

The core competence of the research group of Prof. Schwaneberg (<http://www.biotec.rwth-aachen.de/>) is the evolutionary and rational design of proteins. Our projects range from basic research to elucidate structure-function relationships and their modeling, methodological developments for Directed Evolution and optimization of biocatalysts for industrial production and peptides as materials for medical applications.

### **Projects for Master/Bachelor Thesis or Internship:**

## **“Development of Integrated Workflows for Analysis of Large Biotechnological Data”**

#### **Description:**

High-throughput technologies have turned protein engineering into a data-intensive discipline, requiring bioinformaticians carry out data management and analysis tasks on large scale by using high-performance computing resources. This project involves the analysis of large-scale biotechnological data through the application of bioinformatics workflows and the development of innovative methods and platforms as required. The positions require highly motivated students with expertise in the analysis of large data, integration of wide datasets, competency in programming languages with Python/Perl and/or R and preferably experience with working on a high performance computing cluster. The individuals will collaborate very closely with experimental researchers to work on joint initiatives.

#### **Qualifications**

- Master/bachelor student (m/f) in the field of computer science, data science, biotechnology, biology, chemistry, physics, etc.
- Good knowledge in English (spoken and written)
- High motivation, flexibility, creativity, team-, organizational- and communicational skills
- Scripting and programming experience with Python/Perl and/or R and databases with SQL and perhaps some basic things about HTML
- Previous experience with Bioinformatics will be an advantage, but is not a prerequisite
- The candidate with special interest in software development

#### **What we offer /Techniques you will learn:**

In this project, the theoretical and computational knowledge in the field of protein engineering, workflows for automating data-intensive bioinformatics, and tools including protein structure design and modeling, bio- and chemo-informatics analysis, and statistical data analysis will be gained. The candidate will enjoy working in an open and dynamic environment and cooperate actively with experimental collaborators.

**Estimated time:** According to “Studienordnung”

**Deadline:** applications will be considered until the position is filled

#### **Contact person:**

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