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.

Immunology

Course Code	AB_1144
Credits	6.00
Period	P6
Course Level	100
Language Of Tuition	English
Faculty	Faculty of Science
Course Coordinator	drs. K. Brouwer
Examiner	prof. dr. Y. van Kooyk
Teaching Staff	dr. I. Maggio, E. Jaku, dr. J.M.M. den Haan, prof. dr. Y. van Kooyk, dr. J.M.M. den Haan, prof. dr. Y. van Kooyk, S. Duinkerken
Teaching method(s)	Study Group, Lecture, Practical

Course Objective

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

Immunity in health
• To recognize and describe the differences between innate and adaptive immunity.
• To recognize and describe the different components of the innate and adaptive immune system and how these function against infectious diseases.
• To recognize and describe features of the immune system that distinguish harmless from harmful.
• To comprehend and describe the molecular mechanisms involved in immune cell circulation for activation and immunity.
• To comprehend and describe the difference between adaptive immune cell development, activation and immunity in terms of location and molecular ques.
• To comprehend and explain the difference in immune cell activation for immunity versus tolerance.
• To comprehend and explain the working mechanism of vaccination.

Immunity in disease
• To understand and explain how pathogens can escape immune detection and the difficulties in therapeutic strategies against such pathogens.
• To understand and explain the involvement of genetic and environmental factors in immunity and how these can contribute to diseases such as allergy, auto-immunity and cancer.
• To analyze and explain how dysregulation of immune responses can lead to allergy, auto-immune diseases and cancer.
• To comprehend and explain immunotherapeutic strategies to treat diseases such as allergy, auto-immune diseases and cancer.

Immunity in research
• To extract details from scientific papers for discussion and presentation in a concise manner.
• To 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, and
(4) Disease & immunotherapy: pathogen escape, allergy, auto-immunity and cancer.
These topics will be given during multiple lectures and study groups

will be provided to actively practice with the learning material.
For scientific experience a practical will be held in which students use a widely applicable biomedical scientific technique.
The course will close with an exam concerning the study material and the presentation of a scientific poster.

Additional Information Teaching Methods

Lectures (not obligatory, highly recommended)
A total of 14 lectures of appr. 2 hours will cover immunological content based on the chapters of Parham's latest edition.
The lectures 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: pathogen escape, allergy, auto-immunity and cancer
Total appr. 28 contact hours

Study groups (obligatory)
-One study group "Immunity in infection" will be provided for students to actively engage in the study material under supervision of a teacher. This study group will cover the content of the first two lecture topics. (appr. 2 hours)
Students will discuss the immune responses related to different infections in small groups. Outcomes of the discussion will be shortly presented to their peers under supervision of a teacher.

-A poster presentation will be assigned to present the content of a scientific paper by small groups. (appr. 4 hours)
Students will choose 1 out of 4 immunological topics to read, discuss and present the scientific paper to their peers under supervision of junior lecturers.
Total appr. 6 hours

Practical (obligatory)
A practical class on campus will be provided to gain experience in an immunological technique often used in the laboratory to evaluate immune activation. (appr. 4 hours)
Students are given an assignment about the subject prior to the practical which has to be completed for participation.
Total appr. 4 hours plus 1 hour preparation.

Recap, questions and practice (not obligatory, highly recommended)
• A question and answer session will be organized for recap of the study material and explanation of any uncertainties. (appr. 2 hours)
• Quizzes will be made available for selfstudy and to actively test knowledge on the study material.
Total appr. 2 contact hours plus selfstudy.

Method of Assessment

A digital exam of 50 multiple-choice questions will test the acquired knowledge based on literature, lectures, study groups and the practical. The exam score will count for 90% of the total score.
A poster presentation of scientific literature will account for 10% of the total score.
A minimum score of 5.50 for both the digital exam and poster presentation is required to pass the course.

Literature

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

4th edition, Garland Science, New York and London, 2015. ISBN: 9780815344667)

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.