COQUITLAM COLLEGE
Established 1982

COURSE OUTLINE

Last Revised: July 2015

COURSE INFORMATION

Course Title: Introduction to Computer Programming using Java **Course Number:** CSCI 102 **Credits:** 4

Total Weeks: 14 (Fall, Spring)
12 (Summer)

Total Hours: 71.5

Course Level: ☒ First Year ☐ Second Year
☐ New ☐ Revised Course
☐ Replacement Course

Department: Computer Science **Department Head:** M. O'Connor **Former Course Code(s) and Number(s) (if applicable):** N/A

Pre-requisites (If there are no prerequisites, type NONE): PREC 12 or MATH 100 or MATH 120

Co-requisite Statement (List if applicable or type NONE): NONE

Precluded Courses: N/A

COURSE DESCRIPTION

This course is an introduction to computer programming using the Java programming language. Principles of problem solving, and algorithm design will be introduced. Students will learn the fundamental programming concepts and techniques in the context of Java.

LEARNING OUTCOMES

Upon successful completion of the course, students will be able to:

- Describe the fundamental concepts of computer hardware and software.
- Describe the basic techniques of the program design in general and object-oriented programming.
- Write Java programs using object-oriented programming techniques.
- Describe different data types used in Java, declare, and define variables and constants.
- Use Java decision structures and repetitive structures.
- Describe and demonstrate simple enumeration in a program.
- Describe the concept of a class, class constructor and object of a class.
- Demonstrate a Java class, its methods (static, non-static, and overloaded) and describe how to create objects.
- Demonstrate how to draw UML diagrams.
- Use the predefined wrapper classes.
- Demonstrate how to write basic GUI applications.
- Use basic event-driven programming in an applet.
- Describe the nature and purpose of an array, use arrays in Java programs, order or sort elements in an array using fundamental algorithms such as the linear search and selection sort.
- Describe polymorphism and inheritance in general.
- Define interfaces to specify methods.
- Describe the notion of exception handling, use exception handling facilities effectively in your own classes and programs.
- Describe the concept of I/O stream and demonstrate data read and write operations in a Java program.
- Describe the concept of recursion and use recursion as a programming tool.

- Describe the general idea of linked data structures and how to implement them in Java.

INSTRUCTION AND GRADING

Instructional (Contact) Hours:

Type	Duration
Lecture	52
Seminars/Tutorials	
Laboratory	19.5
Field Experience	
Other (*specify):*	
Total	71.5

Grading System: Letter Grades ☒ Percentage ☐ Pass/Fail ☐ Satisfactory/Unsatisfactory ☐ Other ☐

Specify passing grade: 50%

Evaluation Activities and Weighting (total must equal 100%)

Assignments: 10% *Specify number of, variety, and nature of assignments:*	Lab Work: 5%	Participation: 5% *Specify nature of participation:*	Project: % *Specify nature of project:*
Quizzes/Test: 10%	Midterm Exam: 30%	Final Exam: 40%	Other: % *Specify:*

TEXT(S) AND RESOURCE MATERIALS

Provide a full reference for each text and/or resource material and include whether required/not required.

Java: An Introduction to Problem Solving and Programming, 7/E, Walter Savitch, Pearson-Prentice Hall, 2014. ISBN-10: 0133766268. ISBN-13:9780133766264.

COURSE TOPICS

List topics and sequence covered.

Week	Topic	Chapter
Week 1	Introduction to Computers and Java	1
Week 2	Basic computation	2
Week 3	Flow of control: branching	3
Week 4	Flow of control: loops	4
Week 5	Defining classes and methods	5

Week 6	More about objects and methods	6
Week 7	More about objects and methods **MIDTERM EXAM**	6
Week 8	Introduction to Arrays and ArrayList Class	7
Week 9	Inheritance, polymorphism, and interfaces	8
Week 10	Exception handling	9
Week 11	Streams, File I/0	10
Week 12	Recursion	11
Week 13	Introduction to dynamic data structures	12
Week 14	**FINAL EXAM**	

NOTES

1. Students are required to follow all College policies. Policies are available on the website at: Coquitlam College Policies
2. To find out how this course transfers, visit the BC Transfer Guide at: bctransferguide.ca