

1	Introduction to Python	Welcome to this Course!
		Overview of the Course Curriculum
		Our Python Coding Environment
		Writing the First Code! Variables and Printing
		Numbers in Python
		Calculating the Remainder of a Division
		Python Strings
		Python String Formatting
		Getting a User Input in Python
		Booleans and Comparisons in Python
		AND and OR in Python
		Lists in Python
		Tuples in Python
		Sets in Python
		Advanced Set Operations
		Python Dictionaries
		Length and Sum
Joining a list		
2	Python Fundamentals	If Statements in Python
		While Loops in Python
		For Loops in Python
		Deconstructing Syntax
		Iterating over Dictionaries
		Break and Continue
		The Else Keyword with Loops
		Finding Prime Numbers with For Loops
		List Slicing in Python
		List Comprehension in Python
		Comprehensions with Conditional Statements
		Set and Dictionary Comprehensions
		The Zip Function
		Functions in Python
		Arguments and Parameters
		Functions and Return Values in Python
		Default Parameter Values
Lambda Functions in Python		
First Class and Higher Order Functions		
3	Milestone Project 1	Installing Python on your Computer
		Installing PyCharm on your Computer
		Creating the First PyCharm Project
		Setting up the PyCharm Font and Display Settings
		Milestone Project Brief
		Milestone Project Implementation
		Showing the User Movies

		Finding Movies and Retrieving Details
4	Object-Oriented Programming with Python	<ul style="list-style-type: none"> Intro to Object-Oriented Programming with Python More about Classes and Objects Parameter Naming in Python Magic Methods in Python Inheritance in Python The @property Decorator The @classmethod and @staticmethod Decorators in Python More @classmethod and @staticmethod Examples
5	Errors in Python	<ul style="list-style-type: none"> Intro to Errors in Python Built-in Errors in Python Raising Errors in Python Creating Errors in Python Dealing with Python Errors The On-success Block and Re-raising Exceptions Handling User Errors Debugging with PyCharm
6	Files in Python	<ul style="list-style-type: none"> Files in Python Python Exercise: Copying Files CSV Files with Python JSON Files with Python Using the “with” Syntax in Python Importing Files Python Relative Imports: Children Python Relative Imports: Parents Importing Errors and Running as a Python Script
7	Databases in Python and Milestone Project 2	<ul style="list-style-type: none"> Intro to Milestone Project 2 Milestone Project with Lists Storing Books in Files Using JSON instead of CSV Intro to Databases in Python Using SQLite in Python Some Database Jargons Creating Books Table Using Python Inserting Books Using Python SELECT Examples Getting All Books UPDATE and DELETE Statements Filtering using the WHERE Clause Finishing the Milestone Project Ordering and Limiting Developing the Context Manager in Python

		Errors in Context Managers
8	Type Hinting in Python	Typing in Python Further Reading
9	Advanced Built-in Functions in Python	Generators in Python Python Generator Classes and Iterators Iterables in Python The Filter() Function in Python The Map() Function in Python Any() and All() Functions in Python
10	Advanced Python Development	Mutability in Python Argument mutability in Python Default values for parameters Mutable default arguments (bad idea) Argument unpacking in Python Queues in Python Some interesting Python collections Timezones Dates and time in Python Timing your code with Python Regular expressions Regex examples Regex in Python Introduction to logging in Python Logging to a File and Other Features Higher-order Functions in Python
11	Web Scraping with Python	Markup Languages: The Structure of HTML Code Understanding HTML with BeautifulSoup More Complex HTML Parsing Structuring Parsing Program Better Splitting HTML Locators out of the Python Class Understanding HTML with the Browser Scraping the First Website with Python Milestone Project 3: A Quote Scraper Quotes Project 2: Structuring a Scraping App in Python Quotes Project 3: Getting Locators Quotes Project 4: Crafting a Quote Parser Quotes Project 5: The Quotes Page Quotes Project 6: Recap of the Project Milestone Project 4: A Book Scraper + Application Books Project 2: Recap of HTML Locators Books Project 3: Creating Locators in Python Books Project 4: Creating a Page

		Books Project 5: Creating a Book Parser
		Books Project 6: Writing an App File
		Books Project 7: Sorting the Books
		Books Project 8: Constructing a Menu
		ASIDE: The Best Way to Write User Menus
		Books Project 9: Getting Multiple Pages
		Books Project 10: Multiple Pages in Python
		Books Project 11: Getting the Page Count in Python
		Books Project 12: Adding the Logging Module to a Python Project
		A Word on Scraping Pages with JavaScript
12	Browser Automation with Selenium	Introduction to this Section
		Review of Quotes Scraping Code
		Downloading ChromeDriver
		Using Chrome in Scraping Code
		New Page Locators
		Interacting with Drop-downs
		Selecting Tags
		Searching for Quotes
		Encapsulating Logic More Simply
		Adding Error Handling
		Implicit and Explicit Waits in Selenium
		Adding Waits to a Program Code
13	Asynchronous Python Development	The Dining Philosophers Problem
		Processes and Threads
		The Python Global Interpreter Lock (GIL)
		Example: Threads in Python
		Using Python concurrent.futures with the ThreadPoolExecutor
		Don't Kill Threads
		Multiprocessing in Python
		Using Python concurrent.futures and the ProcessPoolExecutor
		Dealing with Shared State in Threads
		Queuing in Threads with Shared State
		Using Python Generators Instead of Threads
		First Single-threaded Task Scheduler in Python
		Yielding from Another Iterator in Python
		Receiving Data Through Yield
		The Async and Await Keywords
		More explanations and examples
		Asynchronous Scraper
		Making the First Async Request in Python
		Retrieving Multiple Pages Efficiently
		Using the async_timeout for Security
		Turning our Book Scraping Project async
		HTTPS with Python and Mac OS X

14	Python on the Console and Managing Project Dependencies	Running Python in the Console
		Running Python
		What is a virtualenv?
		Navigating the Terminal and Using virtualenv
		Using pipenv
		pipenv and virtualenv
15	Web Development with Flask	Setting up Project with Pipenv
		First Flask Endpoint
		Returning Information with Flask and Pythons
		Rendering HTML with Flask and Python
		Error Pages and Jinja2 Inheritance
		Rendering Forms with Flask and Python
		Accessing POST Form Data with Flask
		Adding a Form in a Single Endpoint
		Using Jinja2 For Loops to Create a Nice Homepage
		Adding Website Navigation
16	Interacting with APIs with Python	Signing up for Openexchangerates
		Getting All Exchange Rates from the API
		Creating a Currency Exchange Library
		Caching Functions with Functools
		Performing TTLCache with Cachetools
17	Decorators in Python	A Simple Decorator in Python
		Using Syntax
		Functools Wraps in Python
		Decorating Functions with Parameters
		Decorators with Parameters
		Functions that Accept Multiple Arguments
		Using Generic Decorators for any Function
18	Advanced Object-Oriented Programming	Introduction to Multiple Inheritance with Python
		Introduction to Abstract Base Classes (ABCs) in Python
		The Usefulness of ABCs
		The Relationship Between Abstract Base Classes (ABCs) and Interfaces
		The Property Setter in Python
19	Graphical User Interface (GUI) Development with Tkinter	Setting up Tkinter
		Hello World in Tkinter
		Labels and Fields
		Packing Components
		Using Frames for Different Layouts
		Starting the Text Editor Project
		Tkinter Notebooks and Creating Files

		Adding a Menu to an Application
		Saving Files to a Disk
		Opening Files
		Binding Shortcuts in Tkinter
		Checking Tabs for Unsaved Changes
		Confirming Exit with Unsaved Changes
		Closing Individual Tabs
		Adding Another Menu
		Adding a Permanent Scrollbar to the Text Area
20	Unit Testing with Python	Introduction to this Section
		Testing Functions
		Testing for Errors
		Testing the Multiplication Function
		Writing a Printer Class for Testing
		Testing Classes
		More Printer Tests
		Testing External Libraries
		Conclusion of this Section
21	Algorithms and Data Structures	Presentation: Queues, Stacks, and Complexity
		Presentation: Binary Search
		Presentation: Binary Trees
		Presentation: Traversal of Binary Trees
		Presentation: Adding Elements to a Binary Tree
		Adding Elements to a Binary Tree in Python
		Recursion and Inorder Traversal in Python
		Finding Nodes in a Tree with Python
		Deleting Nodes from a Binary Tree
		Deleting Nodes in Code with Python
		Deleting Nodes with Two Children in a Code
		Testing a Binary Tree
22	Python Libraries	Python Libraries Overview
		Using Pylint
		Using Yapf
		Sending E-mails with smtplib
		Sending E-mails with Mailgun
		Creating a Re-usable Mailgun Library
		Sneak Peek: Integrated Development Environment (IDE) Setup
23	Python Reference/Refresher	Variables in Python
		String Formatting in Python
		Getting the User Input
		Lists, Tuples, and Sets
		Advanced Set Operations

Booleans in Python
If Statements in Python
The “in” Keyword
If Statements with the “in” Keyword
Loops in Python
List Comprehensions
Dictionaries
Deconstructing Variables
Functions in Python
Function Arguments and Parameters
Default Parameter Values
Functions Returning Values
Lambda Functions in Python
Dictionary Comprehensions
Unpacking Arguments
Unpacking Keyword Arguments
Object-Oriented Programming in Python
Magic methods: <code>__str__</code> and <code>__repr__</code>
Class Methods and Static Methods
Class Inheritance
Class Composition
Type Hinting
Importing Files in Python
Relative Imports in Python
Errors in Python
Custom Error Classes
First-class Functions
Simple Decorators in Python
The “at” Syntax for Decorators
Decorating Functions with Parameters
Decorators with Parameters
Mutability in Python
Mutable Default Parameters