LUND UNIVERSITY

LTH
FACULTY OF ENGINEERING

Course syllabus

Immunteknologi
Immunotechnology

KIMN01, 7,5 credits, A (Second Cycle)

Valid for: 2023/24
Faculty: Faculty of Engineering, LTH
Decided by: PLED B/K
Date of Decision: 2023-04-18

General Information

Main field: Biotechnology.
Main field: Pharmaceutical Technology.
Elective Compulsory for: MLAK1
Elective for: B4-l, B4-mb, BME4-bf, K4-l, MBIO1, N4-nbm
Language of instruction: The course will be given in English

Aim

The purpose of the course is to give advanced knowledge in the area of immunology, that combined with experience from previous courses within the bio-area will give the students insights into how such knowledge can be applied to problems in the field of biotechnology and biomedicine.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

- describe and explain complex immunological processes
- interpret, depict and discuss complex biological observations in terms of immunology
- describe and explain anaytical approaches based on immunological techniques for complex issues within the bio-area

Competences and skills
For a passing grade the student must

- apply immunology to develop and design reagents and analytical approaches for problems within the bio-area

- evaluate experimental data from an integrated immunochemical and biochemical point of view
- use technical terms verbally and in writing
- present and interpret experimental data and theoretical considerations in an immunological context

Contents

The course will cover basic immunology including cellular and molecular systems and their interactions. Development of monoclonal antibodies and fragments using cellular and molecular technologies. Test systems based on immunological reagents. Biomedical immunology with aspects of allergy, tumour immunology and immunotherapy. Methods employing molecular engineering to improve/modify immunological specificities and reactions. Immunology and its industrial applications. Lab exercises and reports. Interactive excercises, based on PBL and group excercises, to highlight comprehension and ability to communicate.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)
Assessment: Taking the obligatory immunology quizand active participation in compulsory PBL exercises. Laboratory work and lab reports. Ordinary examination is written. Re-examination is written or individual oral examination (as defined by the examiner). The final grade is set on the written or oral examination.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Parts
Code: 0117. **Name:** Practical.
Credits: 3. **Grading scale:** UG. **Assessment:** Laboratory work and written laboratory reports. Grading scale UG. **Contents:** This course will demonstrate experimental systems used in basic immunological studies as well as regular immunoassays and technologies. Written reports where also the underlying theories are discussed.
Code: 0217. **Name:** Theory.
Credits: 4,5. **Grading scale:** TH. **Assessment:** Attendance at the roll-call and the mandatory immunology quiz as well as active participation in the compulsory PBL sessions. Written or oral examination. The grade of the written/oral examination gives the grade of the entire course. **Contents:** Basic immunology and applications of cells and molecules of the immune system (lectures and exercises, as well as in the laboratory work).

Admission

Admission requirements:

- EXTA70 Biology of the Cell or KBKA05 Technical Biology or KBKA10 Biochemistry or KBKF05 Cell biology or KBKF15 Biochemistry or TEK295 Biology of the Cell

The number of participants is limited to: 72
Selection: Maximum 5 places in the course are reserved for exchange students. Selection criteria for the remaining places: number of points reached in the respective program. Priority is given to students enrolled on programmes that include the course in their curriculum.
The course overlaps following course/s: KIM015, EXTN40

Reading list

- Kenneth Murphy: Janeway´s Immunobiology, 9th ed. Garland Science, 2016, ISBN: 9780815345053. Murphy, K.Janeway´s Immunobiology. 9th ed. Garland Science, 2016. ISBN: 9780815345053.
- Scientific research articles.
- Compendium: Immunotechnology course laborations.

Contact and other information

Course coordinator: Kathrin Zeller, kathrin.zeller@immun.lth.se
Course homepage: https://www.immun.lth.se/study-at/
Further information: Mandatory sessions: roll-call, immunology quiz lectures A-E, PBL and laboratory work.