SK00024 Radiologic Research Methodology, 1.5 credits
Radiologisk forskningsmetodik, 1,5 högskolepoäng

Third-cycle level / Forskarnivå

Confirmation
This syllabus was confirmed by the Council for PhD Education at Sahlgrenska Academy on 2019-03-21, and is valid from Autumn semester 2019.

Responsible Department
Institute of Clinical Sciences, Sahlgrenska Academy

Entry requirements
Entrance qualifications is that the student is a registered PhD student.

Learning outcomes
After completion of the course the student can be expected to be able to:

Knowledge and understanding
• Explain how different methods can be used for assessment of image quality
• Explain different statistical methods used for image research
• Describe how radiologic research projects are initiated, prepared, conducted, and archived

Skills and ability
• Plan experimental studies in image research
• Assess image quality by conducting a scientific study
• Perform experiments in the field radiation dose – image quality

Judgement and approach
• Evaluate different methods for image quality analysis
• Have an ethical approach in radiologic research

Course content
The focus of the course is to reach a basic understanding of the research methodology and
statistical methods specific for radiologic research:
  • Image quality analysis
  • Tools for image-based research
  • AI as a research tool
  • Preparations for a radiologic research project: Hypothesis, research question, research plan, ethical committee application, radiation protection committee application
  • Radiation doses in the research process
  • Ethics in the research process
  • GDPR and registers
  • Organisation and backup of research data
  • Manuscripts and the review process
  • Radiologic systematic reviews
  • Research group meetings
  • Presentation techniques
  • Seminar: Practical uses of tools for image data research
  • Seminar: Statistical methods for image data research.

Types of instruction
Instruction will be in the form of theoretical lectures and practical demonstrations using computers. The course includes lectures, seminars, a group task and literature studies.

Language of instruction
The course is given in Swedish but can be given in English if necessary.

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

Types of assessment
Course examination is in the form of a written individual examination. Active participation in all seminars and handing in of group assignments is compulsory. Failed compulsory tasks must be re-taken according to instructions from the teacher.

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
The evaluation of the different parts of the course is accomplished with a written poll and as a dialog with the students. The course leader will analyze the evaluation and suggest future development of the course. The analysis and suggestions will be given as feedback to the students and published on the university learning platform.
Other information

This syllabus was confirmed by the Sahlgrenska Academy's Council for PhD Education on 26-02-2019, and is valid from the autumn semester 2019 (reg.nr.: GU 2019/697). It was entered into Fubas on 19-03-2019.