DEPARTMENT OF WOMEN'S AND CHILDREN'S HEALTH

K6F3022, Translational Paediatric Oncology in the Era of Immunotherapy and Omics, 1.5 credits (hec)

Translationell barncancerforskning i tidsepoken av immunoterapi och omik, 1,5 högskolepoäng

Third-cycle level / Forskarnivå

Approval

This syllabus was approved by The Committee for Doctoral Education on 2023-11-16, and was last revised on 2025-08-29. The revised course syllabus is valid from spring semester 2026.

Responsible department

Department of Women's and Children's Health, Faculty of Medicine

Prerequisite courses, or equivalent

No prerequisite courses, or equivalent, demanded for this course.

Purpose & Intended learning outcomes

Purpose

This course aims to introduce paediatric oncology research to doctoral students and junior postdocs with research interests in this or adjacent fields.

The purpose is to enable students to:

- Obtain a comprehensive overview of the different domains within childhood cancer research and understand the historical milestones that have led to cure rates approaching 90%.

- Recognize the current limitations and challenges of childhood cancer treatment.

- Understand how modern methodologies in molecular biology increase our knowledge about tumorigenesis and tumour evolution.

- Develop hypotheses and propose strategies to improve treatments.

Intended learning outcomes

At the end of the course the students should be able to:

- Summarize the fundamentals of epidemiology, tumour biology, genetics, and therapeutic approaches in paediatric oncology, including surgery, cytotoxic therapies, immunotherapies, treatment-related side effects, late effects, and follow-up care.

- Discuss ethical considerations in childhood cancer research.

- Describe current treatment principles, existing therapies, and advances in personalized medicine.

- Explain and theorize the connection between cancer cell biology, tumour microenvironment, immunology, genetics, and drug treatments, including current knowledge and new developments.

- Explain and discuss experimental methodologies used in paediatric oncology research, including in vivo, in vitro and in silico models.

- Critically evaluate research findings in paediatric oncology.

- Demonstrate good knowledge of mechanisms, principles, and treatment options through actively engaging in discussions with course leaders and peers.

Course content

The students will be introduced to, and engage in discussions about the challenges, opportunities, and research models specific to paediatric oncology. The course will provide a general overview of the field and focus on distinct, but interconnected topics specific to paediatric oncology, namely ethics, epidemiology, tumour biology and genetics, existing and novel targeted therapies and immunotherapy, and side effects, late effects and follow up-care.

Forms of teaching and learning

The course combines lectures, seminars, group exercises with supervised discussions, either in person or online. To encourage active participation and discussion, each student will prepare a poster and a brief oral presentation on their current or planned research, accompanied by a short abstract, which must be submitted no later than two weeks before the course begins. The course also includes practical experiences related to paediatric oncology, such as workshops and site visits.

Language of instruction

The course is given in English

Grading scale

Pass (G) /Fail (U)

Compulsory components & forms of assessment

Compulsory components

All course activities are compulsory. Absence can be compensated for by other activities in agreement with the course leaders.

Forms of assessment

To pass the course, the students must demonstrate that they have achieved the learning outcomes. Each student should prepare and present a scientific poster and a short oral presentation on a current or planned childhood cancer research project and respond to critical questions from the course leaders and peers. In addition to answering questions satisfactorily, participants are expected to raise relevant questions and discussion points aligned with the course's learning objectives.

Course literature

Recommended course literature: Students will be provided with current review articles well in advance of the course. Additional course materials, including relevant articles and book chapters, will also be distributed