Introduction to Programming in Python

December 5, 2023

Contents

1 General information

This course is designed to provide students with a comprehensive introduction to programming in Python, covering fundamental concepts and practical applications of the language.

- Course title: Introduction to Programming in Python
- Course number and section: CSC 109.01

- Meeting Times: Mon-Wed-Fri from 13:00-13:50 am
- Meeting place: Batesville High school (room 647)
- Professor: Marcus Birkenkrahe (birkenkrahe@lyon.edu)
- Professor's Office: Lyon College, Derby Science Building 210
- Phone: (870) 307-7254 (office) / (501) 422-4725 (private)
- Office hours: Mon/Wed 2-3pm, Tue 4-4.45pm, Thu 9.30-10:45am
- Textbook: Sweigart, Al (2020), Automate the Boring Stuff with Python (2e), NoStarch Press. Online: automatetheboringstuff.com/2e/

2 Objectives

Students will learn how to install Python and an IDE, and get started with basic data types, control flow statements, functions, files, and exceptions. They will also gain hands-on experience with more advanced topics such as object-oriented programming, modules and packages, testing and debugging, and data analysis and visualization.

Throughout the course, students will have ample opportunity to practice their programming skills with a variety of exercises and projects using the Google Colaboratory and DataCamp platforms. They will also receive guidance and feedback from the instructor on their progress and final projects.

By the end of the course, students should have a solid foundation in Python programming and be able to apply their skills to a wide range of projects, from game development to process automation, data analysis and visualization. This course is ideal for anyone with little or no programming experience who wants to learn Python or for those who have some experience in programming and want to learn more advanced concepts and practical applications.

3 Course requirements

- Formal prerequisite MTH 101 (College Algebra)
- No prior knowledge required
- Curiosity is essential
- Experience with computers is useful but not critical

4 Grading system

You should be able to see your current grade at any time using the Canvas gradebook for the course.

WHEN	DESCRIPTION	IMPACT
Weekly	DataCamp/programming assignments	25%
Monthly	Sprint review presentations	25%
Weekly	Multiple-choice tests	25%
TBD	Final exam	25%

Notes:

- To pass: 60% of all available points.
- DataCamp assignments: there are 15 assignments spread out over 3 courses and two projects. Each assignment contributes 1.6667% (25/15) to your final grade. Late assignments are counted as 50% complete only.
- Sprint review presentations: a customer-focused team effort resulting in a project presentation, with 4 Scrum sprint reviews.
- Tests: weekly online quizzes, which are previewed and reviewed in class.
- Final exam: selection of the most challenging weekly quiz questions.

5 Schedule

Week	Date	Assignments	Project
1	Aug 21-Aug 25	Programming paradigms	
2	Aug 28-Sep 01	Procedural programming	
3	Sep 04-Sep 08	Functional programming	
4	Sep 11-Sep 15	Object-oriented programming	1st sprint review
5	Sep 18-Sep 22	Python Basics	
6	Sep 25-Sep 29	Python Lists	
7	Oct 02-Oct 06	Functions/Packages	
8	Oct 09-Oct 13	NumPy	2nd sprint review
9	Oct 16-Oct 20	Matplotlib	
10	Oct 23-Oct 27	Dictionaries/Pandas	
11	Oct 30-Nov 03	Logic,Control Flow, Filtering	
12	Nov 06-Nov 10	Loops	3rd sprint review
13	Nov 13-Nov 17	Case Study: Hacker Statistics	
14	Nov 20-Nov 24	Intro to DataCamp Projects	
15	Nov 27-Dec 01	EDA project (Netflix movies)	
16	Dec 04-Dec 08	Final presentation	4th sprint review

- NO CLASSES: Aug 21, Sept 4 (Labor day), Oct 9 (Fall break), Nov 22 + 24 (Thanksgiving). See 2023-2024 academic calendar (catalog.lyon.edu/202324-academic-calendar).
- ONLINE CLASSES: Sept 15 + 22.

6 Learning management system

- We use Lyon's Canvas installation for this course.
- The course home page is at lyon.instructure.com/courses/1700
- The home page contains: assignments, grades, pages, people, syllabus, quizzes, Google Drive, Course evaluation and Zoom.
- The Zoom page includes cloud recordings of all past sessions.
- Recorded sessions will be deleted after the last class.

7 DataCamp

The course includes a free subscription to the DataCamp classroom at datacamp.com for further study, and for the opportunity to earn certificates for

three courses. We will also use the DataCamp workspace environment for coding.

8 GitHub

All course materials are available in a public GitHub repository (github.com/birkenkrahe/py109). Registration for students includes a free subscription to GitHub codespaces with the AI coding assistant Copilot. GitHub is the worldwide largest online platform for software development.

9 Textbooks

This is a selection of text books and mixed media sources used to prepare this course, which was first offered in summer 2023. Planned to be offered again: fall 2023/2024 (Batesville High School), summer 2024/2025.

- Automate the Boring Stuff with Python (3e) by A Sweigart (NoStarch, 2023). URL
- Introduction to Programming in Python by D Malan (freeCodeCamp, 2023). URL
- Introduction to Data Science with Python by H Green-Lerman (DataCamp, 2022)
- Invent Your Own Computer Games With Python (4e) by A Sweigart (NoStarch, 2023). URL
- Learn to Code by Solving Prolbems by D Zingaro (NoStarch, 2021).
- Python Crash Course (3e) by E Matthes (NoStarch, 2023).
- Python Workout by R Lerner (Manning, 2020).
- Whirlwind Tour of Python by J VanderPlas (O'Reilly, 2016). URL

10 Lyon College Standard Policies (Fall 2023)

Online: `https://tinyurl.com/LyonPolicyF23`, see also Class Attendance