**Norwalk Community College**

**Division of Extended Studies**

**Python I – Spring 2024**

**Instructor:** Nadia Udler **Contact:** [nudler@ncc.commnet.edu](mailto:nudler@ncc.commnet.edu)

**Location: West Campus NCC** **Room:** W137

**Days:** Saturdays **Time:** 9:00am – 12:00pm

**Required Books and Video Lectures**

Charles Severance, Python for informatics (free, available online)

[https://www.py4e.com](https://www.py4e.com/book)

**Other useful books (not required!):**

William Punch, Richard Enbody, The Practice of Computing Using Python, 2017, 3rd Edition, Pearson

Mark Lutz, Learning Python, 2013, O’Reilly

Wes McKinney, Python for Data Analysis, 2013, O’Reilly

**Software:**

Anaconda/Python installation:

https://www.anaconda.com/products/distribution

**Grading:**

Homework: 30%

Project: 40%

Participation: 30%

**Attendance:**

‘Incomplete’ grade is given if two or more classes are missed

**Course Outline:**

Day 1: Working environment, basic data types and control structures

*Installing Python and Anaconda package, Spyder development environment, writing and running a program. Debugging. Basic data types (strings, numerical types, Boolean type) and basic control flow structures (assignments, conditionals, loops), Input and output.*

Day 2: Functions and modules

*Functions, module, scope of variables, arguments, parameters and namespace, function annotations, docstrings, functions as parameters*

Day 3: More on data structures and control flow

*tuples, lists, dictionaries, sets, operations on sequential data types, operations on mapping data types, exceptions, recursion, assertions, list comprehension*

Day 4: Introduction to Object Oriented Programming in Python

*Classes and Objects in Python, making your own data structures.*

Day 5: Libraries: NumPy, Pandas, SQLite, Matplotlib

*Numpy arrays, Pandas Series and DataFrame, data manipulation with Pandas, reading Excel and text files, Database connection with SQLite, working with binary and text data*

Day 6: Libraries: SciPy, Statsmodels, Scikit-learn, Matplotlib

*Examples: linear regression, solving systems of linear equations, visualizing the results*