

# Master's projects in computational genomics and research data management

## Division of Regulatory Genomics and Cancer Evolution,

### Laboratory of Dr Duncan Odom, DKFZ Heidelberg, Im Neuenheimer Feld 580

In our division, we offer opportunities for students at the M.Sc. level for internships or thesis projects. The working area will be software and pipeline development at the interface of data science, research data management and biological data analyses. Depending on the candidate's interest and skills, projects might revolve around the following subjects (as of November 2020):

- Designing and developing a (web-based) graphical interfaces for metadata entry that allows users to upload, validate, and process spreadsheets.
- Develop tools to aggregate and display data for our data management platform.
- Use R-Shiny to develop interactive charts, display data statistics, or generate quality-control reports.

Any project will be developed together with candidate. We expect some previous experience with programming (ideally Python, R, and some understanding of website development is beneficial) but also give time to learn and get a deeper understanding for the technologies applied. Further, we provide training in software development and analysis of state-of-the-art genomic data.

Our lab's ongoing research uses large-scale experiments in model-organisms to explore how genomes are regulated within and between species, and how this can be altered during aging and cancer development. Major focuses are the comparison of cancer and healthy tissues as well as understanding the aging processes. To address these questions, we apply modern single-cell technologies, as well as whole-genome and transcriptome sequencing.

The training offered is embedded in our efforts to develop a data management platform and contributing to our research questions on the interface of cancer, aging and evolutionary biology. If you have previous experience in the programming, are self-motivated, and interested in modern biological research and are motivated to develop own ideas, feel free to get in touch.

For general questions regarding the placement contact Duncan Odom (d.odom@dkfz.de). For any questions regarding possible projects, directly contact Fritjof Lammers (f.lammers@dkfz.de).

More information about us can be found on lab's website (<https://www.dkfz.de/en/regulatorische-genomik/index.php>) or via or latest publications ([https://scholar.google.com/citations?hl=en&user=I4QxyoQAAAAJ&view\\_op=list\\_works&sortby=pubdate](https://scholar.google.com/citations?hl=en&user=I4QxyoQAAAAJ&view_op=list_works&sortby=pubdate)).