

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 2019

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

MESSAGES: 851-6770

Monday • 11:10 - 12:30

Tuesday • 10:30 - 11:30

Thursday • 10:30 - 11:30

Tuesday • 3:10 - 4:00

Thursday • 3:10 - 4:00

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TEXTBOOK:

Liang, Y. D. Introduction to Java™ Programming, Brief Version, 11<sup>th</sup> 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:

- Java SE Development Kit (JDK) 11.0.4 compiler and virtual machine software from Oracle (it is important that you install the “Java JDK” compiler software before installing any of the software below) (see instructor’s website)
- BlueJ 4.2.1 Java development environment (see instructor’s website)
- Apache NetBeans IDE 11.1 ® (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:

- Three “hands-on” in-class examinations (10% each): 30%
- Programming assignments: 50%
- Unit quizzes: (*see below*) 20%

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. Final grade will not be more than ten (10) percentage points higher than the examination average.

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 at home or in a computer lab by the due date listed in the course outline before 12:30 a.m. when class begins that day.

Students must submit all projects via Blackboard, an Internet website maintained jointly by Suffolk Community College and the SUNY Learning Network. Students who do not have Internet access from home can get access from the computer labs on campus.

NO MAKE-UP EXAMS will be given unless the instructor so decides. However, no student will be allowed to make up an examination that has been returned and discussed in class. 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 lab time outside of class may be necessary to complete the requirements of this course. Students without their own computer at home should plan to spend an additional 3 to 6 hours per week in the Caumsett Hall room 207 computer lab.

## 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:

Sept 4 – 11

- ✓ Objects and Classes
- ✓ Reading: Chapter 1 (Section 1.7) and Chapter 9 (Unit Quiz: Sept 11)
- ✓ **Project 1–Stock** class (Exercise 9.2) (Due: Sept 16)
- ✓ **Project 2–Fan** class (Exercise 9.8) or **RegularPolygon** class (Exercise 9.9) (Due: Sept 23)

Sept 16 – 23

- ✓ Object-Oriented Thinking
- ✓ Reading: Chapter 1 (Section 1.9), Chapter 2 (Section 2.9) and Chapter 10 (Unit Quiz: Sept 16)
- ✓ **Project 3–MyPoint** class (Exercise 10.4) (Due: Sept 30)

Sept 25 – Oct 2

- ✓ Inheritance and Polymorphism
- ✓ Reading: Chapter 11 (Unit Quiz: Sept 25)
- ✓ **Project 4–Triangle** and **GeometricObject** classes (Exercise 11.1) or **CommunityMember**, **Student**, and **Undergraduate** or **Graduate** classes (*not from textbook*) (Due: Oct 9)

Oct 7

- ✓ **EXAM 1**

Oct 9 – 16

- ✓ Exception Handling and Text I/O
- ✓ Reading: Chapter 12 (Unit Quiz: Oct 9)
- ✓ **Project 5–ArrayIndexOutOfBoundsException** (Exercise 12.3) or **CupOfCoffee** class (*not from textbook*) (Due: Oct 21)
- ✓ **Project 6–Reformat Java source code** exercise (Exercise 12.12) or **Write/read sorted data** (Exercise 12.15) (Due: Oct 28)

Oct 21 – 28

- ✓ Abstract Classes and Interfaces
- ✓ Reading: Chapter 13 (Unit Quiz: Oct 21)
- ✓ **Project 7–Shape and Parallelogram** classes (*not from textbook*) or **Employee**, **SalesPerson** and **Executive** classes, and **SalaryConstants** interface (*not from textbook*) (Due: Nov 6)

Oct 30 – Nov 6

- ✓ JavaFX Basics
- ✓ Reading: Chapter 14 (Unit Quiz: Oct 30)
- ✓ **Project 8–Display images** (Exercise 14.1) or **Display three cards** (Exercise 14.3) or **Display a bar chart** (Exercise 14.12) (Due: Nov 13)

Nov 13

- ✓ **EXAM 2**

Nov 18 – Dec 2

- ✓ Event-Driven Programming and Animations
- ✓ Reading: Chapter 15 (Unit Quiz: Nov 18)
- ✓ **Project 9–Create an investment-value calculator** (Exercise 15.5) or **GuessingGame** class (*not from textbook*) (Due: Dec 2)
- ✓ **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: Dec 11)

Dec 4 – 11

- ✓ Binary I/O
- ✓ Reading: Chapter 17 (Unit Quiz: Dec 4)
- ✓ **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: Dec 18)

Dec 16 – 18

- ✓ Recursion
- ✓ Reading: Chapter 18 (Unit Quiz: Dec 16)
- ✓ **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: Dec 23)

Dec 23

- ✓ **COMPREHENSIVE FINAL EXAM**