Programming Using Python - GEOG 1180
Syllabus

Course Description

This course is an introduction to geo-programming using the Python language, which primarily involves manipulating and analyzing geographic information. Topics include basic programming concepts, principles and good practice in computer programming, the Python language, geo-programming concepts, methods, and approaches, and a survey of geographic problems.

Course Objectives

This syllabus represents an "agreement" between you, the student, and the instructor. It is designed to ensure course integrity and fairness and provide students with a clear understanding of course expectations. The instructor and students are expected to use the syllabus and schedule as a guide for the semester. Any deviation from the syllabus or schedule will be discussed and agreed upon by the instructor and students.

Prerequisites:

- Basic computer literacy
- A desire to learn!
- Recommended: GEOG 1800 or GEOG 2500

Attendance, Dropping, Withdrawing, and Incomplete Grades:
Attendance within the first week of the semester is mandatory. If you do not attend at least one of the first two lectures without notifying your instructor beforehand, you are at risk of being dropped from the course. In online classes, this means logging into Canvas a minimum of at least once within the first week.

It is the student's responsibility to drop or withdraw from a course by the institution's due date. To learn more about those deadlines, see the college's Academic Calendar.
A grade of "I" (Incomplete) is the instructor's option and is not given except only in the most extenuating of circumstances for which there is valid written documentation. To receive an incomplete grade for the course, nearly all coursework must have been completed (e.g., ~75%) with a passing grade. It is the responsibility of the student to drop/withdraw from this class, not the instructor.

Learning Outcomes:

- Understand Python's Utility: Analyze the significance of Python as an effective scripting language for beginners.
- Application Design and Development: Acquire some skills to design and implement Python applications in ArcGIS online.
- Data Structure Proficiency: Utilize lists, tuples, and dictionaries within a Python IDE

- Object Type Identification: Develop the ability to identify and understand various Python object types.
- Data Access Techniques: Learn to employ Python's indexing and slicing methods for efficient data access.
- Program Structure Definition: Define a well-organized Python program's essential structure and components.
- Control Flow Implementation: Master using loops and decision statements to enhance program logic.
- Function Development: Learn to write modular functions and effectively pass arguments in Python.
- Module Creation and Packaging: Understand how to build and package Python modules for improved reusability.
- File Handling Skills: Acquire the ability to read from and write files in Python for effective data management.
- Object-Oriented Programming Design: Learn to design and implement object-oriented programs using Python classes.
- Class Inheritance Application: Explore the principles of class inheritance to enhance code reusability.
- Error Handling Techniques: Gain proficiency in implementing exception handling to ensure robust application error management.

Grading Scheme:

- Chapter Quizzes - 30%
- Assignments- 60%
- Attendance - 10%

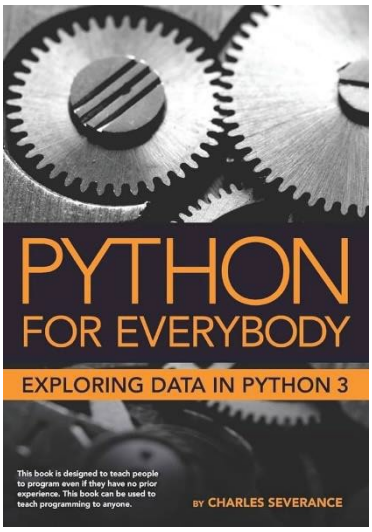
Total - 100%

Please allow 48 to 72 hours for responses to emails and phone calls, except on weekends and holidays. Cheating and plagiarism are not tolerated in all forms and modalities, as outlined in the college's Student's Code of Conduct. Students are expected to turn in all assignments and discussions to be turned in on time. Late work may be accepted but with reduced points.

Coursework

Textbook

Title: Python for Everybody: Exploring Data Using Python 3
Author: Charles Severance
ISBN: 9781530051120 or 1530051126
Publisher: Charles Severance



Chapter Quizzes

The chapter quizzes will assess your understanding of the textbook chapters and video presentations presented in each module. The quizzes are composed of multiple-choice and multiple-answer questions. They are open book, open note. However, they are timed.

Assignments

Each assignment is designed to teach you to learn specific concepts and skillsets using the latest version of Python. Many of the assignments are basic coding activities. Others are games we will play using Python. Towards the end of the course, we will have a few assignments using Python for ArcGIS. All tasks will be submitted to Canvas.

Attendance

Attendance to online lectures constitutes 10% of your overall grade, and these sessions provide valuable opportunities to ask questions, engage in critical thinking, and integrate the concepts we're learning into your other workflows.

Grading Scheme

The following grading standards will be used in this class:

Grade	Range
A	100 % to 94.0%
A-	< 94.0 % to 90.0%
B+	< 90.0 % to 87.0%
B	< 87.0 % to 84.0%
B-	< 84.0 % to 80.0%
C+	< 80.0 % to 77.0%
C	< 77.0 % to 74.0%
C-	< 74.0 % to 70.0%
D+	< 70.0 % to 67.0%
D	< 67.0 % to 64.0%
D-	< 64.0 % to 61.0%
F	< 61.0 % to 0.0%

Course Summary of Assignments & Quizzes:

Date	Details:	Due:
Week 1	0.1 Getting to Know You 0.2 Student Survey 0.3 Orientation Quiz	
Week 2	1.1 Why We Program Quiz 1.2 Code in Game Account 1.3 "Hello World" Assignment	
Week 3	2.1 Variable and Expressions Quiz 2.2 Inputs, Variables, and Expressions Assignment	
Week 4	3.1 Conditional Code Quiz 3.2 Conditional Code Assignment Extra Credit: Python Gaming - Conditions	
Week 5	4.1 Functions Quiz 4.2 Functions Assignment	
Week 6	5.1 Loops and Iterations Assignment 5.2 Python Gaming – Loops Assignment	
Week 7	6.1 Strings Assignment 6.2 Python with ArcGIS Notebooks Assignment	
Week 8	7.1 Files Quiz 7.2 Files Assignment Extra Credit: Python Gaming Loops, Strings & Conditions	
Week 9	8.1 Lists Quiz 8.2 Lists Assignments 8.3 Python for Everyone Certificate with ESRI ArcGIS Online	
Week 10	9.1 Dictionaries Quiz 9.2 Dictionaries Assignment	
Week 11	10.1 Tuples Quiz 10.2 Tuples Assignment	
Week 12	11.1 Regular Expressions (Regex) Quiz 11.2 Regex Assignment	
Week 13	12.1 Network Programming Quiz 12.2 Introduction to ArcGIS API for Python Certificate with ESRI ArcGIS Online	
Week 14	13.1 Python and Web Services Quiz 13.2 Python and Web Services Assignment on ArcGIS Online Extra Credit : Python Gaming Regular Expressions	
Week 15	14.1 Data and Visualization Quiz 14.2 Independent Topic Assignment, students will select an Area of Interest (AOI) and utilize data and visualization libraries to analyze a specific topic of their choice	
Week 16	15.1 Python Objects Quiz 15.2 Python Objects Assignment	

ADA Compliance Statement

Students with medical, psychological, learning, or other disabilities desiring accommodations or services under the ADA should contact the Disability Resource Center (DRC). The DRC determines eligibility for and authorizes the provision of these accommodations and services for the college. Please contact the DRC at the Student Center, Suite 244, Redwood Campus, 4600 So. Redwood Rd, 84123. Phone: (801) 957-4659, TTY: 957-4646, Fax: 957- 4947 or by drc@slcc.edu. Direct link to the SLCC ADA Statement.

Emergency Evacuation Procedures

If you are in immediate danger in an emergency, please call 911. If you SEE Something, SAY Something—visit SLCC.edu and @SLCCSafety on Twitter for real-time updates and directions.
It is important to understand that different scenarios can require different procedures. To learn more, select the option below or download the SLCC Safe App. For more information, visit the SLCC's Emergency Procedures