SUFFOLK COUNTY COMMUNITY COLLEGE
Western Campus
Brentwood, New York

COURSE OUTLINE

COURSE TITLE:  Principles of Computing Using Java I        CATALOG NO:  CST141

INSTRUCTOR:  Prof. Carl B. Struck        SEMESTER:  Fall 2021

OFFICE:  Nesconset Hall – Suite N1 (Room 4) (851-6288)        MESSAGES:  851-6770

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|---|---|
| Monday • 12:30 - 2:10 | Wednesday • 2:10 - 3:10 |
| Tuesday • 1:10 - 2:00 | Thursday • 8:45 - 9:30 |

E-MAIL:  struckc@sunysuffolk.edu        WEB ADDRESS:  www.profstruck.net

TEXTBOOK:

Liang, Y. D.  Introduction to Java™ Programming, Brief Version, 11th Edition.  Upper Saddle
River, NJ:  Pearson Education, Inc., 2018.  (ISBN 978-0-13-461103-7 –or– VitalSource on-line
version 978-0-13-467172-7)

SUPPLIES:

- Sun™ Java™ SE Development Kit (JDK) 11.0.9 compiler and virtual machine software from
  the Sun Developer Network (it is important that you install the "Sun™ Java™ JDK" compiler
  software before installing any of the software below) (see instructor's website)
- Sun™ Java™ SE Development Kit (JDK) Version 8 (needed for the chapters that use JavaFX)
- BlueJ 4.2.2 Java development environment (see instructor's website)
- Apache NetBeans IDE 12.2 ® (integrated development environment) (see instructor's website)
- USB flash drive (memory stick) or some other storage device for saving files.

COURSE OBJECTIVES:

At the end of this course, students will be able to:

1. Define and use various programming concepts such as problem solving, top-down design, and
   structure charts

2. Define and use the following Java concepts:

   a) Constant, type and variable declarations
   b) Built-in and user-defined methods with parameters
   c) Arithmetic and Boolean expressions
   d) Assignment, selection, and repetition statements
   e) One- and two-dimensional arrays
   f) Objects and classes including inheritance, polymorphism, abstract classes and interfaces
   g) Strings
   h) GUI (graphical user interfaces) basics and event driven programming
   i) Exception handling
   j) Text and binary I/O
   k) Recursion

PROCEDURES FOR ACCOMPLISHING THESE OBJECTIVES:

1. Class lectures and discussions.
2. Use of audio-visual devices and IBM compatible computers.
3. Homework review and practice problems from textbook and other sources.
4. Application problems on IBM compatible computers.

STUDENT REQUIREMENTS FOR COMPLETION OF THE COURSE:

- Two in-class examinations (10% each):                                              20%
- Comprehensive final examination:                                                   15%
- Programming assignments:                                                           50%
- Unit quizzes: *(see below)*                                                        15%

Do not expect to get an "A" grade for doing the base project; rather that grade is reserved for students who go beyond the requirements of the assignment.

Multiple-choice *unit quizzes* based upon the assigned textbook readings will be given for most chapters.   Quizzes located in Blackboard consist of ten questions each and will be "open book."   All quizzes must be completed by the due date listed in the course outline before 9:30 a.m. when class begins that day.

Students must submit projects to the instructor via Blackboard, an Internet website maintained jointly by Suffolk Community College and the SUNY Learning Network.   All assignments and projects are due by the end of the day (11:59 p.m.) on the date announced unless otherwise stated. No late assignments will be accepted unless an extension date is *prearranged* with the instructor.

Although computer lab time may be scheduled each week during class time, students should be aware that additional hands on computer time outside of class may be necessary to complete the requirements of this course.

ATTENDANCE REQUIREMENTS:

"The College expects that each student will exercise personal responsibility with regard to class attendance.   All students are expected to attend every class session of each course for which they are registered.   Students are responsible for all that transpires in class whether or not they are in attendance.   The College defines excessive absence or lateness as more than the equivalent of one week of class meetings during the semester.   Excessive absence or lateness may lead to failure in a course or removal from the class roster."   (College Catalog)

Attendance is not a factor in the computation of the course grade but may be a factor in determining class participation.   It is the student's responsibility to make his/her attendance known to the instructor if arriving late.   Students who stop attending classes *without officially withdrawing* from the course will receive a failing grade (F).

SCHEDULE OF TOPICS TO BE COVERED:

Jan 26 – Feb 2

- ✓ Objects and Classes
- ✓ Reading: Chapter 1 (Section 1.7) and Chapter 9 (Unit Quiz: Feb 2)
- ✓ **Project 1**–**Stock** class (Exercise 9.2) (Due: Feb 4)
- ✓ **Project 2**–**Fan** class (Exercise 9.8) or **RegularPolygon** class (Exercise 9.9) (Due: Feb 11)

Feb 4 – 11

- ✓ Object-Oriented Thinking
- ✓ Reading: Chapter 1 (Section 1.9), Chapter 2 (Section 2.9) and Chapter 10 (Unit Quiz: Feb 4)
- ✓ **Project 3**–**MyPoint** class (Exercise 10.4) (Due: Feb 18)

Feb 16 – 23

- ✓ Inheritance and Polymorphism
- ✓ Reading: Chapter 11 (Unit Quiz: Feb 16)
- ✓ **Project 4**–**Triangle** and **GeometricObject** classes (Exercise 11.1) or **CommunityMember**, **Student**, and **Undergraduate** or **Graduate** classes (*not from textbook*) (Due: Mar 4)

Feb 25

- ✓ **EXAM 1**

Mar 4 – 11

- ✓ Exception Handling and Text I/O
- ✓ Reading: Chapter 12 (Unit Quiz: Mar 4)
- ✓ **Project 5**–**ArrayIndexOutOfBoundsException** (Exercise 12.3) or **CupOfCoffee** class (*not from textbook*) (Due: Mar 16)
- ✓ **Project 6**–**Reformat Java source code** (Exercise 12.12) or **Write/read sorted data** (Exercise 12.15) (Due: Mar 23)

Mar 16 – 23

- ✓ Abstract Classes and Interfaces
- ✓ Reading: Chapter 13 (Unit Quiz: Mar 16)
- ✓ **Project 7**–**Shape and Parallelogram** classes (*not from textbook*) or **Employee**, **SalesPerson** and **Executive** classes, and **SalaryConstants** interface (*not from textbook*) (Due: Mar 30)

Mar 25 – Apr 1

- ✓ JavaFX Basics
- ✓ Reading: Chapter 14 (Unit Quiz: Mar 25)
- ✓ **Project 8**–**Display images** (Exercise 14.1) or **Display three cards** (Exercise 14.3) or **Display a bar chart** (Exercise 14.12) (Due: Apr 8)

Apr 6

- ✓ **EXAM 2**

Apr 8 – 15

- ✓ Event-Driven Programming and Animations
- ✓ Reading: Chapter 15 (Unit Quiz: Apr 8)
- ✓ **Project 9**–**Create an investment-value calculator** (Exercise 15.5) or **GuessingGame** (*not from textbook*) (Due: Apr 20)
- ✓ **Project 10**–**Rotate a rectangle** (Exercise 15.2) or **Move the ball** (Exercise 15.3) or **Geometry: pendulum** (Exercise 15.31) or **Game: bean-machine animation** (Exercise 15.33) (Due: Apr 27)

Apr 20 – 27

- ✓ Binary I/O
- ✓ Reading: Chapter 17 (Unit Quiz: Apr 20)
- ✓ **Project 11**–**Create a binary data file/Sum all the integers in a binary data file** (Exercises 17.2 and 17.3) or **Store loan objects/Restore objects from a file** (Exercises 17.6 and 17.7) or **Books database** (*not from textbook*) (Due: May 4)

Apr 29 – May 6

- ✓ Recursion
- ✓ Reading: Chapter 18 (Unit Quiz: Apr 29)
- ✓ **Project 12**–**Compute greatest common divisor using recursion** (Exercise 18.3) or **Print characters in a string reversely** (Exercise 18.9) or **Create a maze** (Exercise 18.26) (Due: May 11)

May 11

- ✓ **COMPREHENSIVE FINAL EXAM**