



Exchange programme Vrije Universiteit

Vrije Universiteit Amsterdam - Exchange programme Vrije Universiteit - 2022-2023

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](#).

Analysis II

Course Code	X_400642
Credits	6.00
Period	P4+5
Course Level	100
Language Of Tuition	English
Faculty	Faculty of Science
Course Coordinator	dr. M.A. Estevez Fernandez
Examiner	dr. M.A. Estevez Fernandez
Teaching Staff	dr. M.A. Estevez Fernandez, dr. O. Fabert
Teaching method(s)	Partial Exam, Lecture, Seminar

Course Objective

At the end of this course the student is able to

- solve some first order (linear or with separable variables) and second order (with constant coefficients) differential equations.
- use some convergence tests for (power-)series (comparison test, limit test, ratio test, integral test).
- calculate the interval of convergence of a power/Taylor series.
- determine if a function of several variables is continuous and/or differentiable.
- calculate the extreme values of a function of several variables.
- calculate a double or triple integral (if needed with a change of variables)

Course Content

In this course we treat sequences and series of functions, functions of several variables and multiple integration. We also discuss differential equations of first and second order. The topics are:

- Differential Equations of first order (separable equations and linear equations) and second order (linear with constant coefficients).
- Sequences of functions. Pointwise and uniform convergence.
- Series, Power series and Taylor series. Pointwise and uniform convergence.
- Basic topology in Euclidian spaces.
- Functions of several variables (continuity, differentiability, optimization, Taylor series)
- Multiple integration (double and triple integrals, change of variables, improper integrals)

Additional Information Teaching Methods

Lectures (2x2 hours per week) and seminars (1x2 hours per week).

Method of Assessment

There will be a midterm exam at the end of period 4 and a final exam at the end of period 5. Details about the topics treated in each exam and the calculation of the final grade will be published in Canvas. If your grade is not sufficient, it is possible to make the resit about all topics in the spring semester. It is not possible to resit just the midterm or final exam.

Literature

Will be announced on Canvas.

Additional Information Target Audience

1 EOR

Additional Information

We expect that you attend the seminars well prepared! That means that you have already tried to make the exercises at home! Some exercises will be treated on the blackboard. You can ask questions about other exercises to the teaching assistant. An attendance list will be used.

Recommended background knowledge

This course requires knowledge of topics treated in Analysis I.