
# Online courses from Bodenseo

All you need to take part in our online courses is a PC or laptop connected to the Internet. All applications used during the training run on all browsers and under all operating systems. No special software needs to be installed.

## Communication Platform

We use Microsoft Teams as the platform for communication during our course. Please mind the following information:

1. You will be invited to a meeting.
2. You will receive an email with the Subject „Python Advanced Course“ from the address bernd@bodenseo.onmicrosoft.com.
3. You can join the meeting at the given time by clicking on the link following the text „Join Microsoft Teams Meeting“.
4. You may or may not install a desktop application. You can use a browser like Chrome e.g.

## Your required infrastructure

1. A PC or Laptop
   It doesn't matter which operating system your computer is running on, e.g. Microsoft Windows 10, Linux (Ubuntu, Fedora, Mint, SuSE and so on) or MacOS.

2. Internet connection

3. In order for you to be able to take part in the communication orally, your PC or laptop must have a built-in microphone, or you can use an external microphone, which can be connected via USB, for example.
4. A video camera would be desirable, but is not a "must".
5. You do not have to install any software on your computer.

## Working Environment by Bodenseo

1. You can do the exercises and examples on a server provided by us specifically for the training. This ensures that there are no installation problems during the training. We use Jupyter Hub on this server. However, there is also the option of working with vi or emacs on these servers, if someone specifically requests this.

   (http://pier.bodenseo.de) (will be ready before the course begins)
2. The slides used in the course are made available electronically on a server: http://www.python-course.eu/online/desy

## Contact Information

You can contact me via bernd.klein@bodenseo.de
If you have urgent problems, you can also call me on +491624097229! You can also use WhatsApp at any time at the above phone number.

## Agenda: Python Advanced Course

| Day | Topics |
|---|---|
| **DAY1** | 1. Problems with copying mutable data structures<br>2. Recursive Functions and runtime problems<br>3. Memoization<br>4. * and ** in parameter passing<br>5. Decorators<br>6. Modular Programming and Modules |
| **DAY2** | 7. Lambda Operator, Filter, Reduce and Map<br>8. List Comprehension<br>9. sort and sorted with custom made sort criteria<br>10. Iterators and Generators<br>11. Context Managers<br>12. Exception Handling<br>13. Object Oriented Programming<br>13.1. Introduction<br>13.2. Class and Instance Attributes<br>13.3. Data Abstraction using getters and setters<br>13.4. Properties<br>13.5. Inheritance<br>, |
| **DAY3** | 14. Object Oriented Programming (continuation)<br>14.1. Multiple Inheritance<br>14.2. Magic Methods and Operator Overloading<br>14.3. Multiple Inheritance<br>14.4. Metaclasses<br>15. NumPy and SciPy<br>16. Matplotlib<br>17. Pandas |