



## University of International Business and Economics International Summer School

### CS 320 Introduction to JAVA Programming

**Term:** June 13<sup>th</sup> – July 14<sup>th</sup>, 2022

**Instructor:** Dr. An

**Home Institution:** University of International Business and Economics

**Email:** xiangdong.an@hotmail.com

**Class Hours:** Monday through Thursday, 120 minutes each day (2,400 minutes in total)

**Office Hours:** TBD

**Discussion session:** 2 hours each week

**Total Contact Hours:** 64 contact hours (45 minutes each, 48 hours in total)

**Location:** WEB

**Credit:** 4 units

#### **Course Description:**

This summer course is for international school, for undergraduate students. No prior programming experience is required. This course covers the fundamental of algorithmic problem solving. The course emphasizes general programming methodology and concepts common to object-oriented and procedural programming languages: algorithms, top-down structured programming design, modularity, efficiency, testing and debugging, and user-friendliness. The object-oriented paradigm is covered, including classes, objects, access control, abstraction, and encapsulation. Other topics include organization and hardware, input and output, subprogram units (methods), fundamental data types, reference types, control structures including conditions and iteration, and arrays.

#### **Course Goals:**

The goal of this course is to learn the fundamental problem-solving techniques using Java programming language. Throughout this course, students are able to master the programming design, coding, compiling, and debugging skills. The course covers from the basic elements of programming to high level programming methodologies.

Upon completion of this course, students will be able to complete the following learning objectives:

1. Identify the main programming features of the Java programming language.
2. Write Java applications using primitive types, input, and output statements.
3. Create interactive programs to input and process data to create acceptable output.
4. Learn what classes, objects, methods, and instance variables are and how to declare and use them.
5. Use the selection and repetition statements to execute statements in a program.
6. Use the logical operators to form complex conditional expressions in control statement.

7. Code programs to use methods call/return mechanism, method overloading and java API methods.
8. Write programs to declare and use single and multidimensional arrays to store and retrieve data from lists and table of values.
9. Use static and final variables to create class variables and methods.

**Required Textbook:**

Java Software Solutions (Foundations of Program Design); John Lewis, William Loftus; ISBN-13: 978-0-13-446202-8, ISBN-10: 0-13-44602-5

**Grading Policy:**

Your final grade will be assigned based on the following scheme:

- Programming Assignments           40%
- Quizzes                                   10%
- Midterm                                   20%
- Final                                       30%

**Grading Scale:**

Assignments and examinations will be graded according to the following scale:

<b>A</b>	90-100	<b>C+</b>	72-74
<b>A-</b>	85-89	<b>C</b>	68-71
<b>B+</b>	82-84	<b>C-</b>	64-67
<b>B</b>	78-81	<b>D</b>	60-63
<b>B-</b>	75-77	<b>F</b>	below 60

**Academic Integrity:**

If students are found to be in violation of the academic honesty policy, the professor reserves the right to seek disciplinary action as allowable by university policy. Such actions may include, but are not limited to, giving the student a zero on the assignment and/or class.

**Course Schedule:**

Date	Topics
Day 1	Introduction to computers, programs and java
Day 2	Variables, constant variable, Primitive data type, Arithmetic operators, and escape sequences.
Day 3	Assignment Operator, Operator precedence, Reading Input (Scanner class and methods)
Day 4	Selection Structure (if and if else), Relational operators

Day 5	Selection Structure (if... elseif... else, and switch statement), Logical operators
Day 6	Introduction to repetition structure, while loop.
Day 7	for loop and do... while loop.
Day 8	Random number generation, and nested loop
Day 9	File I/O (input and output)
Day 10	Midterm Exam
Day 11	Introduction to object-oriented programming
Day 12	Creating classes and objects, set and get method
Day 13	Object references, and access modifier
Day 14	Method call/return mechanism, method overloading
Day 15	Constructor and constructor overload, abstraction, and encapsulation
Day 16	Static field and method, Java API methods
Day 17	Single dimensional array
Day 18	Two-dimensional array
Day 19	Passing array to the methods, Array list
Day 20	Final Exam