

**The good scientist:
 A seminar on responsible research conduct**

Course Syllabus

Educational Cycle	Doctoral courses; first year	Confirmed by	Leuphana Graduate School
Module	Engaging with values of research Responsible conduct of research and	Module Credits	5 CP
Subject	integrity standards; diversity inclusion in academia	Language	English
		Mode of teaching	Flipped-classroom; blended learning

Introduction: On the importance of research ethics

Prominent cases of scientific misconduct spreading in the news, the advancing inter- and transdisciplinarity of research projects and the discussion on open-access publishing have greatly stimulated the debate about general research standards and the credibility of research results. Ensuring transparency and integrity in scientific work is a hot topic for the credibility of scientific results in the public, the publication in renowned journals, and for the funding of scientific projects. So far, not only disciplinary research associations and institutions such as Leuphana University have developed ethics and integrity standards to guarantee high-quality research. In addition, (national) guidelines have been developed from organizations such as the German Research Foundation (DFG) or the US National Science Foundation (NSF). The criteria and guidelines address the research process from the planning phase to publication and even beyond, when it comes to archiving research data or setting standards for supervision and shared authorship.



Figure 1. Dictionary entry integrity. (Source: Anna Sundermann)

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Research ethics standards and values are essential pillars that uphold the integrity and credibility of academic research as well as the objectivity and inclusivity of research. These principles guide researchers in their pursuit of knowledge, ensuring that their work is conducted ethically and without bias, and with respect to human subjects, animals, and the environment. For instance, by becoming aware of biases in research, scientists can strive for greater objectivity in their research, leading to more accurate interpretations of data.

Embracing diversity in research teams also brings different perspectives and experiences into the research process and outcomes, reducing the risk of groupthink and enhancing the validity of scientific findings.

Thus, the importance of research ethics lies in safeguarding the rights, welfare, and confidentiality of research participants, promoting honesty in data collection and analysis, and preventing plagiarism and fraud. Adherence to these standards fosters a culture of trust,

transparency and inclusivity in academia and higher education, including post graduate education, enabling researchers to collaborate effectively and share reliable findings with the global community.

Aims of the seminar

The ethics and integrity standards of Leuphana are binding for all researchers at Leuphana. This seminar is intended to support the doctoral researchers in transferring these standards and the related values directly into their daily research practice. It is concerned with raising awareness and preparing for ethically correct and responsible research activities before doctoral research projects even start. Furthermore, the activities will empower doctoral candidates in making informed decisions, ensuring the protection and well-being of research participants, promoting transparency, and upholding academic integrity without biases. In doing so, the seminar supports doctoral candidates in strengthening their awareness of responsible scientific practice through reflection and hands-on assignments. They will deepen their understanding and reflection of challenges and strategies of research ethics. The course encourages them to and prepares for concrete integration of the DFG and Leuphana integrity standards into individual doctoral research projects.

The following three key questions will guide the work and discussion in the seminar:

- What is research ethics? What is good scientific practice?
- What does responsible research mean for my research field?
- What are the concrete implications of research integrity guidelines for my dissertation project?
- How can I contribute to a research community with integrity as a researcher?

Learning objectives

Subject competence

- is able to conceptualize, conduct, manage, and evaluate the research projects according to norms and guidelines
- is able to reflect critically against the background of relevant values, norms, guidelines, standards (e.g., European and German guidelines for research integrity and specific disciplinary standards of good research practice)
- is able to navigate different understandings of research integrity standards in interdisciplinary settings
- is able to understand the implications of ethical standards for the academic system in Germany and research integrity standards at Leuphana University Lüneburg for their research projects and disciplines
- is able to perceive processes of change in science and society and to deal with them constructively
- knows strategies to solve research ethics conflicts with supervisors, collaborators, or colleagues
- is able to identify and acknowledge biases in their own and others' research practices, decision-making processes and interactions with colleagues and research participants
- understands the importance of creating spaces where all researchers feel valued and empowered to contribute their unique insights

Personal competence

- is able to assume personal responsibility as well as responsibility for others

- is able to have open, professional discussions on research practices
- is able to maintain a constant alertness to challenges of everyday scientific life
- develops a positive attitude towards communication, cooperation and transparency
- has a positive attitude towards diversity in their everyday research practice
- is able to reflect critically on power relations and diversity in academia
- feels self-competent in solving challenges in collaborative research work
- is able to implement inclusive practices that promote diverse perspectives and actively involve individuals from different backgrounds, ensuring that their research is sensitive to cultural, social, and gender diversity.

Structure and contents

The seminar is part of the module Engaging with Values of Research within the doctoral courses at Leuphana University. The module consists of two parts: 1) the Leuphana Graduate Opening Days and 2) this seminar on research integrity. All in all, the module covers 150 hours of workload (5 CP).

The research ethics seminar covers the majority of workload (140 hours), including an in-person introductory and closing session, ten self-learning-units, discussions with the lecturer, peer success groups, and one hands-on assignment per unit forming parts of the final report.

The seminar starts with a joint in-person introduction of 90 minutes during the Leuphana Graduate School Opening Days as part of the onboarding process of the doctoral candidates (Figure 2). This introduction is used to set individual learning goals within the course, collect expectations regarding the course content and get to know members of the self-organized success teams for the upcoming ten weeks. It will also provide the doctoral candidates with all necessary information to succeed in the course and in writing the final reflection report.

After the introduction, doctoral candidates will work on ten self-learning units each dedicated to an important aspect of responsible research conduct:

1. Introduction to research integrity
2. Research integrity during the research process
3. Scientific misconduct
4. Data and reference management
5. Publishing process and authorship
6. Collaborative research
7. Conflict resolution
8. Mentoring and supervision
9. Research on humans and with AI
10. Diversity and inclusion in academic research

During these ten weeks, the doctoral candidates will watch video content, reflect on reading and multi-media material, work on the respective assignments and meet in small success groups to deepen their knowledge. Each self-learning unit consists of 90 minutes of video lectures, readings, and assignments divided into sets of 30 minutes.

An additional two hours per unit are preparation and follow-up time, where participants prepare readings and meet in small groups of peers to discuss the self-learning assignments.

Online check-ins with the lecturers take place every third week, in which the respective topics are discussed in depth using active learning activities.

The in-person closing session is dedicated to jointly reflecting on the course outcomes.

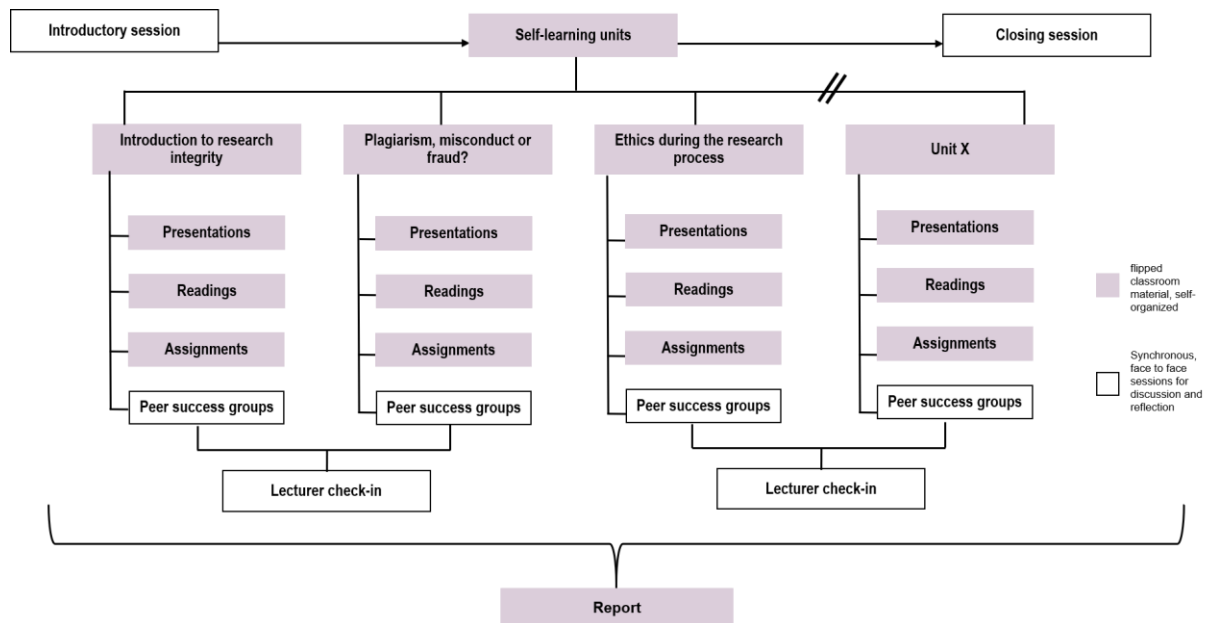


Figure 2. General Structure of the seminar with three examples of self-learning units. (Source: Anna Sundermann)

Teaching and learning approach

This seminar is a blended-learning seminar employing a flipped classroom setting with ten self-learning units combined with in-presence units and synchronous virtual meetings in peer groups and check-ins with the lecturers. The online sessions use active learning activities such as case studies or role plays to deepen the knowledge. The course content and material is based on Sponholz' (2019) Curriculum für Lehrveranstaltungen zur guten wissenschaftlichen Praxis, recommended by the German Research Ombudsman. The ten self-learning units are each dedicated to one topic related to research integrity. The materials include pre-recorded lectures, readings and multimedia learning as well as self-assessment assignments.

The structure and organization of the course follow the principle of constructive alignment to ensure that all learning objectives are addressed by the teaching and learning approaches, as well as aligned with the assessment approaches. The classroom language is English.

Pre-recorded lectures and all course material, including the template for the final reflection report and assignments, can be found on Moodle. The peer reflection meetings will be held via self-selected digital tools in separate break-out rooms or in person. The introductory session and the closing session will take place in person at Leuphana campus.

Pre-requisites

To participate in the course, participants must be enrolled in the doctoral courses at Leuphana University in Lüneburg. English proficiency is recommended. Meeting in self-organized success teams for this course to discuss the self-learning units is necessary. The introductory and closing sessions are in-person sessions at the Leuphana campus. The peer success teams will be formed during the in-person introductory session.

Self-assessment

Each self-learning unit provides self-reflection questions, assignments, and/or multiple-choice tests which will help the doctoral candidates to deepen their understanding of the course content and prepare for the final report. The in-course activities are, for example, working together on research integrity dilemmas or writing an ethics report draft or a data management plan.

Performance assessment

Each session provides an individual post-course assignment, which will support you in deepening your understanding of the course content. These assignments will be combined in a final report that forms the performance assessment of the course. This report has two parts: the combined post-course assignments and a two-page reflection essay. The aim of the final report is twofold: On the one hand it provides the opportunity to reflect on the outcomes of the assignments and group discussions, and on the other hand, you will create valuable products such as an ethics application or a data management plan that will actually be used in your research. This report includes case reflections and parts of the in-course assignments such as writing an ethics application and peer reviews, drafting a data management plan or detecting plagiarism and misconduct in research drafts. The course will be completed by submitting the report four weeks after completion of the course.

Course evaluation

We will invite the Leuphana SHIFT! evaluation team in the end of the course in order to discuss whether the expectations have been met and what can be improved regarding materials, support, and assignments.