CS 1010 : INTRODUCTION TO PYTHON PROGRAMMING

Semester Hours:	3.0	*Contact Hours:* 3
Coordinator:	Ron Conway	
Text:	Starting Out With Python	
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Year:	2018	

SPECIFIC COURSE INFORMATION

Catalog Description:

Introductory Python programming for problem solving and algorithm development. Learn about basic programming topics including data types, control structures, file operations, arrays, functions, programming style, testing and debugging strategies. Does not apply to the computer science major. Prerequisite: two years of high school algebra or co-requisite of MATH 099 or higher.

Course type: **ELECTIVE**

SPECIFIC COURSE GOALS

- I can explain how a program runs on a computer.
- I can apply basic programming components and operations in problem solving.
- I can construct and use control structures.
- I can construct and use arrays.
- I can construct and use functions.
- I can apply testing to verify the result satisfies a program's requirements.
- I can apply programming skills and libraries to solve problems in different application domains.

LIST OF TOPICS COVERED

- Introduction (~7%, 1.0 weeks)
    - Course overview

    - What a computer program is and how it works
    - Understanding and designing algorithms
    - Development environments
    - Programming style
- Basic programming components and operations (~14%, 2.0 weeks)
    - Basic data types
    - Variables and assignment
    - Arithmetic operations
    - Input and output (I/O)
    - Strings
- Making decisions (~14%, 2.0 weeks)
    - Relational and logical operators
    - if statements
    - Nested if statements
    - Testing and debugging
- File I/O (~7%, 1.0 weeks)
    - File input
    - File output
- Repetition (~14%, 2.0 weeks)
    - for loops
    - while loops
    - Nested loops
- Functions (~18%, 2.5 weeks)
    - Function definitions

    - Function parameters
    - Returned function values
    - Functional decomposition
- Arrays (~18%, 2.5 weeks)
    - Arrays
    - Command line inputs
    - Searching and sorting
    - String algorithms
    - Dictionaries
- Using libraries (~14%, 2.0 weeks)
    - Decomposition of a problem
    - Solving the problem