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Using Generative Artificial Intelligence (AI) in Studies, Teaching, and Examinations

Updated Handout of TU Dortmund University (Version 2.0)

Prologue

*As early as May 2023, TU Dortmund University published an initial handout titled **"Dealing with ChatGPT in Teaching"** as a resource for teaching staff and students on how to handle generative artificial intelligence (AI) in studies and teaching. An update was issued in October 2023.*

This second handout takes into account the numerous developments that have occurred in the field of generative AI since then and thus serves as an updated guide. At the same time, it provides a basis for further discussion.

Furthermore, TU Dortmund University maintains the position that blanket bans on AI in studies and teaching are neither effective nor appropriate for these times, as we at our university also conduct research on and work with AI. For this and other reasons, we have a responsibility to constructively yet critically monitor the use and societal relevance of the tools being developed. The aim for the coming years is to jointly discuss and reflect on the meaningful use, as well as the critical and ethically responsible application and evaluation, of generative AI-supported tools.

In December 2024, TU Dortmund University clearly articulated the importance of AI in its Strategy for Digitizing Studies and Teaching and defined a specific area of action with specific goals.

Part 1: Basics

 # What is generative AI?
Generative AI refers to AI-powered tools that can generate new content based on training data and, where applicable, additional integrated information. In addition to text, this includes images, audio and video files, and program code. ChatGPT is a prominent example, but it is not the only relevant service. In addition to ChatGPT (OpenAI), there are Gemini (Google), Claude (Anthropic), and Copilot (Microsoft) as commercial providers. In addition to these commercial providers, there are also powerful, open-source language models such as Mistral (Mistral AI), GPT-OSS (OpenAI), and Llama (Meta), which can be run locally on one's own server infrastructure, enabling better data protection and strengthening digital sovereignty.

 # How do generative AI systems work?
Many generative AI systems, particularly large language models (i.e., models trained on enormous amounts of text; known as Large Language Models—LLMs), generate output by calculating probabilities for meaningful continuations of text, code, or other data patterns. Current generative AI tools can also be connected to web search, file uploads, image analysis, voice interfaces, data analysis tools, or institutional knowledge databases. This enables them to deliver more up-to-date and useful results than earlier chatbots; however, factual accuracy, source quality, and traceability are still not guaranteed and must be reviewed for every AI-generated output.

 # Which AI tools are available at TU Dortmund University?
Since January 2025, all members of TU Dortmund University have been able to use ChatGPT free of charge and anonymously via the Campus-AI interface. Since November 2025, in addition to the ChatGPT models GPT 5.3 and GPT 5, the powerful, open-source language model GPT-OSS 120 B has been available, which runs on servers in North Rhine-Westphalia. All information about Campus-AI can be found on the ServicePortal: the Terms of use, the Privacy policy, and answers to Legal questions regarding the use of Campus-AI.

Part 2: Relevance for Studies, Teaching, and Examination

 # Why is generative AI relevant for higher education?
Generative AI is transforming the landscape of higher education and teaching. Among other things, it can provide support in introducing students to topics and subject areas, guiding them through writing processes, helping them understand complex content, structuring arguments, revising written work, programming, visualizing concepts, practicing, and assessing their own progress. In this regard, generative AI tools can be used to great advantage in higher education and can be helpful for both teachers and students.

The increasing use of AI tools is also changing job profiles: routine tasks are being automated, while at the same time new demands are emerging regarding the ability to competently use and manage AI tools. Therefore, the profiles of graduates of TU Dortmund University must in the future be more strongly characterized by the ability to collaborate with AI-supported technologies, shape innovations, and reflect on the ethical and societal implications of AI use.

In TU Dortmund University's Guiding Principles Good Teaching (Leitbild gute Lehre), the university community has agreed that a degree program at TU Dortmund University aims *"at the acquisition of competencies in the critical application and generation of knowledge on the basis of the current state of research."* Teaching staff should therefore provide students with the opportunity to engage critically and reflexively with AI tools as a group in order to practice new or expanded skills, such as

fact-checking, plausibility checks, or bias assessment when dealing with AI-generated results. Existing learning objectives – such as acquiring and practicing source criticism, reflective thinking, critical thinking, and general media literacy – remain highly relevant and are becoming even more important due to the possibilities offered by AI.

At the same time, generative AI can influence written work (e.g., term papers and theses) to such an extent that questions regarding original work, the use of aids, and assessability must be reevaluated. Since the capabilities of these systems are evolving very rapidly, regulations and pedagogical concepts should be regularly reviewed and adapted. It is recommended that teachers engage in dialog with students about academic competencies and good scientific practice (see Part 4: Pedagogical Approaches and Examination Design).

 # Why isn't a blanket ban effective?
A blanket ban on generative AI is not sensible for several reasons: For one thing, AI tools are increasingly being classified and used as everyday aids in many areas of life. Furthermore, AI features are increasingly embedded in standard software that we take for granted. Students will work with AI systems in their professional lives and must therefore be prepared for its competent and thoughtful use; universities have a mandate to critically monitor technological developments, help shape them responsibly, and promote understanding of them. On the other hand, blanket bans on AI cannot be reliably verified. Currently, there is no technology that can verify, in a legally sound manner, whether a text was written by a human or by AI. If subject-specific competencies are to be assessed without the use of AI, the assessment must be conducted in an appropriate format (e.g., a written exam). Other assessment formats, yet to be developed, may aim to integrate the use of AI.

 # Which competencies are becoming more important for students?
Competent use of AI tools requires AI literacy, critical thinking, information and data literacy, and the ability to engage in ethical reflection. Students must be able to evaluate and question results generated by AI, identify and classify sources, recognize biases and errors, and take data protection and copyright issues into account.

The term AI literacy is legally defined in Article 3, no.56 of the AI Act:

> *"'AI literacy'* [means] the skills, knowledge, and understanding that enable providers, operators, and data subjects – taking into account their respective rights and obligations under this Regulation – to use AI systems competently and to be aware of the opportunities and risks of AI and the potential harm it may cause."

Therefore, AI literacy comprises the following main aspects:
- the **skills,** the **knowledge** and the **understanding,**
- to apply the AI systems **competently, responsibly** and **safely,** and
- to be **aware** of **chances and risks** (e.g., ethically, legally, socially) of AI.

Source: Bundesnetzagentur

In order to produce high-quality academic texts using AI-based writing tools, users need one fundamental key competency: they must “ask the right questions”—that is, provide the correct input, offer ideas, and structure their thoughts and arguments—and then review, evaluate, and improve the generated texts. The creation, reflection, evaluation, and revision of an AI-generated text require independent intellectual effort. These skills can be practiced and critically guided in seminar settings or exercises. This requires fundamental competencies in writing and reading academic texts, as well as the application of acquired subject knowledge and professional expertise. This close connection must be emphasized in teaching.

AI literacy thus does not refer exclusively to operational and application skills, but encompasses, in particular, the ability to critically evaluate AI outputs from a subject-matter perspective and to use them responsibly.

Part 3: Legal Aspects and Framework Conditions

 # What is the significance of the EU AI Act?
Article 4 of the EU AI Act (in German: *KI-Verordnung, KI-VO*) requires providers and operators of AI systems to do their utmost to ensure that their staff and other individuals who handle AI systems on their behalf possess a sufficient level of AI competence. A legal opinion from the project KI:edu.nrw (in German only) regards universities as accountable as well.

With Campus-AI, all members of TU Dortmund University are provided with an AI tool; accordingly, the provisions of the AI Act (at least in part) also apply to TU Dortmund University. At the same time, TU Dortmund University is fulfilling its responsibility by offering programs for its university community to develop AI competencies. The University Library and the Division of Academic teaching and Faculty Development and Coordination Digital Teaching at the Center for Higher Education (zhb) regularly offer continuing education courses on generative AI. Further information on the AI Act and recommendations for self-study resources on AI literacy can be found on the ServicePortal.

 # Authorship
AI tools and chatbots cannot be the authors of the texts they generate (due to the lack of human creative input); therefore, from a purely copyright law perspective, their use does not in and of itself constitute plagiarism. However, the use of texts created by AI tools may infringe on copyright respectively author`s rights of third parties. It should also be noted that uploading third-party content into an AI may generally only take place with the consent of the holder of the rights of use.

Users of AI-powered writing tools may, subject to compliance with the terms of use, hold rights of use to the text created in each instance. However, this does not imply that they are to be regarded as the authors of the created texts within the meaning of copyright law. The reason for this is that there is no personal intellectual creation by a human being. Authorship may be considered in exceptional cases only if generative AI is used solely as a tool and its contribution to the creation process of a work is of only minor significance.

 # Need for Regulation and Labeling Requirements
According to the provisions of the examination regulations of TU Dortmund University, students may be required to submit written statements as part of their examination requirements (module examinations, partial assessments, theses, etc.) to submit written declarations stating that they have taken the exams independently, have used no sources or aids other than those specified, and have properly cited both verbatim and paraphrased quotations (so-called declarations of originality or affidavits). Departments often have additional rules regarding permitted aids. As a rule, students must also sign

these and attach them to their examination work. In some departments, specific declarations regarding the use of IT tools[1] and AI tools must also be provided and submitted. The specific regulations may vary depending on the department and even depending on the examination. Sample forms for such statements are available on the ServicePortal.

Departments are recommended to clearly define the use of IT and AI tools within the scope of permitted aids. Students are required - regardless of any separate instructions or explanations – to identify and disclose any IT/AI tools they use as part of the aids they employ.

 # Grading of Examination Performance

Most examination regulations stipulate that the grading of examination performance must specifically be carried out *by* the examiners and justified *by them* in writing. Thus, the grading must involve the examiner's own work. Consequently, an assessment of an examination performance is not considered valid if the performance is entered into the AI tool, the assessment is left entirely to the AI, and the result is adopted verbatim.

The assessment of examination performance remains the responsibility of the examiner. AI may, at most, be used to support preparatory tasks, such as drafting assessment rubrics, formulating feedback in writing, or structuring feedback. The subject-related evaluation, grading decision, and justification must not be automatically delegated to an AI system.

When using AI systems, it is (currently) not permitted to enter or upload personal information (e.g., name, student ID number, etc.), copyrighted texts (including student papers and exam work), or other confidential data into AI systems. This also applies to the Campus AI at TU Dortmund University. The extent to which the university's own AI systems or locally operated open language models may process this data in the future is currently under review.

It is expected that the principles outlined in the German Research Foundation's (DFG) new Guideline on the Use of Artificial Intelligence in the Review Process – regarding confidentiality, transparency, quality assurance, and accountability - will be applied, at least in part, to examinations at universities.

A key aspect of the evaluation process is that the accordingly responsible examiner must always have assessed the examination performance personally, and the evaluation must therefore be based on the examiner's own assessment.

1 An IT tool is software, a program, or a digital application.

Part 4: Pedagogical Approaches and Examination Design

 # Generative AI as a Learning Tool for Students
Generative AI can support learning processes when it is integrated in a pedagogically sound manner. It is crucial that learners do not uncritically accept the output but instead critically examine it in terms of content and sources and process it based on their respective subject knowledge or with the help of scientifically sound sources.

There is a broad spectrum of use cases for AI in teaching and learning, ranging from innovative teaching/learning scenarios or student learning support and examination preparation up to the promotion of AI competencies.

These use cases can be categorized into five different groups (see HFD working paper "Wie KI Studium und Lehre verändert" (in German only)):

1. **Innovative Teaching Scenarios:** AI can be used to develop new teaching and learning scenarios. Through the use of AI, teaching and learning scenarios - such as research-based learning, which focuses on the practical development of profession-specific competencies - can be implemented in a more student-centered and efficient manner.
2. **Subject-specific Academic Work:** AI tools can support subject-specific academic work in various areas, such as research, translation, formulating research questions, or writing minutes/reports.
3. **Learning Support and Examination Preparation:** Another area of application is the development of learning- and examination-related support services for students. In addition to providing AI-developed teaching and learning materials to support learning, AI-based learning assistance, tutoring, or mentoring systems can be developed to facilitate individualized learning tasks or personalized feedback. AI tools can also be used for individualized examination preparation.
4. **Promoting AI Competencies:** A key area of application for AI in teaching is the targeted promotion of students' AI competencies, as students learn to use AI tools and reflect on their limitations and critical aspects. The promotion of students' AI competencies can be interdisciplinary or discipline-specific.
5. **Student Advisory Services:** AI tools can also be used in academic counselling; for example, they can help track academic progress more effectively, identify challenges early on, clarify organizational questions related to studies, or stimulate self-reflection.

 # Further Developing Written Examination Formats
Written assessments, such as term papers or portfolios, remain a viable option but have to be further developed. Tasks that rely solely on the reproduction of knowledge, as well as traditional assessment formats like term papers, lose their significance and suitability for performance evaluation without contemporary adaptations.

If the current written examination format is to be retained and the use of generative AI as a tool is to be permitted, it makes sense to adjust the assignment tasks and the evaluation criteria. The assignment tasks can be further developed to place greater emphasis on reflection, evaluation and problem-solving skills. This places greater emphasis on individual analytical, judgmental, and transfer skills. Independent work is thus ensured and a purely AI-supported approach would be unlikely to succeed. Possible examination tasks include those that increasingly require comparisons, critical reflections, evaluations, or the application of knowledge to new problems. Similarly, a mandatory section on the use of aids could be introduced, in which the chosen approach, the use of AI tools, and a reflection on the results are documented. In addition, a transcript of the interaction with a language model or a documentation of the prompts used could be submitted. However, a complete documentation of all prompts and outputs is not as effective as documentation that requires reflection on the approach taken when using AI tools.

Another option is to supplement written examination formats with oral components (in accordance with the examination regulations) or to incorporate the development and supervision process more heavily into the evaluation.

If the assessment is intended to evaluate not merely reproduced knowledge but the ability to act in subject-specific situations - and is thus a competency-based assessment - AI-supported writing tools can be used as aids in formulating, structuring, or summarizing content. Furthermore, the reflective and responsible use of such tools can itself become the subject of the assessment.

When designing such innovative examinations, teachers respectively examiners clearly have to communicate to students the extent to which AI tools may and should be used, which independent type of work is expected of them, and how this work can be demonstrated or made recognizable.

Existing written examination formats can be further developed through measures such as the following:

- **Transparent use of AI** from the outset: Students create an outline or concept paper in which they outline their planned use of AI-supported tools and their intended contribution to the work process.
- **Critical reflection on AI use:** Students explain and justify their decisions, results, and limitations.
- **Critical evaluation of sources:** Students describe how they researched, verified, selected, and evaluated sources, and justify the inclusion or exclusion of individual sources.
- **Documentation of the work process:** Students document and, where appropriate, comment on their considerations and objectives regarding the use of AI tools, relevant interactions with the systems, the revision of AI-generated content, and other essential steps in the work process (see below # Documentation of AI Use).
- **Supplement with oral elements:** Written assignments can be supplemented with presentations, expert discussions, or other forms of oral exchange during or after the writing process. This may require an adjustment to the respective examination procedures.
- **Assign authentic tasks:** Students work on concrete case studies, real-world data, practical problems, individual research questions, or transfer tasks. In this way, teachers place greater emphasis on independent analysis, evaluation, and problem-solving skills. A purely AI-supported approach would be unlikely to lead to success for students.
- **Adjusting assessment criteria:** Teachers and examiners do not solely assess the quality of the final product but also take into account the documented work process, the reflective use of resources, and the critical evaluation and contextualization of sources and results. Spelling and style will become less relevant assessment criteria in the future.

 # Transparency and Communication Regarding AI Use
For each course, it should be communicated early on to what extent AI use is permitted, expected, restricted, or prohibited. The Institute of Journalism at TU Dortmund University defines a three-tiered "AI Barometer" in its AI Guidelines for Teaching and Studies (in German only):

- **AI-free:** AI tools are not reasonable and therefore prohibited.
- **AI-supported:** AI tools may be used in specifically defined ways.
- **AI-open:** AI tools may be used without restriction.

These guidelines should be justified by the learning objectives and explicitly stated in the respective assignment; ideally, the framework conditions should also be clearly outlined in the course information. It is particularly important that the same or comparable rules apply to all students in a department or course unit and that any changes are communicated transparently.

Possible sample wording for courses:
Generative AI may be used in this course as a learning and work tool, provided that its use complies with the rules communicated in advance, no confidential or personal data is entered into unverified systems, and AI outputs are always subject to academic review. For examinations, different regulations (if applicable or as follows) regarding permissible AI use and documentation apply.

 # Documentation of AI Use
In certain examination and assessment contexts, students may be required to document their use of AI tools. This applies in particular to written assignments, portfolios, project and group work, programming tasks, laboratory reports, and assessment formats in which the work process, the independence of the work, or the reflective use of AI are relevant to the evaluation. The documentation may, for example, refer to the used tools, the purposes of use, key prompts, and how the generated results were handled.

Possible documentation might look as follows:

Information	*to be completed by students*
used AI tools	name/version/provider, as far as known
purpose of use	e.g., brainstorming, structuring, linguistic revision, translation, code, data analysis, feedback
parts of the affected work	e.g., chapters, sections, tables, figures, code components
reflection	How were the outputs of the AI tools, critically analyzed and interpreted?

Therefore, the purpose of the documentation is to make AI literacy transparent; in most cases, comprehensive documentation of all inputs and outputs using the AI-supported tools does not appear to be effective.

Part 5: Support

 # Who can help with initial questions about AI in teaching and learning?
The first point of contact for questions regarding the use of AI in teaching and learning is the Division of Coordination Digital Teaching at the Center for Higher Education (zhb). Tobias R. Ortelt, Coordinator for Digital Teaching at TU Dortmund University, can refer you to experts appropriate for your specific question.

 # Who can help teachers with pedagogical questions?
Workshops and advisory services on pedagogical issues related to AI are available through the Division of Academic Teaching and Faculty Development at the Center for Higher Education (zhb). The contact person is Dr. Katrin Stolz.

 # Who can help with technical questions?
If you have technical questions, such as those regarding Campus-KI, please contact the ITMC: service.itmc@tu-dortmund.de.

 # Who can help with questions regarding examination regulations?
As a teacher respectively examiner, you are welcome to seek advice on legal matters related to examination regulations from the staff members in the Section Examination and Study Matters, Corporate Center Student Services.

 # Who can help with copyright issues?
For copyright issues, please contact the central email address urheberrecht@tu-dortmund.de.

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Note on Timeliness: Given the rapid developments and ongoing debate, this and subsequent handouts can only be preliminary versions. They are intended as a guide and as an invitation to reflection and discussion. If you are interested, please stay informed and feel free to contribute to the ongoing debate.

Sources:

- General guidance based on documents from the *Hochschulforum Digitalisierung* (HFD):
  - „Use Cases in Bewegung: Wie KI Studium und Lehre weiter verändert“, Juni 2026 (Link)
  - „Leitlinien-Check 2026. Ein Update zu generativer KI an Hochschulen“, Mai 2026 (Link)
  - „Die KI-Nutzung in Studium und Lehre“ / Arbeitspapier Nr. 91, Januar 2026 (Link)
  - „Wie KI Studium und Lehre verändert“ / Arbeitspapier Nr. 87, April 2025 (Link)
  - „Künstliche Intelligenz: Grundlagen für das Handeln in der Hochschullehre“ / Arbeitspapier Nr. 86, März 2025 (Link)
- Legal Framework
  - EU AI Act / KI Verordnung (EU) 2024/1689 (Link)
  - Bundesnetzagentur: AI Literacy (Link)
  - KI:edu.nrw: Rechtsgutachten zur Bedeutung der europäischen KI-Verordnung für Hochschulen, 2025, (Link)
- Position of the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation)
  - AI in Proposal Generation (Link)
  - AI in the Review Process (Link)

Documentation of AI Use:
Usage: During the update of this handout, AI tools (Campus-AI, ChatGPT 5.5) were used to assist with structuring, linguistic revision, summarization, and the development of suggested wording. Solely the involved authors were responsible for reviewing the content, providing subject-matter expertise, and exercising final editorial responsibility.

Reflection: AI support proved to be of limited use in identifying the topics that the authors considered relevant to this subject area. Furthermore, the AI-generated outputs lacked precision, both in terms of content and language