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.

Neurosciences

Course Code	AB_1200
Credits	6
Period	P2
Course Level	200
Language Of Tuition	English
Faculty	Faculty of Science
Course Coordinator	dr. J.R.T. van Weering
Examiner	dr. J.R.T. van Weering
Teaching Staff	dr. M.H.G. Verheijen, dr. T.S. Heistek, A. Luchicchi, A.R.J. Bijnsdorp, dr. J.R.T. van Weering, dr. L.N. Cornelisse, dr. H.K.E. Vervaeke
Teaching method(s)	Computer lab, Practical, Lecture, Seminar

Course Objective

Upon successful completion of this course the student will...

- know how the brain is built up and how different brain-regions work together, and how complex nervous systems have evolved.
- be able to explain how electric signals are generated in nerve cells and how these travel along the axon.
- be able to explain how synaptic transmission works and how different drugs or poisons affect neurotransmission.
- know how the processing of the somatosensory system works and how the nervous system interacts with the endocrine system and circadian rhythm.
- be able to explain the importance of neuron-glia interactions for brain function.
- know the brain regions involved in speech and language, and you can also determine how speech/language deficits arise in patients.
- be able to explain how the senses (sight, smell, taste, hearing, touch) transmit information from your surroundings to your brain.

Course Content

Have you always wondered how your brain actually works? How cells can pass on information and how you actually register that food is salty or sweet? These questions, and many more, will be covered in the course Neuroscience.

The course Neurosciences is divided in three main themes: neuroanatomy, neurophysiology and the brain as part of the organism. You will learn about these themes of the brain through lectures, practicals and a homework assignment.

1: Neuroanatomy

Here you will learn about various different parts of the central and peripheral nervous system. This part consists of lectures, a homework assignment where you work with a digital atlas of the human brain and a practical in which you will work with human brain specimens. Finally, you can test your knowledge in a "power-repeat" quiz-based lecture.

2: Neurophysiology

In this part we will study brain function on the cellular level, how neurons transmit information. You will learn how fundamental ions like sodium and potassium carry much of our highly complex thoughts and emotions and you will learn how signals between cells can be transmitted and modulated. Furthermore, you will record real action potentials from the axon of a worm and here you can also test your knowledge in a quiz-based "power-repeat".

3. Brain as part of the organism

The third part zooms out and couples brain function to everyday functions such as speaking, seeing, feeling pain or stress and your day-night cycle, the circadian rhythm. You will learn in different lectures how the cellular principles of brain function underlie complex behaviour that you experience everywhere around you.

The following learning pathway is incorporated into this course:

Mathemathic skills

Additional Information Teaching Methods

Lectures: 33 hours
Practicals: 5 hours
Homework assignments: 4 hours
Self-study: 124 hours

Method of Assessment

Exam: digital multiple choice test (100% of final grade). Grade needs to be over 5.5 to pass this course.

Active participation in the practicals and timely handing in of completed homework assignments are mandatory, and need be completed to sufficient standard to receive a final grade. When you are ill or unable to make it, send and e-mail to jan.van.weering@vu.nl before the mandatory session or assignment deadline.

Literature

Neuroscience, International 6th edition by Purves et al. Oxford University Press, ISBN: 9781605358413

Additional Information Target Audience

2nd year BSc students of Biomedical Sciences and Biology.

Custom Course Registration

Standard registration through VUnet.

Explanation Canvas

All communication, including the organisation of the practicals, will be handled through Canvas.