



# 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](#).

# Genes in Behaviour and Health

Course Code	P_BGBEHE
Credits	6
Period	P2
Course Level	300
Language Of Tuition	English
Faculty	Faculty of Behavioural and Movement Sc.
Course Coordinator	dr. L.P. de Vries
Examiner	dr. L.P. de Vries
Teaching Staff	dr. L.P. de Vries
Teaching method(s)	Lecture, Practical

## Course Objective

The aim of this course is to teach the theory and practice of behaviour genetics analyses based on the classical twin design. Following this course, the student will be able to

- 1) understand the genetic and statistical underpinnings of the classical twin design
- 2) critically read and understand articles based on the classical twin design
- 3) understand what questions are posed in and how they are answered in behavioural genetics studies based on the twin design
- 4) perform twin analyses with the R library umx using real and simulated twin data
- 5) report results of the twin analyses in a scientific format / article.

## Course Content

People differ in their personality, behaviour, cognition, psychological health, and lifestyle. Behavior genetics focusses on quantifying the contributions of genetic and environmental influences to individual differences in psychological traits. In this course, we focus on the classical twin design, which is used to infer the contribution of genetic and environmental effects to individual differences based on the resemblance between monozygotic and dizygotic twins. We discuss the biometrical (genetic) model and the related statistical model that underlies the twin design and its (multivariate) applications. In addition to the theoretical and statistical underpinning of the twin design, we will gain hands-on experience in the computer practicals. In these practicals, we use the R library umx to carry out the analysis of real and simulated twin data in the R program. In addition to the theory and practice of the twin method, we discuss a selection of substantive papers based on the classical twin design.

## Additional Information Teaching Methods

The course consists of one lecture (1.45 hours) and one computer practical (4 hours) each week. Attendance of the computer practicals and lectures is recommended,

## Method of Assessment

Examination consists of a take-home exam and a regular paper and pencil exam. The take-home exam consists of carrying out analysis of a given twin dataset, and writing a report based on the analyses. The paper and pencil exam focusses on the lecture, the lecture notes, and the substantive articles, as discussed using the lectures. In addition to the take-home exam and paper and pencil exam, the weekly practicals come with a weekly assignment which have to be returned before the given deadline.

## Entry Requirements

The student is expected to have a understanding of descriptive statistics (mean, variance, standard deviation),

correlation, and linear regression analysis, as taught in the BA1 and BA2 years. In addition, the student is expected to have some experience with the programming environment R. The practicals are 100% R based. Knowledge of SPSS is irrelevant and no substitution for experience with R.

## Literature

The substantive articles (about 10) and lecture notes (about 200 pages) are available on the course Canvas page. The lecture notes include a brief statistics refresher. The lectures (and lecture ppts) are largely based on the lecture notes. The practicals are based on a practical workbook.

## Additional Information Target Audience

This course is part of the BA3 psychology track Genes, Brain and Behaviour.

## Explanation Canvas

All course material and course information will be available on the course canvas pages.

## Recommended background knowledge

Recommended prior knowledge is 1) the BA1 and BA2 statistical material (descriptives, covariance, correlation, linear regression analysis) and 2) R (experience with with R programming environment).