CSET 1200 OBJECT-ORIENTED PROGRAMMING AND DATA STRUCTURES

Semester: Spring 2019.

Instructor: Jared Oluoch, Ph.D., Office NE 1613, Phone: 419-530-3272, Email:jared.oluoch@utoledo.edu

Office Hours: Mondays 2:00-4:00 PM, Wednesdays 1:00-3:00 PM, and by appointment.

Class Location: NE 1320. MW 11:10 AM - 12:30 PM.

Textbook: *Introduction to Java Programming*, Eleventh Edition, Y. Daniel Liang, Pearson Prentice Hall. ISBN - 13: 978-0-13-467094-2; ISBN - 10: 0-13-467094-9.

Course Description: This course introduces students to fundamental concepts of object-oriented programming, data structures, and algorithms. Students will learn how to create, compile, and debug java programs. In addition, students will learn how to design Graphical User Interfaces (GUI).

The first few weeks of the class will cover simple java programming techniques. Later chapters will involve developing comprehensive java programs.

Course Objectives: By the end of this course, students will be able to:

- Understand the object-oriented design methodology
- Write and implement basic java programs
- Understand and apply the concept of abstract classes and interfaces
- Understand and apply the concepts of recursion, inheritance, and polymorphism in Java
- Understand the concept of arrays, loops, and selection in Java
- Understand basic data structures and algorithms
- Understand Java language specifications, API, JDK, and IDE
- Understand Java programming style and documentation
- Understand and implement methods in Java
- Understand exception handling and input/output in java

CSET Student Outcomes

- Outcome b - An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution

- Outcome c - An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs and to apply design and development principles in the construction of software systems of varying complexity
- Outcome i - An ability to select and apply current techniques, skills, and tools necessary for computing practice
- Outcome j - An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes

IT Student Outcomes

- Outcome b - An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- Outcome c - An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs. And, an ability to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer–based systems
- Outcome i - Recognition and understanding of the need for and an ability to engage in self-directed continuing professional development

Course Format: The course will be conducted in class. The class is expected to be interactive. A major component of the class will involve writing and debugging code, and applying the knowledge learned in class to solve programming problems. Programming problems will be assigned periodically. In addition to the programming assignments, a mini project, quizzes, 2 midterms, and a group project will form part of the course. All exams (quizzes, midterm I, and midterm II will be closed-notes, closed-books).

The mini project and group project will involve developing a software application to solve a business or industrial problem. Each group will be comprised of a maximum of 3 members. The instructor will assign group projects in the middle of the semester. A complete group project will include: a) presentation in class, b) a working program that solves the problem, c) a detailed technical report, and d) a peer-evaluation of each group member.

Late submission of homework or group project will not be accepted. There will be no make-up quiz or midterm exam unless there is documented proof of a medical emergency, jury duty, death of an immediate family member or deployment for military duty.

Homework: Your programs must have the following information at the top (in comments).

- Name : Your First and Last Name
- Class: CSET 1200
- Instructor: Dr. Jared Oluoch
- Homework: x
- Date: MMDDYY
- Summary: A brief description of what the program accomplishes

Grading: Grades will be distributed as follows:

- Class Participation: 5 %
- Quizzes: 15 %
- Midterm I: 15%
- Midterm II: 15%
- Programming Assignments: 15%
- Mini-Project: 15%
- Group Project: 20%

Letter Grade Distribution:

90% - 100%	A
87% - 89%	A-
84% - 86%	B+
80% - 83%	B
77% - 79%	B-
74% - 76%	C+
70% - 73%	C
67% - 69%	C-
60% - 66%	D
0% - 59%	F

Academic Integrity: All students are expected to abide by The University of Toledo Policy Statement on Academic Dishonesty. Any attempt to duplicate or otherwise pass off another current or former classmate's lab assignments, or copy a classmate's quiz, midterm, finals, or pass off the work of someone else as your own will result in the following penalties: 1) on a first offence a zero in the assignment, 2) on a successive offense, a failure in the class. Either offense will result in a letter of academic dishonesty being placed in your student file. The penalty for allowing your work to be copied is the same as if you did the copying!

Academic Accommodation: The University of Toledo is committed to providing equal access to education for all students. If you have a documented disability or believe you have a disability and would like accommodation, contact the office of Student Disability Services at 419.530.4981.

Important Resources:

- Java Language Specification - http://docs.oracle.com/javase/specs/
- Java API - http://download.java.net/java/jdk9/docs/api/index.html
- Java JDK - http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html

Important Dates:

First Day of Class ..... Monday, January 14, 2019
Martin Luther King Day ..... Monday, January 21, 2019
Spring Break ..... March 4 – 8, 2019
Final Day of Classes ..... April 26, 2019
Week of Final Examinations ..... April 29 – May 3, 2019

Course Outline:

Week 1 ..... Chapter 1 - Intro to Computers, Programs, & Java
Week 2 ..... Chapter 2 - Elementary Programming
Quiz 1, Homework 1
Week 3 ..... Chapter 3 - Selections
Quiz 2, Homework 2
Week 4 ..... Chapter 4 - Math Functions, Strings & Characters
Quiz 3, Homework 3
Week 5 ..... Chapter 5 - Loops
Homework 4
Week 6 ..... Chapter 6 - Methods
Midterm I: Covers Chapter 1 through Chapter 6
Mini Project
Week 7 ..... Chapter 7 - Single-Dimensional Arrays
Homework 5, Selection of Groups for Project
Week 8 ..... Chapter 8 - Multi-Dimensional Arrays
Homework 6
Week 9 ..... Spring Break
Week 10 ..... Chapter 9 - Objects & Classes
Quiz 4, Homework 7
Week 11 ..... Chapter 10 - Object Oriented Thinking
Homework 8
Week 12 ..... Chapter 11 - Inheritance & Polymorphism
Midterm II - Covers Chapter 7 through Chapter 12
Week 13 ..... Chapter 12 - Exception handling
Week 14 . Chapter 13 & 14 - Abstract Classes & Interfaces, Recursion
Week 15 ..... Group Project Presentation