mutable/immutable
* Primitive wrapper classes (including auto-boxing and auto-unboxing)

Java Syntax

* if statements
* while loops
* for loops
* for-each loops

Interacting Classes

* calling methods of another class and of your own class
  + Static methods
  + Instance methods
  + Fields / data members (static and instance)
* main()
* testing – JUnit, writing test cases

Exceptions

* Throwing
* Catching
* finally block
* Checked vs. unchecked (RuntimeException)

Interfaces

* creating one
* implementing one
  + With an explicit class
  + With an inner class
  + With a lambda expression
* references of the interface type
* polymorphism / implementing (“overriding”) methods
* determining if code will Always work, might Crash at Runtime, or Won’t Compile
* Using interfaces to reduce coupling between modules, particularly for utilities (sort, etc.)
  + Open/Closed principle
* Comparator interface

Inheritance

* Abstract Class
* Abstract Method
* Superclass / Subclass
* final to prevent subclassing
* Calling superclass constructor
* Calling superclass method
* Overriding Methods
* Overriding Object.hashCode() and Object.equals(Object)
  + Using as a key in a hash table
* Type casting / downcasting
* instanceof

Design

* Designing a simple class
* When to use instance vs. static method
* Choosing appropriate classes for methods
* Using interfaces to define an API
* Open/Closed Principle

Understand all code (and be able to read/write similar code) that you have written for Labs and Projects.

Understand all code (and be able to read/write similar code) that has been handed out and/or discussed in class, except where specifically noted (for example, your should understand the code in week\_03/3\_add\_triangle, with the exception of MyGUI.java, because MyGUI.java has a comment saying to not worry about the contents of that file).