

## **Midterm Review FPP**

1. The midterm will be timed 10:00 am to 12:30 in Dalby Hall on Friday.
2. The midterm will be closed book, closed notes, and no use of laptops or electronic devices.
3. Structure of exam: True/False, Multiple Choice, Short Answer and two programming questions. Note that several multiple choice questions will be like those given in Quizzes 1 and 2
4. Topics to be prepared for
  - A. Points mentioned in the document lesson\_2\_review.pdf.
  - B. Rules concerning static variables and methods. For example, static methods cannot access instance variables or instance methods
  - C. Rules concerning visibility qualifiers private, public and package level.
  - D. Know how the bitwise operators work – be prepared to do a computation (you will be given a copy of the table of Precedence Rules)
  - E. Know the rules for Java 8 interfaces.
  - F. Know the rules for working with the four types of nested classes.
  - G. Know the rules for inheritance
    - i. Constructor rules
    - ii. What kind of access does a subclass have to superclass methods and variables?
    - iii. Order of initialization when a subclass constructor is invoked.
    - iv. Dynamic binding
  - H. Apply the principle that Java passes arguments by value not by reference.
  - I. Overriding equals. You should know three ways to do this (including use of composition instead of inheritance) and best practices concerning these approaches

- J. You need to know what a "functional interface" is and how to use the `@FunctionalInterface` annotation
- K. You need to know how to use the `Comparable` interface (Comparators will be on the final exam, not the midterm)
- L. **Programming Questions.**
  - a. You will be given a programming problem about polymorphism -- see Lesson 4 and lab problem prog4-2
  - b. You will be given a programming problem concerning the `equals` method -- see prog4-6.
- M. **SCI.** There will be a question that asks you to write a short essay on the relationship between SCI principles and principles discussed in the course so far. Richer content will be awarded more credit.

### **Practice Problems for the Midterm**

See the practice problem mentioned in MidtermReview in Sakai.