

Python (and more generally programming basics) for everyone

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Abstract

This course will hopefully provide you with everything you need to start writing computer programs. No previous experience is required. We'll begin with a few fundamentals, including:

- what kind of reasoning is necessary to write code;
- how to write basic programs in Python (mostly to explore and analyse data);
- what to do when the course is over and you don't know how to do something;
- how to do good and accessible graphics with Python.

We'll decide together what topics to cover after these, taking some time during the first meeting to tailor the lesson plan to the specific interests of the group. To make the lessons more useful, everyone is encouraged to think of a specific application concerning their research: during the course we'll work together to turn it into a functioning program, using a flipped classroom approach. This means homework, sorry.

Lessons (about 2 hours each)

Unfortunately a laptop will be necessary. If you're not able to find one, please let me know and I will try to find a solution. The course will be held in person, because most of the lessons will be interactive and will involve group work. For the same reason, there is a maximum of 15 participants.

Some of the more advanced contents we'll decide together, so this is just a basic structure of the lesson plan:

1. **Introduction:** hopes and expectations from the course. What kind of reasoning is necessary to write programs, and some examples. Participatory design of the course contents.
2. **Basic data structures and functionalities of Python:** how to write basic but useful code. We'll look at the tools with which all Python code is written.
3. **Some libraries for data manipulation** (for example numpy, scipy and pandas): interacting with tables, text and external files.
4. **Graphics 1:** why should we do graphics with code, and how.
5. **Graphics 2:** less about code, more about making good and accessible plots.
6. **Flipped classroom 1:** we work together on your projects and share knowledge.
7. **Flipped classroom 2:** same as before.
8. **Flipped classroom 3:** final lesson. Celebration for having made it this far (possibly cake).

You don't need to take the whole seminar if you already know some stuff. Any attendance of at least 50% will be considered ok, and you'll get a certificate for the corresponding number of hours. But please come to the first lesson so that we can plan your programme together.