Welcome!

Scientific Programming with Python

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Story

- Ten years ago, in summer 2013 we organised a summer school about advanced scientific programming in Python (Link) together with g-node.

- Due to the large interest, we decided to organise a "UZH-internal" school. Now we have the ninth edition.

- The content of this course was based on the 2013 school and has since been improved, adapted and expanded continuously.

- During the Pandemic years 2020 and 2021 the course was run online
  (Recordings available from Website)

Schedule

One topic per half-day (lectures, question time and tutorials)

Part	Morning	Afternoon
Lecture	08:30 - 10:00	13:30 - 15:00
Break	10:00 - 10:30	15:00 - 15:30
Tutorial	10:30 - 12:00	15:30 - 17:00

Topics

Day	Morning	Afternoon
Monday	Best practice and git	Object-oriented programming
Tuesday	Testing, Debugging, and Profiling	Pandas intro and self-study time
Wednesday	Data Structures	Scientific Analytics
Thursday	Python and C/C++	Hardware-assisted speed-up techniques
Friday	Visualisation and More	Projects & Questions

Homepage

www.physik.uzh.ch/~python

Programme

- ► Schedule
- ► Slides
- ► Exercise/tutorial material

Computing

- ► Computing information
- ► Setup information

Tutorial Sessions

- ► Work with your own laptop, but we encourage you to work in pairs = learning from each others. Take this opportunity and also change pairs!

- ► Topics covered in the tutorial sheets are typically too much $\Rightarrow$ pick what you are most interested in and you can try the rest later (Tuesday's and Friday's session or at home)

Computing

1. **Your own environment**
   - Use your own environment and install the required resources according to the instruction
     (+: it is what you use daily, –: you might face issues installing all resources)
   - You find the instuctions on the computing page.

2. **Virtual server with Jupyter environment**
   - We have set up a virtual server at http://pyschool.mnf.uzh.ch,
     which allows to run almost all tutorials.
   - You can access it by open the terminal application on your laptop and running the command
     `ssh <username>@pyschool.mnf.uzh.ch`
     (replace <username> and enter your password once prompted)
   - You find your username and password on the paper strip at the back of your name tag.
   - Once logged in, you can edit code using `nano`/`vim`/`emacs` and execute python code with `python ...`
   - ... or you can start a Jupyter environment with `jupyter-notebook`
     (the terminal will print the URL which allows you to access it via your webbrowser)
   - If you are unsure how to use the server, the course team is happy to help.

Network

There are three possibilities to connect your personal device to the university network:

1. **uzh**
   University of Zurich members preferably connect via the ssid uzh.
   Use your UZH-Shortname and password.

2. **eduroam**
   If you are working at a university that is part of the eduroam network, you can use your own eduroam login and password to connect (ask the IT department of YOUR university if you don't know the credentials).
   ssid: eduroam

3. **uzh-guest**
   If non of the methods above work for you, you can use the ssid `uzh-guest`. After connecting to this network you will need to authenticate via your webbrowser and mobile phone.

Social Evening

We will have a social evening on Tuesday, 11 July. (optional and self-paid)

Location: Linde Oberstrass (www.linde-oberstrass.ch)

Time: 18:30

How to get there: Take Tram Nr. 9 or 10 at "Universität Irchel" in the direction of UZH/ETHZ main buildings and hop off at "Winkelriedstrasse"

Those of you who want to join please fill in this Doodle.
Please put in your decision by the end of today's afternoon class!

ECTS Points / Confirmation

The course allows you to obtain 1 ECTS point.

We will open the UZH module booking tool (http://www.students.uzh.ch/en/booking.html)

We will inform you when the booking is ready.
Students with access to it, can book the module (PHY225) directly.

All students who attend the full course will receive a signed confirmation listing also the number of ECTS points.

Acknowledgement

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- Faculty of Science UZH for the funding
- Physik Institute for the hostpitality and administrative support
- Faculty of Science UZH, Physics Institute, Swiss, Dectris & Swiss Re for the tutors

Coffee Breaks – the most important thing

We will have coffee breaks in the morning and the afternoon just outside this room (on the right hand side).

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"Stop drinking coffee for a week, then start drinking it again.
It's the same effect as rebooting your computer."