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.

Mathematical Modelling of Dynamical Systems

Course Code	XB_0007
Credits	6
Period	P6
Course Level	100
Language Of Tuition	English
Faculty	Faculty of Science
Course Coordinator	dr. C. Bick
Examiner	dr. C. Bick
Teaching Staff	dr. F. Mokhtari, dr. C. Bick
Teaching method(s)	Lecture, Seminar

Course Objective

1. The student can build a mathematical model for a concrete problem.
2. She can perform (literature) research in order to find appropriate parameters that make the model realistic.
3. She can recognize the mathematical challenges of the model, has learned how to analyse the model, and how to translate her mathematical findings back to the concrete context.
4. She has learned how to work on a project together with another student.
5. She can use the LaTeX beamer package, and knows how to present parts of the project, in English and both orally and in writing, to a non-expert audience.
6. She has gained new insights in the manifold application of mathematical tools (ordinary differential equations) to real-world problems.

Course Content

This course is part of the modelling line of the bachelor's programme in mathematics, and builds on the course Introduction to Mathematical Modelling. The course focuses on the application of mathematics (to be precise: ordinary differential equations) to concrete practical problems. It involves literature research, and the presentation of mathematical results. The goal is to build a mathematical model and analyse different aspects of it. The mathematical solutions are interpreted in a concrete context. English presention and writing skills are trained intensively.

Additional Information Teaching Methods

The students work in groups of 2 or 3 students on a modelling project under guidance of the teacher. They are taught how to present their work in English, and they give oral and written presentations on their work.

Method of Assessment

Open problems to be solved in groups (50% of the final grade) and oral presentations, both individually and with the group (25% + 25%).

Entry Requirements

Literature

Project instructions will be provided through Canvas.

Additional Information Target Audience

Bachelor Mathematics Year 1

Custom Course Registration

Group enrollment via Canvas

Recommended background knowledge

Necessary background: Introduction to Mathematical Modelling, Single Variable Calculus, and Linear Algebra.