



## INSTITUTE OF BIOMEDICINE

### **SB00025 Epigenetics in cancer research, 1.5 credits**

Epigenetik i cancerforskning, 1,5 högskolepoäng

*Third-cycle level / Forskarnivå*

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#### **Confirmation**

This syllabus was confirmed by the Council for PhD Education at Sahlgrenska Academy on 2019-10-01, and was last revised on 2022-03-09. The revised course syllabus is valid from Autumn semester 2022.

#### *Responsible Department*

Institute of Biomedicine, Sahlgrenska Academy

#### **Entry requirements**

Admitted to postgraduate studies.

The course is an elective course within the third cycle at Sahlgrenska Academy.

#### **Learning outcomes**

After completing the course the student is expected to be able to:

##### *Knowledge and understanding*

- Account for the concept of epigenetics and its role in health and disease.
- Demonstrate an advanced knowledge of experimental strategies, methods and tools for epigenetic analyses.

##### *Competence and skills*

- Describe and discuss the structure and role of epigenetics in health and disease.
- Demonstrate the ability to choose suitable experimental and computational approaches for epigenetic research questions.
- Critically analyse, explain and discuss scientific topics and research issues in epigenetics.

##### *Judgement and approach*

- Understand the techniques that have been introduced in the course and be able to select the

most suitable methods for specific research questions.

- Demonstrate skills in critical thinking and show understanding of the epigenome and its role in cancer.

## Course content

The course will introduce the concepts of epigenetics (DNA methylation, chromatin structure, histone modifications and non-coding RNA), how it is involved in cancer, can be used in clinical diagnostics and how epigenetic analyses are planned and performed.

The course will cover the following topics:

- The current state of knowledge on epigenetics in health and disease, specifically in cancer
- The potential of using epigenetics in cancer diagnostics
- Epigenetic therapy as an emerging strategy for treating cancer
- How to design, analyse and interpret epigenetic experiments

## Types of instruction

The course is given in a digital format, requiring computer access and internet. All content, communication and relevant documents, such as lectures, exercises and literature, will be posted at an online platform such as CANVAS.

### *Language of instruction*

The course is given in English.

## Grades

The grade Pass (G) or Fail (U) is given in this course.

## Types of assessment

All course parts are compulsory (lectures, group discussions and presentations). Final grade will be based on active participation in group discussions, and on the oral presentation. In the event of absence during compulsory parts, the student is responsible for contacting the course coordinator for alternative examination assignment.

A doctoral student who has failed a test twice has the right to change examiners, if it is possible. A written application should be sent to the Institute.

## Course evaluation

A written course evaluation will be performed directly after the course according to the praxis set by the Sahlgreńska Academy. The evaluation is anonymous and involves lectures and seminars. The information will be compiled and shared with students who participated in the evaluations. The results of the evaluation will be used for the further development of the course.

## Other information

Required reading: Scientific articles

The syllabus was confirmed by the Council for PhD Studies on 12-09-2017 to be valid from spring semester 2018 (reg.nr.: U 2017/543). It was entered into FUBAS on 30-09-2019.