

Title: Workshop: Introduction to Scientific Python

Instructor(s): Marvin Schmitt

Abstract:

This comprehensive workshop is designed for graduate students interested in gaining proficiency in Python. Over two days, participants will explore the fundamental concepts and the scientific computing capabilities of Python. Participants are expected to have fundamental knowledge of statistical modeling and basic programming proficiency (e.g., some experience in R or a similar language).

*Day 1: Python Basics*

The first day is dedicated to the essentials of Python, including understanding its syntax, data types, control flow mechanisms, object-oriented programming techniques, and libraries. Emphasis is placed on hands-on learning, with realistic code examples and practical exercises to reinforce each concept.

*Day 2: Scientific Computation and Visualization in Python*

Day two focuses on data manipulation, scientific computations, and data visualization in Python. Participants will be introduced to common third-party libraries (numpy, matplotlib, ...), accompanied by practical exercises for better understanding. We will draw parallels to related concepts in R to illustrate the similarities and differences between the two programming languages.

By the end of this workshop, participants shall be equipped with a fundamental understanding of Python's scientific computing potential and be encouraged to consider using Python for solving problems in their own projects.

Assignment: Active participation

Credits: 2 workshop days