



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](#).

Psychophysiological measurements

Course Code	P_BPSPHM
Credits	6
Period	P3
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. M.J. Gevonden, dr. J.J. Fahrenfort
Teaching method(s)	Practical, Lecture, Written partial exam

Course Objective

At the end of this course you will have learned to:

- Analyze the correlation between affective states and autonomic nervous system responses, demonstrating comprehension of the underlying physiology.
- Describe the origins and neurophysiological principles of electroencephalography, demonstrating comprehension of foundational concepts.
- Classify and explain basic analytical techniques used in electroencephalography, illustrating comprehension and application of these methods (artifacts, preprocessing, event-related potentials, time-frequency analysis).
- Analyze the connection between cognitive processes and event-related potentials observed in electroencephalography, demonstrating understanding through interpretation and evaluation.
- Evaluate common experimental strategies and research methodologies in psychophysiology and cognitive psychology, demonstrating understanding through critical analysis.
- Apply laboratory techniques to measure autonomic nervous system activity and brain synchronization, demonstrating practical skills and synthesis of knowledge in experimental settings.

Course Content

This course has two parts, with half of the lectures dedicated to central nervous system (CNS – dr. JJ Fahrenfort) and half to autonomic nervous system (ANS – dr. MJ Gevonden) activity and measurement.

In plenary lectures we will outline how affective and cognitive processing is reflected in observable behavioral and physiological

signals. The lectures are interspersed with a series of practicals, where the students learn how to record the Electrocardiogram (ECG),

Electrodermal Activity (EDA), Blood Pressure (BP), the Impedance Cardiogram (ICG), the Electroencephalogram (EEG), the Electrooculogram

(EOG), in experimental designs aimed at isolating specific affective and cognitive processes. This will be done in a standardized laboratory

setting, and application in ambulatory settings will be discussed. The main principles, strategies and limitations for data analysis will be covered in the lectures and then applied in the practicals to the self-recorded data-sets.

Additional Information Teaching Methods

This is an intensive, fulltime course with lectures, practicals, and literature study.

The content of the lectures (approx. 6h/w) goes above and beyond the literature and attending them is key to passing the written exam. Lectures include regular mini-quizzes which may contribute to the result of the written exam

Participating in the practicals (approx. 7h/w) is essential to achieving the learning goals of the course. A total of 8 practical sessions are held (3 ANS, 5 CNS) in preparation for two tests. Missing more than one practical session means the practical tests cannot be taken and the course can not be passed

Method of Assessment

Written examination (60% of grade) of the literature during exam week, for which a passing grade (5.5+) is required.

Two graded practical tests (together 40% of the grade) are scheduled during exam week, for which there are no resits.

Practical test ANS: in a group of 3 students, run a stress experiment on a self-recruited participant and analyse the data (20%)

Practical test CNS: Computerized analysis of electrophysiological recordings (20%)

Literature

- 1) Reader with selected articles on canvas
- 2) Powerpoints of the lectures
- 3) Practical manuals

Custom Course Registration

Register early: this course has limited capacity as sufficient assistance and laboratories and equipment for practicals need to be

organized up front.

Practicals will be done in small groups. You can choose a group before the course starts; if you have not actively chosen a group

before the first lecture, you will be assigned to one.

Recommended background knowledge

The level of this course assumes students have successfully finished 2nd year of the Bachelor Psychology, Education sciences or Movement Sciences, or equivalent knowledge. It especially builds upon the 1st year Ba course Biological and Cognitive Psychology, so revising that material prior to the course is a good preparation