



# Welcome!

Scientific Programming with Python

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# Story

- 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 seventh edition.
- The content of this course was based on the 2013 school and has since been improved, adapted and expanded continously.
- ► This year's edition is the second virtual one happening completely online.





## Schedule

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

Part	Morning	Afternoon	Where
Lecture	Flexible – but before the question session		
Question session	10:30 - 11:00	15:15 - 15:45	Main room
Tutorial	11:00 - 12:15	15:45 - 17:00	Group rooms
Topics			
Day	Morning	A	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++	ŀ	Hardware-assisted speed-up techniques
Friday	Visualisation and More	F	Projects & Questions





www.physik.uzh.ch/ $\sim$ python

Fall-back mirror of page: crbn.ch/python/ Programme

- Schedule
- Slides, links to lecture videos, links to Slido (questions)
- Exercise/tutorial material

### Internal

Password protected

Internal page with the links to rooms

## Computing

- Computing information
- VirtualBox-Image with (hopefully) everything needed for the tutorial sessions







## **Lectures & Question Sessions**

You find all resources for the corresponding lecture on its page (accessible via Programme page)!

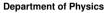
### Lecture

- ► The lecture is delivered in the form of a video.
- ► We upload the video link and the material at least one day prior to the lecture.

## Question session

- We use Slido (sli.do) to collect questions!
- You can find the corresponding links to the event in Slido on the lecture pages (1 link per lecture plus a general Slido event).
- ► You see the questions of other participants and can upvote them (= "also relevant for me!")
- ► Slido is accessible also from mobile devices (*i.e.* you can use your mobile phone to post questions while watching the lecture on your laptop).







## **Tutorial Sessions**

- Groups of four or five participants
  working in groups = learning from each others
- Assignments on internal page
- Separate rooms plus git repository (see room overview)
- If you need some help/have questions, please put the status of your room on the room overview on orange (= need some help!) or red (= urgently!).
- ► Topics covered in the tutorial sheets are typically too much ⇒ pick what you are most interested in and you can try the rest later (Tuesday's and Friday's session or at home)





# Computing

There are three options

- 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)
- 2. Anaconda environment: We also have a conda environment config file available
- 3. VirtualBox Image: Use the VB Image provided in the VirtualBox application. (+: Things are tested, -: it differs from your environment)

You can find all details on the computing page.

The course material uses Python 3!





# Using the School Image

- Debian Buster with all the packages required for the tutorials installed. Download the Image from the section "Computing" of the website.
- Login: account: student, password: student

All passwords are actually "student".

- ► We make heavy use of the terminal, but you are welcome to use the graphical file manager ("Dolphin").
- ► For editing files use your favourite editor. If unsure, use kate.
- student has sudo-rights, so you can install additional software. (Ask us for help if you just understood nothing and would like to install something nevertheless.)





**Social Evening** 

# Due to the weather forecast for tomorrow (rainy and cold in the evening) we decided to cancel the social evening!





## **ECTS Points / Confirmation**

The course allows you to obtain 1 ECTS point.

Students which can log in to the UZH module booking tool (http://www.students.uzh.ch/en/booking.html) can book the module (3336/PHY225.1). Please do so until Tuesday 12:00.

Please inform us in case of problems!

All students will receive a signed confirmation listing also the number of ECTS points.





## Acknowledgement

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- ► Faculty of Science UZH and Physics Institute for the funding
- Institute of Mathematics for the online platform
- ► Faculty of Science UZH, Physics Institute, Swiss, Dectris & Swiss Re for the tutors





## Coffee Breaks - the most important thing

Coffee breaks will also be a bit different this year:

- ► We have a virtual coffee room (see room overview).
- Feel free to go there whenever you want!
- ► The idea is to have people meeting there for an after-lunch coffee from 12:45 to 13:15!



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