Course Title: DS-542 Python in Data Science
Term: Winter 2021-2022 Trimester
Time: Wednesday 6:00 PM - 9:00 PM
Dates & Location: 12/4/2021 - 2/26/2022, Online, Room WEB
Instructor: Joe Ganser
Email: JGanser@saintpeters.edu
 Prerequisite: Curiosity and drive to learn.
Course Description:
Python has vast applications in data science, software development, machine learning, and AI. The principal objective of this course is to introduce students to core principles of Python so that they can design, code, and debug Python programs efficiently and implement the learned concepts to solve real-life business problems. The course also focuses upon enhancing problem-solving abilities and creativity within students. The course introduces students to the Object-Oriented Programming Paradigm and its applications in Python. The course also explores handling files with Python and basic error handling mechanisms. Towards the end, the course introduces students to basic design patterns in Python so that they can organize their codes efficiently and basic data visualization techniques.

Learning Outcomes: At the end of the course, students will be able to

- ● Setup Python Integrated Development Environment to write, test, and debug programs.
- ● Understand the basics of programming, and details of Python in particular.
- ● Design, write, run, test, and debug Python programs.
- ● Think Object-Oriented way of Python Programming.
- ● Implement Complex algorithms with control/looping statements and user-defined functions.
- ● Organize and Visualize complex data using Python.
  Textbook: Automate the Boring Stuff with Python: Practical Programming for Total Beginners by Al Sweigart (**ISBN-13**: 978-1593275990)
  Grading Scheme:

Criteria	Weight
Assignments	33.3%
Midterm Exam	33.3%
Final Project	33.3%
Total	**100%**

Grading Scale:

Letter Grade	Number Grade
A	93-100
A-	90-92

B+	87-89
B	83-86
B-	80-82
C+	75-79
C	70-74
F	0-69

Weekly Schedule:

Class	Time	Objectives/Topics Covered
1	6pm-9pm	Introduction to Programming, Python & Setup Introduction to Data Types
2	6pm – 9pm	Python Data Types Python Operators If Statements
3	6:00pm - 9:00pm	While Statements
4	6:00pm - 9:00pm	For Loops
5	6:00pm - 9:00pm	Functions in Python
6	6:00pm - 9:00pm	**Midterm Exam** Introduction to Numpy and Pandas
7	6:00pm - 9:00pm	Importing Files Data Visualization with Matplotlib
8	6:00pm - 9:00pm	Object-Oriented Programming
9	6:00pm - 9:00pm	Exception Handling and Debugging Code
10	6:00pm - 9:00pm	Introduction to Algorithms
11	9:00am - 5:00pm	**Final Exam**

Special Accommodations:

Students with special learning needs should work with the Academic Dean's office to develop appropriate accommodations.

Attendance Policy:

Students who regularly attend class will be given an opportunity to ask questions and achieve mastery of class material much easier. But, attendance and class participation will not count for the final grade this Trimester. Lectures will be uploaded to the web within 60 hours of the scheduled class time for students to view. Please refer to the university's policy for more details.

Academic Honesty and Student Conduct:

To accurately monitor your progress, the code, text, and figures in your submission need to be your original work. Familiarize yourself with the standards for academic honesty and student conduct which is available online.

I have read and fully understand all articles, conditions, and terms of this syllabus.

Sign your name here: _____