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**Modulbezeichnung:** Introduction to Python for Bioinformatics and the Life Sciences (PYBIOINF) 2.5 ECTS

(Introduction to Python for Bioinformatics and the Life Sciences)

Modulverantwortliche/r: David B. Blumenthal

Lehrende: Suryadipto Sarkar, David B. Blumenthal

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Startsemester: SS 2022

Dauer: 1 Semester

Turnus: jährlich (SS)

Präsenzzeit: 30 Std.

Eigenstudium: 45 Std.

Sprache: Deutsch oder Englisch

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#### Lehrveranstaltungen:

Introduction to Python for Bioinformatics and the Life Sciences (SS 2022, Praxisseminar, 2 SWS, Anwesenheitspflicht, David B. Blumenthal et al.)

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#### Empfohlene Voraussetzungen:

All course materials will be provided as Jupyter Notebooks (<https://jupyter.org/index.html>). To run Jupyter Notebooks on their machines, participants should install an Anaconda distribution before the start of the course (<https://docs.anaconda.com/anaconda/install/>). No prior programming knowledge is required, although some experience in other programming languages such as R or Java is of course helpful.

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#### Inhalt:

In this course, targeted at BSc or MSc students in the biomedical sciences, participants will receive an introduction to the programming language Python. We will start with the basics (I/O, basic data structures, loops and conditions, functions, classes, packages), introduce widely used packages for data manipulation and visualization (NumPy, pandas, seaborn), and will provide an introduction on how to use Python for analyzing biomedical data. The first phase of the course will be held in a hands-on fashion, and participants will be actively practicing their Python skills throughout the entire semester. During the second phase, the students will use their newly acquired Python skills to implement small data analysis tools.

#### Lernziele und Kompetenzen:

Students will

- learn the basics of the programming language Python,
  - learn how to use Python for data manipulation and visualization,
  - learn how to use Python for analyzing biomedical data,
  - learn how to implement custom data analysis tools.
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#### Studien-/Prüfungsleistungen:

Introduction to Python for Bioinformatics and the Life Sciences (Prüfungsnummer: 560225)

(englische Bezeichnung: Introduction to Python for Bioinformatics and the Life Sciences)

Übungsleistung

weitere Erläuterungen:

Each student should implement a small Python tool to solve an individually assigned data analysis exercise. Grading will be done based on a code review.

Prüfungssprache: Deutsch oder Englisch

Erstablingung: SS 2022, 1. Wdh.: WS 2022/2023

1. Prüfer: David B. Blumenthal

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