Citing AI

What to consider when using tools based on artificial intelligence

AKADEMISCHE INTEGRITÄT

1) Starting points

Numerous generative digital tools have emerged in recent years. These computer programs use “artificial intelligence” (AI) to produce text, images, videos, or code based on user input (known as "prompts"). Since around 2022, the quality of these tools has improved significantly, as demonstrated by examples like OpenAI's ChatGPT (text generator) and Dall-E (image generator), or Midjourney (image generator). AI-based generative technologies, such as chatbots and image and multimedia generation programs, are now capable of producing scientifically relevant outputs. However, these tools still have obvious weaknesses; in particular, they often make serious factual errors and freely invent facts, including references.

2) May AI-based tools be used by students?

Generally, the university does not prohibit the use of AI tools, but lecturers are free to allow or disallow their use in their courses and particularly in examinations. Therefore, it is crucial for students to clarify with the lecturer before using AI tools for any assessment-relevant assignment.

Students should learn to use these new tools sensibly and responsibly. This requires awareness of the strengths and weaknesses of AI tools, as well as scientific integrity and the legal framework. Learning scientific writing remains essential; comprehensive technical, methodological, and writing skills are necessary to critically assess and adapt the outputs generated by AI tools.

3) Under which conditions?

In general, the principles of good scientific practice must be respected. This requires transparency and comprehensibility in how results and texts are obtained and processed. Additionally, it is important to review the data protection policies of each tool before use. Many providers host their servers outside the EU, and thus, are not subject to European data protection regulations. Since most tools utilize entered data for training purposes, avoid inputting any sensitive or personal information.

When using AI tools, the following aspects should always be taken into account:

1. Generally, AI tools must be cited just like any other aids and sources. Student work that lacks proper identification of sources and aids can be considered fraudulent or deceptive.
2. The products of AI tools are not scientific sources. They should be treated similarly to results from a standard internet search. Even with proper citation, it remains the author's responsibility to verify the relevance, truthfulness, and accuracy of the AI-generated content.
3. Student work and examinations must be independent achievements and their own work. At the most, AI tools may be used to support assessment-relevant tasks; directing its actions accordingly is the students' obligation. They must take responsibility for their own text and any other products such as images, diagrams, and bibliographies within their academic work.

4) Basic principles of citation

A precise citation is generally required if elements generated by AI tools are incorporated into the work. This applies both when an element generated by AI tools is adopted in its original state and when it is used after revision. It must also be indicated if AI-based tools have been used in the idea generation phase. Based on these principles, the Modern Language Association of America has developed the following three rules (see "How do I cite generative AI in MLA style?", Modern Language Association of America, https://style.mla.org/citing-generative-ai/ , accessed on 17.04.2024).

1. „cite a generative AI tool whenever you paraphrase, quote, or incorporate into your own work any content (whether text, image, data, or other) that was created by it"
2. „acknowledge all functional uses of the tool (like editing your prose or translating words) in a note, your text, or another suitable location "
3. „take care to vet the secondary sources it cites" (references are often made up by AI tools, as mentioned above.)

Digital tools that lack the specific generative function, such as spelling or grammar correctors, online dictionaries, library catalogs, etc., do not need to be cited.

5) What needs to be considered during the creation of a paper in order to be able to mark the use of AI tools?

To ensure correct and secure citation, it is advisable to save the entire chat history (including questions/entries and answers) outside of the AI application. Depending on the subject, the complete history may need to be included in the appendix of a paper. During the development and writing process, a directory may be created to log which tools were used for each section. The following table provides an example:

KI-Tool	Used for	Why	When
Elicit	Getting started with the topic	Find relevant papers for my research question	First literature research
DeepL Translate	Translation of articles in English	Decide which articles I want to use	In reviewing and selecting literature
ChatGPT	Explaining concept XY	Clarification of questions regarding ...	While working on the theoretical part of my term paper
DeepL Write	Rewording of my draft texts	Better readability	throughout the entire working process
DALL-E	Visualization	Illustration of the facts for better understanding	Chapter 3, S. 8

The table is taken from the template for the statement of independence of JGU: https://digitale-lehre.uni-mainz.de/lehren-pruefen/ki-in-der-hochschulbildung/

6) Wording aids

Various citation models are currently under development. Amongst others, the rules of the Modern Language Association of America (MLA) can serve as a useful example and formulation aid (these are used for this article). Check if there are specific recommendations for the citation styles you use.
Note that certain subjects or individual lecturers may require students to provide more details about their usage, such as a copy of the entire chat history.

When using AI-based tools, the following elements must be mentioned:

- **Title:** For text, image, and multimedia generation tools, the prompt (user input) is considered the title. For very long prompts, only the beginning can be specified.
- **Name and version of the tool**
- **Provider:** The company, organization, or person who offers or programmed the tool.
- **Date:** The date on which the content was generated.
- **Address:** The URL of the tool.

Similar to a bibliography, a list of tools or aids should be included at the end of the paper to make the use of AI support transparent (see above).

Application examples can be found in the guidelines of the University of Basel (see “Sources”).

7) Sources and further information

This handout is based on the **University of Basel's guideline** titled "*Aus KI zitieren*" ("*Citing from AI*"). The content has been adopted almost verbatim as well as adapted, supplemented and translated to fit the specific needs of JGU. You can find the original guidelines from the University of Basel here:

- Bildungstechnologien der Universität Basel (2023): Leitfaden „Aus KI zitieren". Umgang mit auf künstlicher Intelligenz basierenden Tools. CC BY-SA 4.0 International. See: https://www.unibas.ch/dam/jcr:e46db904-bf0f-475a-98bc-94ef4d16ad2e/Leitfaden-KI-zitieren_v2.2.pdf (accessed on 22.01.2025).

Information from JGU on AI in higher education can be found on the **Homepage „Digital Lehren und Lernen an der JGU"**: https://digitale-lehre.uni-mainz.de/lehren-pruefen/ki-in-der-hochschulbildung/ (accessed on 17.04.2024).

Further sources of information:

- Guide of the University of Queensland, including references to other citation styles that already provide guidelines for specifying the use of AI tools. University of Queensland (2024): ChatGPT and other generative AI tools. How to cite or acknowledge generative AI tools in your assignments and publications. CC BY-NC 4.0 International. See: https://guides.library.uq.edu.au/referencing/ai-tools-assignments (accessed on 12.03.2025).
- The Rhein Main University of Applied Sciences offers extensive information on the use of AI tools in literature research (including an overview of various tools and their functionalities): https://www.hs-rm.de/de/service/hochschul-und-landesbibliothek/suchen-finden/ki-tools#recherche-plattformen-mit-ki-unterstuetzung-132409 (accessed on 17.04.2024)
- You will find a wide range of information sources and courses on the "KI-Campus" learning platform: : https://ki-campus.org/ (accessed on 17.04.2023).
- The „Virtuelles Kompetenzzentrum: Künstliche Intelligenz und wissenschaftliches Arbeiten" (VK:KIWA) offers, among other things, a list of AI resources that can be helpful for scientific work: https://www.vkkiwa.de/ki-ressourcen/ (accessed on 17.04.2024).