Python Programming

GENERAL ASSEMBLY

Overview

Gain fluency in Python — the world's fastest-growing major programming language — and start leveraging its versatile capabilities to build web and data science applications.

Whether you have coded before or are brand new to the world of programming, this course will put you on the fast track to building confidence with this intuitive, object-oriented language. Learn programming fundamentals and build a custom application. Graduate with the ability to start applying Python within high-growth fields like analytics, data science, and web development.

Throughout the course, you'll:

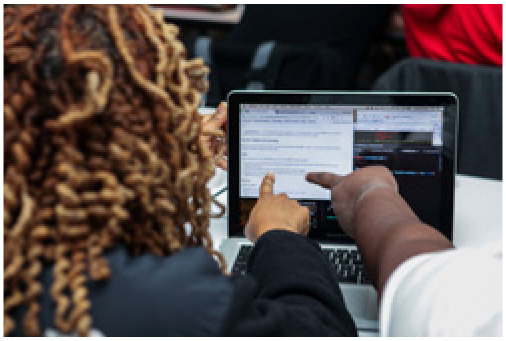
- Learn object-oriented programming fundamentals and Python basics that get you coding from day one.
- Build a Python program and add on increased complexity throughout the course.
- Troubleshoot Python code and practice common debugging techniques.
- Push your skills to the next level by adding scripting, modules, and APIs to your Python toolkit.
- Explore introductory data science and web development as potential career directions for Python programmers.
- Demonstrate your Python skills by creating apps that pull in data with Pandas or integrate functionality from APIs with Flask.

What To Expect

Engage in hands-on, project-based learning that's designed to introduce you to the most important Python programming concepts and functions.

As a student, you'll:

- Explore new concepts and tools through expert-led lectures, discussions, and code-alongs.
- Complete coding exercises to reinforce newly learned skills.
- Dive deeper into topics and techniques via programming labs.
- Receive individualized feedback and support from your instructional team.
- Apply your newly developed skills to build web and data applications.



Prerequisites

This is a beginner-friendly program with no prerequisites, although some students may have coded previously. First-time programmers will have access to pre-course preparatory lessons and additional resources to boost their confidence with key concepts and set up their development environments.

Our Admissions team can discuss your background and learning goals to advise if this course is a good fit for you.

What You’ll Learn

Unit 1 Python and Programming Fundamentals

- Explore the concept of variables and differentiate between variable types.
- Create and re-assign numerical variables using common naming guidelines and numerical operators.
- Re-assign variables using variables and shorthand assignment operators.
- Create string variables, concatenate strings, and print complex structures.

Unit 2 Control Flow

- Define control flow and describe scenarios in which control flow would be helpful.
- Explore logical comparison. Explain different comparison and equality operators and use them to evaluate and compare statements.
- Get acquainted with Booleans, use if/elif/else conditionals to control program flow based on Boolean conditions, and use comparison operators in conditionals.
- Create and manipulate lists, adding and removing elements and printing out elements/list lengths.
- Understand the use of loops in programming. Implement for loops to iterate lists and range() to dynamically generate loops.
- Explain a while loop and its best use cases. Leverage while loops to control program flow.
- Dive into functions, identifying use cases, creating and calling functions, and returning values.
- Utilize parameters and arguments in functions. Implement keyword arguments.

Unit 3 Object-Oriented Programming in Python

- Describe object-oriented programming and provide examples of what could be described as an object.
- Differentiate between keys and values. Compare and contrast dictionaries and lists. Use dictionaries to solve common problems in Python.
- Distinguish between lists and sets. Create variables that hold sets. Use sets to determine the frequency of elements.
- Compare and contrast classes and objects. Define classes. Instantiate objects from classes.
- Explain the use of the __init__ method. Understand class variables versus instance variables. Create classes with default instance variables.
- Implement inheritance. Describe what has been inherited from one class to another and when to use inheritance.

Unit 4 Common Python Troubleshooting

- Define variable scope and explain the order of scope precedence that Python follows when resolving variable names. Use the global keyword to access global variables.
- Understand common types of errors and use print statements to troubleshoot. Implement the try-except code to handle errors.
- Define when floats are created, use escape characters, and perform basic data type conversion.

Unit 5 Intermediate Python

- Review Python basics covered so far.
- Get acquainted with key components of intermediate Python coding, such as scripting, abstraction, modules, and libraries and APIs.
- Define the uses of scripting and write scripts that perform file I/O and take user input.
- Add libraries and modules to Python programs. Navigate library documentation.
- Describe what an application programming interface (API) is and why we might use one. Identify common APIs on the web. Call APIs.

Unit 6 Introduction to Data Science

- Review Python basics and intermediate skills covered so far.
- Explore how Python is used by data scientists through a case study.
- Use Pandas to read in data sets. Understand the integrity and characteristics of data sets. Filter, sort, and manipulate DataFrame Series.
- Describe why data visualization is important. Identify the characteristics of a great data visualization. Identify when you would use bar charts, pie charts, scatterplots, and histograms.
- Implement different types of graphs on a given data set using Pandas.
- Identify and handle missing values with Pandas. Implement groupby() statements for specific segmented analysis. Use apply() functions to clean data with Pandas.

Unit 7 Introduction to Web Applications

- Review Python basics and intermediate skills covered so far.
- Explore how Python is used by web developers with a case study.
- Differentiate between web applications, websites, front-end, and back-end. Apply basic HTML and CSS.
- Define Flask, understand how values are passed between websites and the Flask back-end and create simple Flask websites.
- Create routes using Flask. Pass variables into routes.
- Implement simple templates in Flask apps. Pass variables into templates.
- Add data from APIs to Flask applications.

Frequently Asked Questions

Why are Python programming skills relevant today?

The future is bright for programmers who know Python — it's a baseline skill for high-growth industries like analytics, artificial intelligence, cybersecurity, and data science, which was named LinkedIn's No. 1 most promising job of 2019.

It's also incredibly accessible. Thanks to its versatility and intuitive syntax, Python is one of the easiest languages to learn on the market — a good choice for beginners to the world of programming.

What are the professional backgrounds of Python programming students?

Python Programming is our best entry-level course for professionals looking to gain a foundation in programming to kickstart a move into tech or data. You'll find a diverse range of students in the classroom including:

- New programmers who want to get up and running quickly with an object-oriented language.
- Graduates of our Data Analytics course who enjoyed the programming aspects of Excel and SQL.
- Anyone considering further study in our Data Science or Data Science Immersive programs, which require a strong foundation in Python programming.

Regardless of their backgrounds, this program attracts a community of eager learners who want to know how to code out a project, make sense of documentation, and continue honing their Python skills independently.

What does my tuition cover?

Here are just some of the benefits you can expect as a GA student:

- 40 hours* of expert instruction from a Python practitioner, plus many more spent tackling homework, honing projects, and getting technical support in office hours.
- Robust coursework, including expert-vetted lesson decks, project toolkits, and more. Refresh and refine your knowledge throughout your professional journey as needed.
- A web programming or data science specialization track, which your instructor will select based on class interest and local job market demand.
- A real-world project where you'll develop a custom web or data application from scratch.
- Individual feedback and guidance from instructors and TAs. Stay motivated and make the most of your experience with the help of GA's dedicated team.
- Exclusive access to alumni discounts, networking events, and career workshops.
- A GA course certificate to showcase your new skill set on LinkedIn.
- Connections with a professional network of instructors and peers that lasts well beyond the course. The global GA community can help you navigate and succeed in the field.

** The duration of Toronto's Python Programming course is 39.5 hours.*

Will I earn a certificate?

Yes! Upon passing this course, you will receive a signed certificate of completion. Thousands of GA alumni use their course certificate to demonstrate skills to employers and their LinkedIn networks. GA's technology training courses are well-regarded by many top employers, who contribute to our curriculum and use our programs to train their own teams.

Who teaches this course?

Our instructors represent the best and brightest Python programming and software engineering experts who have worked for companies like Etsy, Zendrive, and Honey.is. They combine in-depth knowledge as practitioners with a passion for nurturing the next generation of talent.

We work with a large pool of experienced instructors around the world. Please speak with our Admissions team to find out who is teaching the upcoming course in your location.

Can I work full-time while enrolled in this course?

Yes! All of our part-time courses are designed for busy professionals with full-time work commitments. Depending on your location, classes meet twice per week in the evenings, or all day on Saturday. If you're able to dedicate a full week to learning, we also have a full-time, accelerated 1-week option. You may opt to take this course in-person at one of our 30+ campuses or online via our Remote classroom setup.

You will be expected to spend time working on homework and projects outside of class hours each week, but the workload is designed to be manageable with a full-time job.

If you need to miss a session or two, we offer resources to help you catch up. We recommend you discuss any planned absences with your instructor.

Which format should I take this course in — on campus or online?

It's up to you! Our Remote courses offer a learning experience that mirrors GA's on-campus offerings but allow you to learn from the comfort of home. If you don't live near a GA campus, have a busy travel schedule, or just want to save yourself the commute, a Remote course could be a good option for you, if available in your market. You'll still get access to the expert instruction, learning resources, and support network that GA is known for.

If you prefer to learn alongside your peers and can make it to campus, our in-person courses allow you to take advantage of our beautiful classrooms and workspaces.

Our Admissions team can advise you on the best format for your personal circumstances and learning style.

What are my financing options?

We offer a variety of different financing options, including installment plans, so you can focus on what counts — your education. Plus, more than 45% of our part-time students receive full or partial tuition reimbursement from their employers. Speak with our Admissions team to learn more and find the best fit for you and your finances.

Is this course project-based?

Yes. Each of the three sections of the course is built around a hands-on mini-project. You'll apply what you've learned in that section to build a functioning application that solves a specific problem or business need. While we provide pre-approved prompts for these projects, you are encouraged to tackle a problem related to your current work or personal project.

Take The Next Step

Have questions about our Python Programming course? Our Admissions team is here to help you determine if this program is right for you and your goals. You can also:

- Attend an info session online or at your local campus.
- Explore your financing options.
- Apply to enroll in the course.