COURSE SYLLABUS

****

YEAR COURSE OFFERED: 2021

SEMESTER COURSE OFFERED: SPRING

DEPARTMENT: COMPUTER SCIENCE

COURSE NUMBER: COSC 1306

NAME OF COURSE: COMPUTER SCIENCE & PROGRAMMING

NAME OF INSTRUCTOR: JASPAL SUBHLOK

****

The information contained in this class syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.

****

Course Description

Computer Science and Programming is an introduction to the art of solving problems using computer programming. Students will learn how to analyze computational problems, develop solutions to them as algorithms (or recipes) for a computer to follow, and implement the solution in a modern programming language.

Learning Objectives

Upon completion of this course, students will be able to:
- Understand the basic organization of a computer system and the process of solving problems with a computer
- Understand a verbal description of a problem and translate it into a computation problem.
- Identify solutions to the problem and express them as computer algorithms
- Write Python programs to implement simple algorithms
- Test and Debug Python programs
- Employ Python data structures including Strings, Lists, Files and Dictionaries
- Employ Python control flow including control and loop statements.
- Employ Python Modules and Functions.

Prerequisites

MATH 1310 or equivalent

Major Assignments/Exams

COURSE SYLLABUS

2 Midterms (30%), Final exam (20%), Written/Programming Assignments (45%), Reading Assignments (5%). *The Final grade cannot be more than a full grade point higher than the grade obtained on the examinations.*

Required Reading

How to Think Like a Computer Scientist: Interactive Edition. Free eBook by Runestone Academy

List of discussion/lecture topics

1. Intro to Computer Science and Computer Organization
2. Intro to problem solving methods: abstraction, modularity, testing, debugging
3. Intro to programming with Python: Variables, Assignments, Input/Output.
4. Modules and Functions
5. Control Flow: IF, FOR, and WHILE statements
6. Data structures: Strings, Lists, Dictionaries
7. File I/O
8. Example algorithms and applications