



*Course syllabus*

# Forskningsmetodik och metoder Research Methodology and Methods

**VRSN40, 7,5 credits, A (Second Cycle)**

**Valid for:** 2023/24

**Faculty:** Faculty of Engineering, LTH

**Decided by:** PLED BI/RH

**Date of Decision:** 2023-04-12

## General Information

**Main field:** Disaster Risk Management and Climate Change Adaptation.

**Compulsory for:** MKAT2

**Elective for:** RH5, R5

**Language of instruction:** The course will be given in English

## Aim

The course aims to provide students with understanding, skills and approaches to independently design and carry out scientific research and development work. The course builds on previous knowledge and abilities from one or several subject areas that the students have developed through previous courses on advanced level. This course provides a basis for developing new knowledge within these areas through research and development work.

## Learning outcomes

*Knowledge and understanding*

For a passing grade the student must

- demonstrate knowledge and understanding of key assumptions, positions and concepts in scientific research and development work.
- demonstrate in-depth knowledge of relevant research methodology and different methods of scientific research and development work within ones' area of study.

### *Competences and skills*

For a passing grade the student must

- demonstrate ability to independently identify problems and formulate purpose and research questions/design criteria.
- demonstrate ability to critically review the choice of research methodology and methods for one's own and others' scientific studies and development work.
- demonstrate the ability to present key aspects of scientific research and development work both in writing and orally, as well as describe and motivate a planned research or development project.

### *Judgement and approach*

For a passing grade the student must

- demonstrate ability to critically reflect on relevant scientific, societal, and ethical aspects of research and development within one's area of study.
- demonstrate insight into the possibilities and constraints of science, its role in society, and the responsibility of different actors for its use within one's area of study.

## Contents

The course is structured in modules focusing on various key aspects of research methodology and methods; from philosophical assumptions and research strategies, to ethical considerations and methods of data collection and analysis. The students use recorded mini-lectures and literature to inform their own work, their peer review of other students' work, and structured conversations in groups. This in turn forms the basis for student-led seminars where particularly important issues are addressed with the facilitation of teachers.

## Examination details

**Grading scale:** UG - (U,G) - (Fail, Pass)

**Assessment:** Written individual papers, approved portfolio with module assignments, and participation in compulsory seminars.

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:** 0119. **Name:** Thesis Outline.

**Credits:** 1. **Grading scale:** UG. **Assessment:** Approved written thesis outline **Contents:** Written thesis outline

**Code:** 0219. **Name:** Portfolio.

**Credits:** 3. **Grading scale:** UG. **Assessment:** Approved written portfolio **Contents:** Written portfolio

**Code:** 0319. **Name:** Seminars.

**Credits:** 0,5. **Grading scale:** UG. **Assessment:** Active participation **Contents:** Active participation

**Code:** 0419. **Name:** Goal Document.

**Credits:** 3. **Grading scale:** UG. **Assessment:** Approved written goal document **Contents:** Written goal document

# Admission

## Admission requirements:

- At least 180 credits corresponding to a Bachelor's degree or 180 credits from an Engineering programme at LTH and 30 second-cycle credits from a Master's programme at LTH or 30 second-cycle credits from a specialisation of an MSc Engineering programme at LTH

## The number of participants is limited to: 50

**Selection:** Completed university credits within the program. Within programs where the course is given as a compulsory course students are guaranteed admission. Thereafter priority is given to students enrolled in programs that include the course in the curriculum.

**The course overlaps following course/s:** EXTP76, EXTP75

## Reading list

- Becker, P.: Sustainability Science: Managing Risk and Resilience for Sustainable Development. Amsterdam and Oxford: Elsevier, 2014. (page 197-205).
- Blaikie, N. : Designing Social Research: The Logic of Anticipation (2nd ed.). Cambridge and Malden: Polity Press, 2010.
- Creme, P., & Lea, M. R. : Writing at university: A guide for students (3rd ed). Maidenhead: McGraw-Hill Open University Press. , 2008.
- Crotty, M. : The foundations of social research: meaning and perspective in the research process. London: Sage Publications, 1998. (page 1-17).
- Dresch, A., Lacerda, D. P., & Antunes Jr, J. A. V. : Design Science Research: A Method for Science and Technology Advancement. Heidelberg and New York: Springer, 2015.
- Greenwood, D., & Levin, M. : Introduction to Action Research: Social Research for Social Change (2 ed.). Thousand Oaks: Sage Publications, 2007.
- Järvinen, P. : Action Research is Similar to Design Science. 2007. Quality and Quantity, 41, 37-54.
- SRA. : Ethical guidelines. London, 2003. (page 10-40).
- Watts, D. J. : Should social science be more solution-oriented?. 2017. Nature Human Behaviour, 1, 1-5.
- Wieringa, R. J. : Design Science Methodology for Information Systems and Software Engineering. Berlin and Heidelberg: Springer.
- Heylighen, F., Cilliers, P., & Gershenson, C. : Complexity and Philosophy. In J. Bogg & R. Geyer (Eds.), Complexity, Science and Society. Oxford: Radcliffe Publishing, 2007.
- Creswell, J. W. : Qualitative inquiry and research design: Choosing among five approaches (3rd ed.). Thousand Oaks and London: Sage Publications, 2013.

## Contact and other information

**Course coordinator:** Per Becker, [per.becker@risk.lth.se](mailto:per.becker@risk.lth.se)

**Course administrator:** Linnéa Ekman, [linnea.ekman@ebd.lth.se](mailto:linnea.ekman@ebd.lth.se)

**Further information:** The course focuses explicitly on the students' learning through interaction between students and the subject, as well as through informed dialogue between students. It requires active participation of all students in their own work, in peer review and dialogue, as well as in student-led seminars.