

# Python Advanced

## Python Advanced Training Course

This course is not for novices in coding, we assume you know the non OO fundamentals of any coding language. A critical course in Python

## Prerequisites and Further Training

You should definitely be very well familiar with our [Python Beginner](#) Topics.

## Intended Audience

Whether you are new to programming or a professional developer, this course is designed to bring you up to speed on the Python language in ways that more limited approaches cannot.

## Further Training

Also have a look at our [Python Data Science Bootcamp](#) .

## Course Material

Supplied in electronic format unless specified otherwise

## Course Content

### DAY 1

#### Text Processing and Function Topics

- Text Manipulation
- First Class Functions
- Design Patterns with First Class Functions
- Decorators and Closures

### DAY 2

## 00 Review and sequence operations

- Object References, mutability and recycling
- Pythonic Objects
- Sequence operations (hacking, hashing, slicing)

## DAY 3

### Coroutines and concurrency

- Coroutines
- Concurrency
- Asyncio
- Tornado
- Trolius

## DAY 4

### Metaprogramming

- Dynamic attributes and properties
- Data wrangling with dynamic attributes
- Exploring JSON-like data with dynamic attributes
- The invalid attribute name problem
- Flexible object creation with `__new__`
- Restructuring the OSCON feed with shelve
- Linked record retrieval with properties
- Using a property for attribute validation
- LineItem take #1: class for an item in an
- LineItem take #2: a validating property
- A proper look at properties
- Properties override instance attributes
- Property documentation
- Coding a property factory
- Handling attribute deletion
- Essential attributes and functions for attribute handling
- Special attributes that affect attribute handling
- Built-in functions for attribute handling

- Special methods for attribute handling

## **Attribute descriptors**

- Descriptor example: attribute validation
- LineItem take #3: a simple descriptor
- LineItem take #4: automatic storage attribute names
- LineItem take #5: a new descriptor type
- Overriding versus non-overriding descriptors
- Overriding descriptor
- Overriding descriptor without `__get__`
- Non-overriding descriptor
- Overwriting a descriptor in the class
- Methods are descriptors
- Descriptor usage tips
- 1. Use property to keep it simple
- 2. Read-only descriptors require `__set__`
- 3. Validation descriptors can work with `__set__` only
- 4. Caching can be done efficiently with `__get__` only
- 5. Non-special methods can be shadowed by instance attributes
- Descriptor docstring and overriding deletion

## **Class metaprogramming**

- A class factory
- A class decorator for customizing descriptors
- What happens when: import time versus run time
- The evaluation time exercises
- Metaclasses
- The metaclass evaluation time exercise
- A metaclass for customizing descriptors
- The metaclass `__prepare__` special method
- Classes as objects

## **DAY 5**

- Data Science Libraries Overview
- Practicals and Test

## Duration and pricing

- *Full-time* over 10 days (R19 995)
- *Part-time* over 4 weeks (2 nights per week, 3 hour sessions) (R11995)
- *Part-time* over 8 Saturdays, 3 hour sessions (R11995)
- Please note : For *part-time* courses we do not have a fixed schedule and you will be placed on a waiting list until we get a group of 4+ together. Please book with no dates on the bookings form. This will automatically put you on the waiting list. We will confirm with you as soon as we have a part-time group together.
- [Distance-learning](#) over up to 3 months (R9995)
- International exams are not included in the course price.
- Prices exclude Vat

## Certificate

1. Upon completion of this course we will issue you with attendance certificate to certify your attendance and / or completion of the prescribed minimum examples.
2. You may sit for our competency assessment test and on passing you will obtain our competency certificate.
3. Our competency assessment can be booked and taken by someone who has not attended the course at a cost of R950.

## Bookings

You can download the course registration form on our home page or by clicking [here](#)

## Brochure

You may download a pdf copy of this page by clicking on the pdf icon at the top of the page.

## Questions

Please [email us](#)

## **Schedule**

On the calendar below. If your browser doesn't display the calendar below, please click on [this link](#) or try using [Google Chrome](#), alternatively please enquire via our [Contact Us](#) page.

We are a member of the Python Software Foundation

