UMEÅ UNIVERSITET

Science, ethics and society

Credit points: 4 points
Course code: 5DN012
Established by: Committee for doctoral studies, Faculty of Science and Technology
Valid from: 2025-09-01
Responsible department/faculty: Faculty of Science and Technology
Main field of study: General science
Grading scale: Pass, fail
Education level: Doctoral course

1. Course requirements
Admitted to doctoral studies.

2. Expected learning outcomes
To pass the course, the student must be able to show that they

Knowledge and understanding
- Understand the relationship between research ethics and law, tradition, and scientific practice. Know of central ethical principles and norms for publication and good research practice.
- Know of different scientific ideals and how they reflect different purposes, perspectives, and societal roles.
- Understand how science is shaped by and interact with societal, cultural and political contexts, including norms, institutions, and power structures.

Skill and ability
- Are able to identify ethical and societal problems in their own research, and relate them to research ethical guidelines and how they should be handled.
- Can argue for different ethical and epistemological positions and weigh different values and risks in research contexts.
- Are able to critically examine the role that research plays in society, and how different stakeholders might affect research practices and knowledge production.

Judgement and approach
- Are capable of reflecting on power relations, equality and inclusion in research practice – for instance, in relation to gender, ethnicity, disciplinary hierarchies and access to academic resources.
- Can judge the credibility of scientific claims in light of epistemic, social and political factors.
- Can reason about the limits between science and pseudoscience, and how research affects society at large. Understand how this limit might be historically and institutionally negotiated.

3. Content

The course offers a broad introduction to scientific and technological research, with a focus on the role that research plays in society, as well as ethics and good research practice. Research is understood as a process, in which it interacts with society at large, politics, norms and institutions. Central questions discussed in the course are: what is scientific knowledge? How does it differ from other types of knowledge? What is objectivity in research? How does research affect society – and the other way around?

A substantial part of the course focuses on research ethics, including topics such as informed consent, publication ethics, and research misconduct like fabrication, falsification and plagiarism. We also discuss more subtle departures from good research practice. Other central themes are equality, gender, diversity in academia, norms and power structures.

The course raises questions about pseudoscience, epistemic values, common biases, AI, sustainability, science's (perceived) legitimacy in society at large, interdisciplinary science and collaborations with other fields, and interactions between science and politics.

4. Forms of instruction

The course consists of lectures, seminars and practical exercises. The students actively contribute to discussions, often based on their own research projects. The course ends with an individually written essay where the students reflect on a research ethical problem or challenge related to their own research project, science and society.

5. Examination modes

Examination consists of oral or written assignments and active participation in seminars and exercises. When the course is finished, students receive one of the grades "pass" (G) or "fail" (U).
Grading is based on active participation in the course activities and an individually written essay.

6. Other regulations

Inclusion of this course within a doctoral degree is determined individually by the examinator.

7. Literature

Good Research Practice, online document/booklet from the Swedish Research Council.

The European Code of Conduct for Research Integrity from ALLEA, All European Academics

Wolff, Jonathan. *An Introduction to Moral Philosophy*, 2020, WW Norton & Co. Not obligatory, but recommended reading for those who want to learn more about the basics of moral philosophy.

In addition, the course literature consists of scientific and philosophical papers and book chapters accessible through the university library or supplied by the teachers. These might vary somewhat between semesters.