



TRANSLATION FROM SWEDISH

## COURSE SYLLABUS

# Scientific Methodology and Research Design, third-cycle level

7.5 credits

**Course code:** IT0950F

**Version number:** 2

**Valid from:** 1 January 2024

**Ratified by:** Curriculum Committee for Third-cycle Studies

**Date of ratification:** 18 December 2023

## 1. General information about the course

The course is provided by the University of Skövde and is named Scientific Methodology and Research Design, third-cycle level (Vetenskapliga metoder och forskningsdesign, forskarnivå). It comprises 7.5 credits.

The course is a part of the third-cycle subject areas of Informatics and Health Science.

## 2. Entry requirements

The prerequisites for this course are general entry requirements for third-cycle courses and study programmes, i.e. a second-cycle qualification or satisfied requirements for courses comprising at least 240 credits of which at least 60 credits were awarded in the second cycle (or the equivalent).

An additional requirement is proof of skills in English equivalent of studies at upper secondary level in Sweden, known as the Swedish course English 6. This is normally demonstrated by means of an internationally recognized language test, e.g. IELTS or TOEFL or the equivalent.

## 3. Course content

This course consists of a general overview addressing ontology, epistemology, and research design, focusing on how to formulate research questions, the role of theory and an overview of research methods explaining the different forms of knowledge that various methods can provide.

The course deals with central aspects of the research process as well as principles and questions related to quality assessment, problem formulation, research design, and presentation of research. Doctoral students will be expected to formulate a research plan describing a proposed research project within the field of informatics or health sciences/health in the digital society.

Study designs, methodological choices, and examples commonly used in informatics and health sciences are emphasised.

## 4. Objectives

After completion of the course, the doctoral student shall be able to:

### Knowledge and understanding

- explain and discuss central epistemological approaches and ontological stances
- describe and discuss various forms of study designs and methodological choices, which includes techniques for gathering and analyzing data
- define various concepts related to scientific quality: validity, reliability, credibility, transferability, dependability, and sources that may undermine quality such as bias and logical fallacies
- demonstrate an in-depth understanding of the possibilities and limitations of various scientific methods, when adopted in isolation or used in combination

### Competence and skills

- identify and formulate a research question grounded in scientific principles, argue for an appropriate methodological approach
- critically review scientific articles, focusing on study design, method selection, structure, and research ethics and professional conduct, based on established quality criteria and existing guidelines
- communicate research work, orally and in writing

### Judgement and approach

- assess scientific integrity and make research ethical judgments regarding both the conduct and future use of research results

## 5. Examination

The course is graded G (Pass) or U (Fail).

To receive the grade Pass on the course, all examination parts have to be graded Pass.

The examinations of the course consist of the following modes of assessment:

- **Active participation in seminars**  
3 credits, grades: G/U
- **Written assignment**<sup>1</sup>  
3.5 credits, grades: G/U
- **Project presentation**<sup>2</sup>  
1 credit, grades: G/U

<sup>1</sup>report  
<sup>2</sup>oral

Doctoral students with a permanent disability who have been approved for directed educational support may be offered adapted or alternative modes of assessment.

## 6. Types of instruction and language of instruction

The teaching comprises lectures, group assignments, project work, and seminars/group discussions.

The teaching is conducted in English.

## **7. Course literature and other educational materials**

Oates, B. J., Griffiths, M. & McLean, R. (2022). *Researching information systems and computing*. Sage Publication Ltd. ISBN 9781529732689.

Research papers which will be distributed during the course.

### **Reference literature**

Bowling, A (2023). *Research methods in health: investigating health and health services* (5th ed.). Open University Press. ISBN 9780335250929.

## **8. Doctoral student influence**

Doctoral student influence in the course is ensured by means of course evaluation. The students are informed about the results of the evaluation and potential measures that have been taken or are planned, based on the course evaluation.

## **9. Additional information**

The subject Health Science is part of the third-cycle disciplinary domain Health in the digital society.

Further information about the course, as well as national and local governing documents for higher education, is available on the website of the University of Skövde.