1. *Course number and name*
   CSC 210: Introduction to Computer Programming

2. *Credits and contact hours*
   3 credits
   Contact hours: 150 minutes of lecture sessions /week

3. *Instructor's or course coordinator's name*
   Course coordinator: William Hsu, Professor of Computer Science

4. *Text book, title, author, and year*
   Introduction to Java Programming, Y. Daniel Liang, Pearson, current edition
   a. *other supplemental materials*
      Lecture slides

5. *Specific course information*
   a. *brief description of the content of the course (catalog description)*
      Design, implementation, testing, debugging, maintenance, and documentation of Java programs. Algorithms, programming concepts, and data types in Java. Concepts of object-oriented programming; numerical and non-numerical problems. Required of computer science majors and minors.

   b. *prerequisites or co-requisites*
      None.
   c. *indicate whether a required, elective, or selected elective course in the program*
      Required for Computer Engineering.

6. *Specific goals for the course*
   a. *specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic.*
      Students completing the course successfully will demonstrate
   - basic programming skills in Java.
   - understanding of concepts of algorithmic problem solving and design of computer programs.
   - the ability to write, debug and execute small and medium-sized Java programs.
   - their readiness to continue the study of object-oriented programming and computer algorithms.

   b. *explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.*
      Course addresses ABET Student Outcome(s): a, b, c, e, j, k.

7. *Brief list of topics to be covered*
   - Data types: unsigned integers, signed integers, real numbers, and alphanumeric characters.
   - Number systems and binary coding: unsigned and signed integers, integer operations, floating point numbers

- Problem solving using computers.
- Java data types: int, float, double, short, long, unsigned, char, enum, bool.
- Arithmetic operators, arithmetic expressions, and basic library functions.
- The concept of stream input and output.
- Java selections: if, if-else, switch-case. Programs with selections.
- Java repetitions and jumps: while, do-while, and for loops, break, continue, exit, and return. Use of menus and sentinel loops.
- Methods and their arguments. Local and global variables. The concept of scope. The concept of method overloading.
- Arrays and array operations: search, sort, reduction, compression, expansion. Basic multi-dimensional arrays.
- Java strings and text I/O.
- Files: file streams, file open and close operations, reading from files and writing into files.
- Classes and processing of objects: constructors, private and public objects, data initialization, and class member functions. Problem solving techniques.
- Programming problems with classes and files.
- Sample algorithms: linear search, binary search, simple sorting algorithms
- Simple GUI programming.