Exchange programme Vrije Universiteit Amsterdam

Vrije Universiteit Amsterdam - Exchange programme Vrije Universiteit Amsterdam - 2024-2025

Exchange

Vrije Universiteit Amsterdam offers many English-taught courses in a variety of subjects, ranging from arts & culture and social sciences, neurosciences and computer science, to economics and business administration.

The International Office is responsible for course approval and course registration for exchange students. For details about course registration, requirements, credits, semesters and so on, please visit the exchange programmes webpages.

Analyses Toolbox

Course Code	P_BANATB
Credits	6
Period	P1
Course Level	300
Language Of Tuition	English
Faculty	Faculty of Behavioural and Movement Sc.
Course Coordinator	dr. M.J. Gevonden
Examiner	dr. M.J. Gevonden
Teaching Staff	dr. C.M. van der Laan MSc, dr. M.J. Gevonden
Teaching method(s)	Study Group, Practical

Course Objective

The open-source programming language and environment R is quickly becoming the working language for data analysis and visualization in the social and other sciences. In this course, aimed primarily at students without prior programming experience, the student will learn basic computing and programming skills and how to use R, through the coding environment R-Studio, to work with data in their academic career and beyond.

At the end of this course, students should:

- Be able to recognize and use the basic building blocks of programming languages (e.g. objects, control structures, functions, Boolean logic)
- Be able to find information they need through the built-in help functions and on-line.
- Write code in a way that is understandable to themselves and/or others by using comments, meaningful variable names, and indentation.
- Have the ability to write a script in R to achieve a pre-defined objective, such as performing a simple analysis on a pre-existing data set, or create a figure for a paper.
- Be aware of common problems with pre-existing datasets (missing data) and know how to recognize and handle them in R.
- Be able to pick the right tool for the data analysis task at hand (R, SPSS, Excel), considering their skill level, the desired product, and available time.

Course Content

The course provides a general introduction into data handling, data visualization, statistical analysis, and programming in R. This

introduction is supported by lectures, practicals and self-study assignments. In addition, application showcases will be provided in the

form of self-study assignments. These showcases illustrate how to apply R during all phases of a research project and in a context relevant to

the students.

Additional Information Teaching Methods

Twice weekly practicals preceded by a mini-lecture. In the practicals (3.5 hours per week) students work on coding problems and have the opportunity to get help and feedback. To stimulate the use of R beyond this course, students are required to work on their own laptop and set up a personalized coding environment.

Method of Assessment

60% of the final grade: Exam with open ended and multiple choice questions (closed-book, on paper) followed by programming assignments (open-book, on the student's own laptop).

40% of the final grade: Data analysis assignment submitted at the end of the course

Literature

The course does not follow a book, but teaches how to find relevant readings by using the help function in R and searching the internet.

We recommend reading chapters from various sources including the following:

Venables, W. N., Smith, D. M., & R Development Core Team. (2009). An introduction to R.

Wickham, H., Çetinkaya-Rundel, M., & Grolemund, G. (2023). R for data science. " O'Reilly Media, Inc.". Chicago

Additional Information Target Audience

This is the first course in the minor Genes, Cognition and Behaviour of the Psychology Bachelor. The skills thought are broadly applicable but the examples used are geared towards empirical research in biological and cognitive psychology.

Recommended background knowledge

This course assumes knowledge of common statistical methods (e.g. t-test, correlation, regression). It does not assume prior programming experience in R or other languages. A moderate level of digital literacy is recommended (e.g. knowledge of file paths, common file formats, etc).