

SUFFOLK COUNTY COMMUNITY COLLEGE
Western Campus
Brentwood, New York

COURSE OUTLINE

COURSE TITLE: Advanced Programming & Problem Solving with Java CATALOG NO: CST242

INSTRUCTOR: Prof. Carl B. Struck

SEMESTER: Spring 2021

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

MESSAGES: 851-6770

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: <http://www.profstruck.net>

TEXTBOOK:

Deitel, H. & Deitel, P. Java How to Program, Late Objects, 11th Edition. Upper Saddle River, NJ: Pearson Education, Inc., 2018. (ISBN 978-0-13-469450-4)

SUPPLIES:

- Sun™ Java™ SE Development Kit (JDK) 11.0.6 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)
- Apache NetBeans IDE 11.2 ® (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. Design, write and debug maintainable, adaptable, and reusable Java programs of mid to high complexity
2. Design, write and debug GUI applications incorporating JavaFX classes
3. Understand OOD/OOP, i.e. abstraction, encapsulation, information hiding and polymorphism
4. Use some additional Java packages including use of String and text collections, inheritance and interfaces
5. Implement abstract classes and methods
6. Be familiar with Java concepts such as multi-threading, exception handling and wrapper classes
7. Understand programming concepts such as multidimensional arrays, recursion and use of Java in networks
8. Understand files and streams

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:

- Eleven (11) Java and C# language computer programming assignments: 50%
- A “take home” midterm exam 10%
- A comprehensive final project 25%
- 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 12:30 p.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
 - ✓ Objects, Classes and Inheritance
 - ✓ Reading: Chapter 9

- Jan 28
 - ✓ Abstract Classes and Interfaces
 - ✓ Reading: Chapter 10
 - ✓ **Project 1** (Due: Feb 2)

- Feb 2 – 9
 - ✓ JavaFX Graphical User Interfaces (Part 2)
 - ✓ Reading: Chapter 13 (Unit Quiz: Feb 2)
 - ✓ **Project 2** (Due: Feb 9)
 - ✓ **Project 3** (Due: Feb 16)

- Feb 11 – 18
 - ✓ Strings, Characters and Regular Expressions
 - ✓ Reading: Chapter 14 (Unit Quiz: Feb 11)
 - ✓ **Project 4** (Due: Feb 23)

- Feb 23 – Mar 4
 - ✓ Generic Collections
 - ✓ Reading: Chapter 16 (Unit Quiz: Feb 23)
 - ✓ **Project 5** (Due: Mar 4)
 - ✓ **Project 6** (Due: Mar 11)

- Mar 9 – 16
 - ✓ Searching, Sorting and Big O
 - ✓ Reading: Chapter 19 (Unit Quiz: Mar 9)

- **“Take Home” Midterm Exam** (Due: Mar 18)

- Mar 18 – 25
 - ✓ Generic Classes and Methods
 - ✓ Reading: Chapters 20 & 21 (Unit Quiz: Mar 18)
 - ✓ **Project 7** (Due: Mar 25)
 - ✓ **Project 8** (Due: Apr 1)

- Mar 30 – Apr 1
 - ✓ Concurrency
 - ✓ Reading: Chapter 23 (Unit Quiz: Mar 30)
 - ✓ **Project 9** (Due: Apr 8)

- Apr 6 – 8
 - ✓ Windows Forms in C#
 - ✓ Reading: Creating Windows Forms Applications with C# - by Jason Pursell, University of Washington, Bothell (2000-2003) (see instructor's website)
 - ✓ **Project 10** (Due: Apr 15)

- Apr 13 – 20
 - ✓ Windows Forms Database
 - ✓ **Project 11** (Due: Apr 27)

- Apr 22 – May 11
 - ✓ Introduce: ATM Case Study
 - ✓ Reading: Chapters 33 and 34
 - ✓ **COMPREHENSIVE FINAL PROJECT** (Due: May 11)