Python Programming for Engineers

COP 2273 Section EED2
Class Periods: Tuesday, Period 5-6, 11:45 AM-1:40 PM
Thursday, Period 6, 12:50 PM-1:40 PM
Location: CSE A101
COP 2273 Section EED3
Class Periods: Tuesday, Period 2-3, 8:30 AM-10:25 AM
Thursday, Period 3, 9:35 AM-10:25 AM
Location: NEB 101
Academic Term: Fall 2025

Instructor:
Kwansun Cho
ckstone@ufl.edu
(352) 294-1383
Office Hours: TBA on Canvas

Peer Mentors:
TBA on Canvas

Course Description
Introductory course for those who have little experience in programming and have been looking to obtain hands-on learning experience in the Python programming language. Developing problem solving and computational thinking skills in an engineering field is encouraged in this course and emphasized with a reasonably high degree of mathematics (3 credits).

Course Pre-Requisites / Co-Requisites
MAC 2311 - Analytic Geometry and Calculus 1 with a C grade or better

Course Objectives
The main objective of this course is to provide a foundation in programming for engineering problem solving using Python. Students will develop the skills to implement computational solutions to a wide range of engineering problems. Furthermore, students will be able to apply these skill sets to other programming languages.

Materials and Supply Fees
Not applicable

Relation to Program Outcomes (ABET):

Outcome	**Coverage***
1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	High
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	High
3. An ability to communicate effectively with a range of audiences	Low
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	Medium

5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	High

*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not covered or assessed in the course.

Required Textbooks and Software

- Title: An Introduction to Python Programming for Scientists and Engineers
- Author: Johnny Wei-Bing Lin, Hannah Aizenman, Erin Manette Cartas Espinel, Kim Gunnerson, and Joanne Liu
- Publication date and edition: October 6, 2022, New edition
- ISBN number: 978-1108701129

An official textbook is REQUIRED (see above) and additional course materials will be posted on the Canvas course site. **Visual Studio Code** (VS Code) is an officially supported software for the class. You may set up your *Python development environment* with **the latest version of Python** (python.org), **VS Code** (https://code.visualstudio.com/download), and **VS Code Python extension**. Students may use alternative software, but it will not be officially supported.

Recommended Materials

- Title: Murach's Python Programming
- Author: Michael Urban and Joel Murach
- Publication date and edition: April 2021, 2nd edition
- ISBN number: 978-1943872749

- Title: Python Programming: An Introduction to Computer Science
- Author: John Zelle
- Publication date and edition: August 2016, 3rd edition
- ISBN number: 978-1590282755

Required Computer

Recommended Computer Specifications: https://it.ufl.edu/get-help/student-computer-recommendations/
HWCOE Computer Requirements: https://www.eng.ufl.edu/students/advising/fall-semester-checklist/computer-requirements/

Course Schedule

Week 01 (08/21 – 08/22): Course Introduction
Week 02 (08/25 – 08/29): Python Basics
Week 03 (09/01 – 09/05): Functions
Week 04 (09/08 – 09/12): Flow of Control
Week 05 (09/15 – 09/19): Data Structures
Week 06 (09/22 – 09/26): Project 1
Week 07 (09/29 – 10/03): Exam 1
Week 08 (10/06 – 10/10): File IO
Week 09 (10/13 – 10/17): Debugging and Exception Handling
Week 10 (10/20 – 10/24): Classes
Week 11 (10/27 – 10/31): Dictionaries

Week 12 (11/03 – 11/07): Libraries
Week 13 (11/10 – 11/14): Exam 2
Week 14 (11/17 – 11/21): Project 2
Week 15 (11/24 – 11/28): NO CLASS – Thanksgiving Break
Week 16 (12/01 – 12/03): Project 2

Important Dates

09/26	Project 1 Due
09/30 & 10/2	Exam 1
11/11 & 11/13	Exam 2
12/03	Project 2 Due

Evaluation of Grades

All assignments are assigned through the Canvas course site. **Please note that the deadlines are strictly enforced.** For example, if the deadline is 11:59 PM, any assignment submitted after this time is considered late. It is also each student's responsibility to submit correct files and ensure the submission is successful before the deadline (please double check your Canvas submissions). If you are unable to submit your assignment through Canvas, send a copy of your assignment to your instructor ***BEFORE*** the stated deadline. There will be **two exams,** and each exam will be cumulative with an emphasis on the most recently covered material. Please note that ***every student is required to be physically present in the designated classroom to take the exams***. Exam details will be posted on the Canvas course site (https://elearning.ufl.edu).

Assignment	Total Points	Percentage of Final Grade
Weekly iRATs (9-Drop-1)	100 each	10%
Weekly assignments (9-Drop-1)	100 each	30%
Projects (2)	100 each	30%
Exam 1	100	15%
Exam 2	100	15%
		100%

Grading Policy

Percent	Grade	Grade Points
93.4 - 100	A	4.00
90.0 - 93.3	A-	3.67
86.7 - 89.9	B+	3.33
83.4 - 86.6	B	3.00
80.0 - 83.3	B-	2.67
76.7 - 79.9	C+	2.33
73.4 - 76.6	C	2.00
70.0 - 73.3	C-	1.67
66.7 - 69.9	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	D-	0.67
0 - 59.9	E	0.00

Class Expectations, Academic Policies & Resources

Regular attendance with a personal laptop is REQUIRED. Attendance will be taken during every class from the first-class meeting. All students **must** be physically present **in time** for their attendance to count. Every student is expected to be familiar with the relevant chapters of the textbook and the study material posted on the Canvas course site at home before coming to class. During class hours, simple yet relevant programming assignments are provided to reinforce new C++ programming concepts and skills. **Students are not allowed to submit weekly assignments without attendance. Each student's lowest-graded weekly assignments and individual readiness assurance test (iRAT)** will be dropped (no question asked). Please note that there will be **NO dropped homework assignment grade**. Each student is responsible for all material covered in lecture and for knowing all announcements made

during class even if they do not explicitly appear on the syllabus. Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up the missed work. More university-wide information on UF academic policies and campus resources may be found at:
https://go.ufl.edu/syllabuspolicies.

Commitment to a Positive Learning Environment

The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University's core values.

If you feel like your performance in class is being impacted, please contact your instructor or any of the following:

- Your academic advisor or Undergraduate Coordinator
- HWCOE Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
- Pam Dickrell, Associate Dean of Student Affairs, 352-392-2177, pld@ufl.edu