

Overview

- A mandatory module in the Health Science M.Sc program
- Students learn how to process and analyze data in R
- Basic to intermediate scientific data processing skills are illustrated and practiced with R programming language
- The skills are instrumental for the successful participation in the subsequent quantitative courses in the Health Science M.Sc program

Learning Objectives

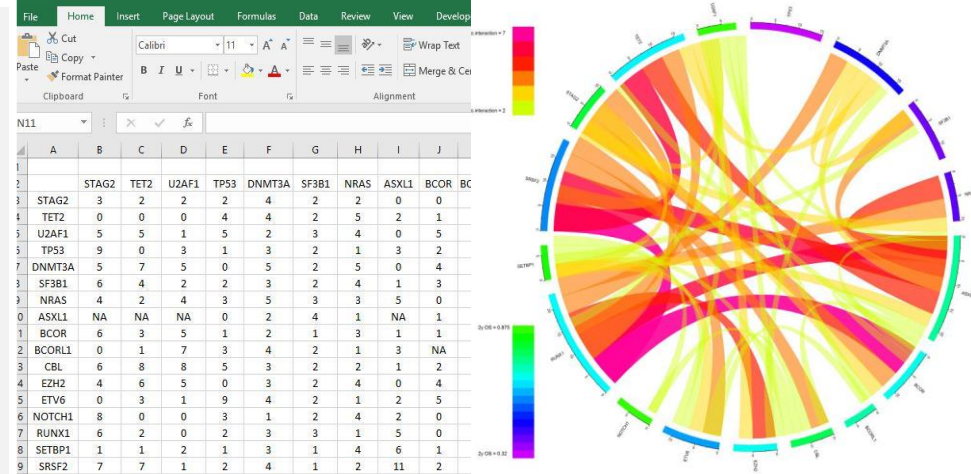
- Use R to create vectors, matrices and data frames
- Load datasets into R and to create subsets and summary statistics
- Do basic data manipulations in R
- Data visualization in R
- Estimate regression models in R and use their results for prediction purposes
- Create functions and loops in R
- Complete a hands-on data analytic project, practice scientific data processing using real-world data in R by yourself

Scientific Data Processing

Structure

- **Block 1: Self-Study R Course (SSRC) with weekly Q&A session**
 - 8 well-structured chapters with exercises for self learning
 - Live Q&A session on campus
- **Block 2: Hands-on data project**
 - Real-world data
 - Replicate results in a published paper
 - Project report in R Markdown

* *Data visualization example: Interaction of gene mutation*



Prerequisites

- Basic knowledge in mathematics and statistics

Scientific Data Processing



Offered By

- TUM Professorship of Public Health & Prevention (Prof. Dr. Michael Laxy)
- TUM Professorship of Behavioral Science for Disease Prevention and Health Care (Prof. Dr. Nikkil Sudharsanan)

Lecturers

- Min Fan, M.Sc
- Prof. Dr. Michael Laxy
- Dr. Michael Hanselmann
- Prof. Dr. Nikkil Sudharsanan

Course Language

- English

ECTS & Semester

- 5 ECTS & Winter Semester

Examination Format

- Written Exam
- Data Project Report

