# Values in Science

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Office Hours: by appointment

Class Hours: Thursday 8:30 - 10:00
Class Room: GABF 04/609

## Course Description and Goal

Traditionally, science is thought to be neutral and free of the values held by scientists. This value-free ideal of science has come under attack from various angles, and it is now widely acknowledged that a separation of values and science is neither possible nor desirable. In this course we will discuss central challenges to the value-free ideal and the various roles played by values in science. What kinds of values have an impact on science? How do values influence research? Can we distinguish legitimate and illegitimate influences of values in science? We will discuss these questions by looking into case studies from a variety of fields such as climate science and medical research.

The course aims at an integrated understanding of epistemological and ethical questions in contemporary philosophy of science. Students will learn to apply abstract philosophical concepts to concrete examples of scientific research with societal relevance. Students will also learn to develop their own view on the role of values in science in an argumentative way.

## Access to Course Material and Communication

PDFs will be provided via moodle as far as copyright restrictions permit. Please sign up for the course on moodle.

## Participation, 'Studienleistung', and Exam

Active **participation** is required from all who want to take part in the course. This includes presence at all sessions, thorough reading of the assigned literature, and active participation in exercises during class. Consistent participation is essential for your personal learning experience since the later sessions build on contents of the preceding sessions.

In order to pass the **'unbenotete Studienleistung'**, you need to prepare a 15 minute power-point based presentation to be given in class (in English). Your presentation time will be strictly limited to 15 minutes. In addition, you will have to prepare a 4–5-page summary (in English) of your presentation. The summary is to be submitted by Tuesday, 6pm the week before your presentation. For example, if you present on 11.5. you will need to submit your summary by 2.5., 6pm. Please be ready to sign up for the topics for the presentation during the second class on 27.4.

Graded exams (benotete Studienleistung) in this course will be essays ('**Hausarbeit**'). You will be asked to suggest a topic for your essay and to develop a sufficiently specific question to be addressed in the essay (20 pages). Essays will have to be written in English. As a starting point for developing a research question you can consult the course material. But you are expected to incorporate and discuss material that goes well beyond the course material. Please consult the essay guidelines for requirements on formatting etc. (https://www.pe.ruhr-uni-bochum.de/mam/fsr/content/aktuelles/wissenschaftliches_arbeiten_im_philosophiestudium.pdf)

Deadlines:

- 13.06.2023, 6pm: sign up for the essay. Please submit:
  - a preliminary title,
  - a sufficiently specified research question,
  - a structure for the essay with informative section titles,
  - and preliminary references.
- 30.09.2023: submit the essay.

## Covid

The up-to-date rules for seminars that take place in person can be found here: https://www.ruhr-uni-bochum.de/en/current-information-about-corona.

## Course Plan

This is a preliminary course plan.

**13.04.2023** **Introduction / The Value-Free Ideal:** After a brief overview over the course contents, we will begin with an introductory discussion about the idea that science should be free of values.

- Elliott (2017) A Tapestry of Values, Ch1, pp. 1-7

**20.04.2023** **Inductive Risk I:** The value-free ideal has faced a wide range of counterarguments. In this and the following sessions we will look at one particularly important argument: the argument from inductive risk. A core responsibility of scientists is to accept or reject scientific hypotheses. But accepting or rejecting a hypothesis always involves a risk of misjudgment. How certain we have to be in order to accept a hypothesis depends on the societal consequences of accepting the hypothesis. In this session the idea of inductive risk will be introduced.

- Hempel (1965) Science and Human Values
- Rudner (1953) The Scientist Qua Scientist Makes Value Judgments

**27.04.2023** **Inductive Risk II:** Jeffrey argues that it is not the responsibility of scientists to accept or reject hypotheses. Instead, scientists rather assign probabilities with scientific hypotheses. This is an important challenge to inductive risk arguments: maybe scientists do not make value judgements qua scientists after all?

- Jeffrey (1956) Valuation and Acceptance of Scientific Hypotheses

**04.05.2023** **Inductive Risk III:** Inductive risk and associated value judgements do not just come up in the context of final acceptance or rejection of scientific hypotheses. Judgments are made at various stages throughout the research process: choice of methodology, characterization of data, and interpretation of results. We will look at these various stages by looking at Douglas' example of dioxin studies.

- Douglas (2000) Inductive Risk and Values in Science

**11.05.2023** **Values I:** The inductive risk argument and other arguments have challenged the value-free ideal. But what exactly are values and what are there roles in scientific inquiry? In this session we will discuss Kuhn's classic characterization of values and discuss important examples including empirical adequacy, consistency, simplicity, scope, and fruitfulness.

- Kuhn (1977) Objectivity, Value Judgment and Theory Choice

**18.05.2023** **Christi Himmelfahrt**

**25.05.2023** **Values II** The concept of value is exceptionally vague. In this session we will discuss McMullin's approach which gives an 'anatomy of values', we will further explore the various roles that values can play in scientific judgment.

- McMullin (1982) Values in Science

**01.06.2023** **Pfingstferien**

**08.06.2023** **Fronleichnam**

**15.06.2023** **Values III** A clearer view on the concept of value can be gained by distinguishing different kinds of values. We will critically discuss the often-employed distinction between epistemic and non-epistemic values, and we will have a closer look at the various epistemic values.

- Rooney (1992) On Values in Science: Is the Epistemic/Non-Epistemic Distinction Useful?
- Douglas (2013) The Value of Cognitive Values

**22.06.2023** **Managing Values I** In contemporary philosophy of science it is widely accepted that values do and should play an important role in science. But how can we distinguish legitimate from illegitimate value influences? In this and the following sessions we will be concerned with approaches that suggest how we should deal with values in science. In this session we will particularly look at Longino's account and the role of feminist values in science.

- Longino (2008) Values, Heuristics, and the Politics of Knowledge

**29.06.2023** **Managing Values II** Kitcher's ideal of well-ordered science suggests regulating values in science through democratic processes. In this session we discuss why such processes could be important, what they could look like and what challenges they could face.

- Kitcher (2012) Sciencce in a Democratic Society, Ch 5: Well-Ordered Science

**06.07.2023** **Managing Values III** Another way to regulate values in science is deliberately involving specific aims in research. In this session we will discuss Intemann's 'aims approach' in a context that has been particularly relevant for recent discussions of values in science: climate science.

- Intemann (2015) Distinguishing between legitimate and illegitimate values in climate modeling

**13.07.2023** **Concluding Discussion**