CSE 148 Object Oriented Programming

Instructor: B. Chen
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Office Hours: Monday, Wednesday: 9:30am -- 12:00pm; 2:30pm – 3:30pm
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1. OUTCOMES OF THE COURSE

Students who successfully complete this course will be able to:
1. Construct multiple-file or multiple-module programming solutions that use class hierarchies, inheritance, and polymorphism to reuse existing design and code.
2. Construct object oriented programming solutions for reuse, using Abstract Data Types that incorporate encapsulation, data abstraction, and information hiding.
3. Create programming solutions that use data structures and existing libraries.
4. Design and develop secure and fault‐tolerant programs that mitigate potential security vulnerabilities.
5. Discuss significant trends and societal impacts related to computing, software, and the Internet.
6. Produce graphical user interfaces that incorporate simple color models and handle events.
7. Handle binary I/O, object I/O, and random access files.
8. Use recursion to solve simple programming problems: factorials, Fibonacci numbers, and tower of Hanoi
9. Proficiently use a professional IDE such as Eclipse or Netbeans for coding and debugging.
10. Write secure programs of at least 500 lines of source code with multiple functions and multiple classes involving GUI, binary and object I/O, inheritance, polymorphism, abstract classes and interfaces, and commonly used data structures.

2. PROCEDURES FOR ACCOMPLISHING THESE OUTCOMES

Face-to-face Lectures, in-class discussions, instructor-led lab sessions, weekly student homework assignments and programming projects.

3. Attendance Policy

Students are expected to complete all assigned work on time, to attend class regularly and to participate in class discussions and activities. Excessive absence is defined by the college as more than one week's class(es). Lateness is equivalent to ½ of an absence. Excessive absences or lateness, whether excused or unexcused, may result in a grade penalty and/or removal from the class roster. Please keep the instructor informed of any anticipated absences.

4. Class Policy

CSE 148 is an academic course where students are expected to share responsibility with the instructor for both the teaching and learning in the course. Our community of learners will be a respectful environment personifying the principles of Suffolk County Community College.

5. Grading Policy

1. Two in-class coding exams: 30% each
2. One Independent final project: 30%

3. Weekly homework assignments and programming projects: 10%

6. TEXTBOOK

Introduction to Java Programming, 11th edition, Y. Daniel Liang. ISBN: 978-0-13-467094-2

7. WEEKLY OUTLINE TOPICS TO BE COVERED (Tentative, and subject to change)

1. Review of objects and classes
2. Advanced objects and classes: class abstraction and encapsulation, processing primitive data type values as objects, automatic conversion between primitive types and wrapper class types
3. Advanced objects and classes: The BigInteger and BigDecimal classes, the String class, and StringBuilder and StringBuffer classes
4. Inheritance and polymorphism: superclasses and subclasses, overriding methods.
5. Inheritance and polymorphism: Object class and its toString() method, polymorphism, dynamic binding, casing objects and the instanceof method, the Object's equals method, the ArrayList class, the protected data and methods, preventing extending and overriding
6. Exception handling and text I/O
7. Abstract classes and interfaces
8. Abstract classes and interfaces
9. Java FX basics: JavaFX vs swing and AWT, basic structure of a JavaFX program, panes, UI controls, and shapes, property binding, nodes
10. Java FX basics: the Color class, the Font class, the Image and ImageView classes, Layout panes and shapes.
11. Event-driven programming and animations: Events and event sources, registering handlers and handling events
12. Event-driven programming and animations: Inner classes, anonymous inner class handlers, lambda expressions, mouse events, key events, listeners for observable objects, animation
13. JavaFX UI controls and multimedia: Label, Button, Checkbox, RadioButton, TextField, TextArea, ComboBox, ListView, ScrollBar, and Slider
14. Binary I/O and object I/O
15. Recursion: factorials, Fibonacci numbers, and Tower of Hanoi.