SU DEPARTMENT OF COMPUTER SCIENCE SYLLABUS

COSC 118 – Introductory Scientific Programming

Description: A first course for students interested in using computer programming for scientific applications. Design, implementation and testing of Python programs will be the central focus of the course. (Three hours lecture and two hours lab per week.)

Textbook:

- *Starting Out With Python (6th edition),* by Tony Gaddis, Pearson.

	Weeks
Introduction and Environment	1.0
Programming concepts, program design, Anaconda, Spyder, Jupyter Notebook	
Fundamentals of Python Programming	2.0
Variables, basic data types, arithmetic calculations, input and output	
Boolean Logic & Branching	2.0
Conditional test, logic operations, if statements, namespaces & scope	
Functions & Modular Design	2.0
Built-in functions, imported functions, function design & parameter passing	
Repetition	2.0
While loop, for loop, break & continue, iterable sequence, nested loop	
Advanced data types in Python	2.0
List, tuple, dictionary, sets	
File Processing & Numerical Processing Modules	1.0
File read, file write, with statement, exceptions, NumPy, MatPlotLib	
Object Oriented Programming	1.0
Classes and instances	
Exams	1.0
Total	**14.0**

Evaluation

Homework, labs, class participation: 20%
Projects and quizzes: 30%
Exams: 50%

NOTE: ONCE A STUDENT HAS RECEIVED CREDIT, INCLUDING TRANSFER CREDIT, FOR A COURSE, CREDIT MAY NOT BE RECEIVED FOR ANY COURSE WITH MATERIAL THAT IS EQUIVALENT TO IT OR IS A PREREQUISITE FOR IT.

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