Python for Scientists

Python for Scientists is a workshop focused on experimentalists who are giving their first steps in software development with Python. We focus on helping with the transition from other environments, such as MATLAB. We introduce tools for development, visualization, and analysis of data. We cover the entire flow, from opening a data file to generating figures that can be used for a paper.

The course is organized in **3 half-days,** and it is held **on premises**. The ideal group size is between **6 and 10 participants**, and there is a **certificate of completion** provided at the end.

Course Contents

Day 1

- Setting up Anaconda. Getting used to Spyder, exploring data and making the first plots. Installing packages using conda or pip. Introduction to Python's syntax: lists, tuples, dictionaries, and functions.

Day 2

- How *imports* work. Creating reusable modules for systematizing data analysis, loading, and saving. Creation of environments using conda. Sharing environment settings to ensure reproducible results. Documenting the modules to ease their use. More Python-specific syntax: default values in functions, mutability, the *path*.

Day 3

- Object-oriented Python, use cases and how to read code. Running programs from the command-line. Using Jupyter notebooks, and the power of packaging code on modules for reuse, packaging your own code. Styling matplotlib figures, making them publication ready.

About the Instructor

Aquiles Carattino started developing Python programs to control the instruments in the lab where he did his PhD. He automated confocal microscopes, spectrometers, and built the electronics for signal conditioning and temperature control. After graduating, he started Python for the Lab as an attempt to spread the knowledge he had gained.

In 2019 he co-founded **Dispertech**, a company that specializes in nanoparticle characterization through optical techniques. The company leveraged Aquiles' expertise in software and hardware design to build and commercialize a prototype of the instrument in just over 6 months.

Besides Python workshops, Aquiles engages in mentoring sessions for (aspiring) entrepreneurs with a science background, gives talks at events, and supports companies with different consulting solutions.

Some companies and organizations that trusted us.
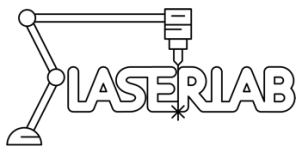
Amsterdam Laser Lab

What Students Say

💬 "It is a very nice and well-organized course. The contents are interesting and useful."

💬 "Gives a clear understanding of the communication between a computer and instruments. At the end of the course, I was very satisfied to write a python module to control a DAQ. And making the user interface was fun."

💬 "Excellent course, self-contained and, in my opinion, a great steppingstone to find your way to do instrumentation with Python. I loved the hands-on approach with a simple REAL device that gives you the insights (and experience) into the typical problems you encounter when doing instrumentation for the lab. It is very valuable that the trainer shares specific tips and tricks that come from a vast experience in this field. A total must for a researcher who wants to design new tools and experiments."