



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](#).

Immunology

Course Code	AB_1144
Credits	6
Period	P6
Course Level	100
Language Of Tuition	English
Faculty	Faculty of Science
Course Coordinator	dr. S. Duinkerken
Examiner	prof. dr. Y. van Kooyk
Teaching Staff	prof. dr. Y. van Kooyk, dr. J.M.M. den Haan, dr. S. Duinkerken
Teaching method(s)	Symposium, Study Group, Lecture, Practical

Course Objective

The goal of this course is for students to learn the following:

Immunity in health. The student knows and understands:

- the differences between innate and adaptive immunity.
- the different components of the innate and adaptive immune system and how these function against infectious diseases.
- features of the immune system that distinguish harmless from harmful.
- the molecular mechanisms involved in immune cell activation and immunity.
- the difference between adaptive immune cell development, activation and immunity in terms of location and molecular cues.
- the difference in immune cell activation for immunity versus tolerance.
- the aim and working mechanism of vaccination.

Immunity in disease. The student knows and understands:

- how the working mechanism of the immune system is hampered in case of primary and secondary immune deficiencies or pathogen escape.
- how dysregulation of immune responses can lead to allergy, auto-immune diseases and cancer.
- how the immune system is implicated with, and can be used for treatment of diseases such as allergy, auto-immune diseases and cancer.

Immunity in research. The student can:

- extract details from a scientific paper for discussion and present it in a concise manner.
- understand and execute immunological assays to answer questions related to immune activation.

Course Content

The course will be divided over 4 main topics:

1. Innate and adaptive immunity in infectious disease
2. Adaptive immunity: development and responses
3. Immune tolerance, memory & vaccination
4. Disease & immunotherapy: immune escape, allergy, auto-immunity and cancer.

These topics will be explained during multiple lectures. Two study groups will be provided to actively practice with the learning material. For scientific experience, one or two practicals will be held in which students use a widely applicable biomedical technique (ELISA) and assess a common immunological process.

The course will close with a multiple choice exam concerning the study material and the presentation of a scientific poster.

The following learning pathway is incorporated into this course:
Academic skills

Additional Information Teaching Methods

LECTURES

- 1 introduction lecture explaining the course set-up (45min)
- 13 lectures explaining study material (~26h)
- 1 Q&A (45min)

STUDY GROUPS

- 2 work groups on immunity (~4h)
- 3 work groups to prepare the poster presentation (~6h)

Immunity

These work groups will focus on active engagement with the study material, covering topics 1 and 2. The goal is to better understand basic immunity and coherence between the different immunological processes.

Poster

Students will be divided to read, discuss and present a scientific paper to their peers, from one out of four topics. These work groups will be supervised by junior lecturers.

WG1: Assigning your group and scientific article

WG2: Journal club

WG3: "Pitch your poster" feedback session

Final: poster presentation session (~1h per session)

PRACTICAL (obligatory)(~4h per practical)

One or two* practical classes on campus will be provided to gain experience with an immunological technique often used in the laboratory (ELISA). The practical will be supported by LabBuddy. With this program students will prepare the experiment prior to the practical class. During the practical class students can now use their pre-designed experiment for a smooth run.

**If student numbers allow it, a second practical will be provided. This practical will gain insight into immunological processes and practical experience how to assess these processes.*

SELF-STUDY(~125 hours)

SUPPORTING RESOURCES

- To deepen understanding, an e-learning tool covering a specific part of immunity will be provided.
- Each lecture will be supported by an interactive quiz, for active engagement and support during studying.
- Short knowledgeclips will be provided for context and content of lecture topics.

Method of Assessment

Digital MC exam

- 80% of final grade
- minimal requirement score 5.50
- 50 multiple choice questions, based on the study material of lectures and work groups

Poster presentation

- 20% of final grade
- minimal requirement score 5.50

Literature

Peter Parham, The immune system 5th edition, Garland Science, New York and London, 2021. ISBN: 9780393533378

Additional Information Target Audience

Compulsory course for first-year BSc Biomedical Sciences students.

Custom Course Registration

Registration is only open after passing the course AB_LABSAFETY.

You need to register yourself for the course via VUnet, including lectures and (partial) exam(s). Registration for all remaining teaching methods will take place after the registration deadline.