UNIVERSITÄT
HEIDELBERG
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GUIDELINE
ON THE USE OF AI IN TEACHING AND LEARNING
AT HEIDELBERG UNIVERSITY

PREAMBEL

The rapid development of generative AI tools, such as large language models (LLMs), presents new opportunities for scientific research and teaching worldwide. At the same time, the integration of such technologies also entails significant risks, particularly concerning the accuracy and reliability of content.

Heidelberg University recognizes the transformative potential of generative AI tools in advancing research and teaching, e.g. for analyzing data, programming, and academic writing purposes, and therefore encourages their thoughtful, ethical and legally compliant integration into scholarly endeavors, provided that their use adheres to the highest standards of academic integrity and transparency.

The following guidelines serve as a university-wide framework of orientation, establishing baseline expectations for the responsible use of generative AI across all faculties. Individual departments may develop additional, discipline-specific guidelines for the use of AI in teaching and learning to address particular needs and contexts of their study programs and courses. These regulations are communicated transparently within the respective subjects.

Students and instructors are supported in the integration of these technologies, and the development of AI-related competencies is sustainably strengthened. Didactic aspects are regarded as an essential component of a reflective use of AI in teaching and learning. Corresponding support services for students and instructors are provided through heiSKILLS.

I. Possible Applications of AI in Teaching and Learning

In the field of teaching and learning, AI applications create new opportunities to support, individualize, and optimize learning processes. Relevant applications include:

- **Text generation and support in writing processes:** Tools such as ChatGPT can assist with idea generation, structuring, revising academic work, and searching for scholarly publications.
- **Language translation and correction:** Tools like DeepL enable translations, facilitate the production of texts in other languages, and assist in correcting texts in foreign languages.
- **Image generation and visualization:** AI-based image tools can help visually implement ideas and represent complex content—e.g., through illustrations, diagrams, or symbolic representations based on user-generated text prompts.
- **Support in programming:** AI-driven development environments such as GitHub Copilot or ChatGPT can facilitate programming tasks by providing code suggestions, identifying errors, or creating automated documentation. In statistical analysis and data processing, AI can assist with complex calculations and generate visualizations.
- **Plagiarism detection and exam analysis:** Specialized AI software supports the verification of originality and quality of academic work.
- **Learning support and feedback systems:** AI-based tutors and adaptive learning platforms can personalize learning processes and foster self-regulated learning.
- **Support in teaching preparation** and material creation: AI tools can assist with planning courses, creating learning materials, presentations, or outlines. They can provide individualized feedback, help structure content, check grading for consistency, and thereby contribute to saving time and improving teaching.

II. Responsible Use of AI in Teaching and Learning

A responsible use of AI in teaching and learning is essential.
Data protection and data security play a central role:

- Instructors and students must ensure that no sensitive, personal, or confidential data, nor copyright-protected texts or excerpts, are entered into AI systems that may store or process this data outside Heidelberg University's infrastructure.
- Before using AI tools, users are advised to carefully review privacy policies and terms of use and to employ only data protection–compliant applications.
- All legal requirements must be observed, in particular the GDPR, personality rights, copyright law, and the AI Act.

Potential risks of AI in teaching

In addition to opportunities, AI use in teaching also poses challenges and risks that should be considered. Therefore, both the use of AI and its outputs should be carefully reflected upon:

1. **Inaccurate or incomplete information**: AI models may generate inaccurate, outdated, or misleading content, as they are trained on limited datasets. Other risks include lack of reproducibility or the generation of nonsensical or fabricated information.
2. **Bias and discrimination**: AI models may contain systematic biases, as they are based on datasets that reflect and potentially reinforce societal prejudices.
3. **Lack of context**: AI can generate content that does not align with specific requirements or cultural contexts (e.g., lacking sensitivity toward socially sensitive issues), which may foster misunderstandings or misapplications.

4. **Loss of autonomy**: Excessive use of AI tools may impair students' critical engagement with content, independent thinking, and skills acquisition.
5. **Plagiarism and unclear authorship**: Using AI to generate texts can blur the boundaries between independent work and machine assistance. There is also a risk that AI-generated passages may unknowingly reproduce existing publications.
6. **Data protection risks**: Entering personal data into AI tools may result in unauthorized access to sensitive information (see above).
7. **Dependence on technology**: Excessive reliance on AI in teaching and learning processes may reduce resilience to technical failures or limit access to digital resources.
8. **Lack of transparency in decision-making and data sources**: AI models are based on complex algorithms and large datasets, whose origins and processing are often not fully traceable. As a result, AI decision-making processes may not be transparent to users.
9. **Educational inequality**: Access to AI technologies and the ability to use them competently are unevenly distributed. Differences in prior education, technical infrastructure, and support services can exacerbate existing educational inequalities.
10. **Changing modes of learning**: Increased AI use may reduce the importance of traditional learning techniques—such as memorization of facts or repeated practice of routine tasks. Without pedagogical reflection, key cognitive skills may be neglected. At the same time, the challenge arises to prepare students for altered learning processes and new skill requirements.

III. Principles for AI Use in Teaching and Learning

1. Permissibility of AI use

- The use of AI and language models (LLMs) such as ChatGPT, DeepL, or other tools is generally permitted in teaching and learning at Heidelberg University. Specific applications must be agreed upon with examiners and instructors. It is essential that the independent character of the student's work is preserved.
- The use of AI must align with the specific learning objectives of the respective courses and assessment formats. The precise regulations in study programs, courses, and exams are determined by the relevant examination boards, instructors, or examiners. It is communicated transparently which tools may be used and how within the course or examination.
- Students may decide whether and how they use AI within the established regulations of a course or when producing an assessed piece of work.
- Instructors are encouraged to design examinations so that they can be completed both with and without AI, unless AI use is part of the task itself.
- The principles of good academic practice must always be observed (see guidelines on good academic practice).

2. Responsibility and transparency

- Instructors are expected to design AI use in line with learning objectives and to inform students about permitted and prohibited applications.
- Students bear responsibility for the correctness and quality of AI-generated content and must disclose its use transparently.

3. Use of AI in coursework and assessments

Obligation to declare use:

- Students must submit a declaration of independence and disclosure for all coursework, specifying the use of AI tools. This obligation applies to text, images, videos, music, and any other elements created with AI.
- A list of all AI tools used and their purpose is mandatory. This can be provided, for example, in the form of a simple table (see sample form).
- Depending on the assignment, disclosure of the prompts used (e.g., via a prompt log) may also be required.
- Students confirm with their signature that they:
  - assume full responsibility for the scholarly quality and content of the submitted work, the chosen methodology, the production process, and the cited literature;
  - have produced the work in compliance with good academic practice;
  - have agreed on the use of AI tools in advance with the instructor or examiner and adhered to the agreed rules.

Support with plagiarism detection:

Instructors are supported in addressing questions regarding plagiarism detection and handling suspected cases—both by the University Library team (e.g., regarding technical tools and documentation) and by the Legal Services for Teaching and Learning team, which advises on borderline cases and on further necessary steps.