Python Lecture at KIS 2020

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Please note: This program may be understood as a broad guideline and rough timetable on topics. As such it may be subject to changes before and during the lecture.

1 Basics

22.04. - 24.04. + 27.04 - 28.04. (intensive course, one lecture per day and per topic)

1.1 Installation, GitLab introduction, DataCamp and First Steps

1.2 Basic Operations, Types and Loops

1.3 Functions, Methods and Scope

1.4 Scripts, Modules, Packages and Good Practices

1.5 Input and Output, Object-oriented Programming, Why Python?

2 Advanced Topics: Data Structures, Data Handling and Visualization

Following weeks (one lecture per week, one to two lectures per topic)

2.1 Basic Data Structures and Numerics with `numpy` and `scipy`

2.2 Visualization with `matplotlib`

2.3 Advanced Data Structures and Statistics with `pandas`

3 Specific Topics

Following weeks (one lecture per week, one to two lectures per topic)

3.1 Advanced Object-oriented Programming, Symbolic calculations with `sympy`

3.2 Efficient Debugging, Optimization, Parallel Programming (and Cython)

3.3 Utilities for solar physicists with `fits`, `h5py`, `sunpy` and `astropy`