# 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.

# The Developing Brain

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| Course Code | AB_1059 |
| Credits | 6 |
| Period | P2 |
| Course Level | 300 |
| Language Of Tuition | English |
| Faculty | Faculty of Science |
| Course Coordinator | dr. M.C. van den Oever |
| Examiner | dr. M.C. van den Oever |
| Teaching Staff | dr. L.R. van der Kallen, prof. dr. V.M. Heine, dr. L.N. Cornelisse, prof. dr. R.E. van Kesteren, dr. M.C. van den Oever, B.M.W. Borgman, prof. dr. B.P.C. Kreukels |
| Teaching method(s) | Computer lab, Lecture, Practical, Study Group |

## Course Objective

Students will learn about mechanisms in the brain that underlie normal and aberrant brain development, shaping the life of individuals over time.

## Course Content

The focus of this course is on phases of brain development that shape the life of individuals over time. The brain performs differently at various ages. Whereas the young brain is very plastic, the aging brain gradually loses its adaptive capacity. Importantly, early and late brain development are affected by specific genetic factors and vulnerable to changes induced by environmental stimuli. These alterations can result in neurodevelopmental and neurodegenerative disorders.

The course consists of three modules (one week per module), each covering a critical phase of brain development. In module 1, we will focus on early (prenatal) brain development and its relation to brain disorders such as autism. In the second module, we will focus on postnatal brain development and how alterations contribute to issues during childhood and adolescence, such as gender identity and schizophrenia. In the last module, we will discuss cognitive decline associated with normal brain aging as well as specific diseases of aging, such as Alzheimer’s and Parkinson's disease. Notably, each module contains a keynote lecture related to the topic of the module. Keynote lectures are given by renowned experts in their fields and are mandatory for all students.

In addition, students will perform a Science in the Media assignment. Scientific findings are not always accurately covered in main stream media due to various reasons. The goal of this assignment is that students learn to critically read and evaluate a media coverage of a scientific study, and to present their evaluation of the flaws/strengths of a media article in small groups to their peers.

## Additional Information Teaching Methods

Lectures: 30 h Workgroups: 4 h Q&A sessions: 3 h Self study: ~60 - 120 h (in between lectures, students are expected to spend time on reading of literature to prepare for next lectures/workgroups and to make assignments on canvas).

Attendance at the Science in the Media sessions and keynote lectures is mandatory.

## Method of Assessment

Exam (E; multiple choice questions and open questions): 80%
Academic skills assignment (A): 20%
The grade of both tests has to be >5.5 to pass the course.

Students have the option to resit the exam (E).

## Entry Requirements

This course is part of the minor Brain and Mind. University students need at least 90 ECTS to be eligible for (courses in) this minor. HBO students can follow (courses in) this minor if they have at least 120 ETCS.

## Literature

Exam material: Slides of all lectures (will become available on Canvas).
Recommended reading material: will become available on Canvas.
No mandatory literature/books.

## Additional Information Target Audience

Students of the minor Brain & Mind.

Third year bachelor students who are interested in the neurobiology of the brain during prenatal and postnatal development, as well as aging. Due to curriculum overlap, students from Biomedical Sciences and Health and Life Sciences from the VU cannot follow this course.

## Additional Information

This minor course requires a minimum of 20 participants.

## Custom Course Registration

Students are assignment to groups on Canvas

## Explanation Canvas

Slides of the lectures and recommended reading material will become available on Canvas in three modules. Each module ends with quiz questions about the lectures of that module. Quizes have to completed by the student to be able to access the next module.

Keynote lectures will end with an open question that has to be answered on Canvas. Therefore, the student has to make sure that he/she has access to Canvas during the keynote lectures. Students have to upload their Science in the Media assignment to Canvas.

## Recommended background knowledge

This course is part of the minor Brain and Mind. A basic understanding of neurons, neurophysiology and molecular biology (DNA and proteins) is required. For this, we recommend to follow the courses 'Cognitive Neuroscience' and 'Nature versus Nurture' of this minor.