

**Academic writing:
AI and academic writing
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AI and Academic Writing: Context

Context

- Academic writing plays a crucial role in **research and education**
- A **structured approach** for presenting ideas
- Researchers and educators use academic writing style to convey **data-driven arguments and logical reasoning** in scholarly works
- Helps readers fully grasp **a topic**
- Authors can investigate **concepts** thoroughly: resulting in well-explained **theories, informed discussion or conclusions**

AI and Academic Writing: Context

Academic writing

- vast amounts of information
- complex ideas
- Theories
- empirical data

Requirements

- a deep understanding of the subject
- the ability to simplify complex ideas for the reader

AI and Academic Writing: Context

High standards of

- accuracy
- evidence
- logical structure

Essentials

- mastering the formal tone
- specific terminology of academic/scientific texts and writing
- academic integrity through proper referencing and citing of sources

AI significantly transforms academic writing and research across various subjects.

AI and Academic Writing

- assists in idea generation and research planning
- enhances content organization
- supports literature review and synthesis
- improves data management and analysis
- assists with translating, editing, reviewing, and publishing
- helps with communication, outreach, and ensuring ethical compliance

- **Challenges:** maintaining academic integrity and balancing AI with human insight and thinking

AI and Academic Writing: Tools

Literature Management/organizing research materials/generating citations

- Zotero, Mendeley, and EndNote

Enhancing writing quality

- Grammarly, OpenAI's ChatGPT, CHatPDF, DeepL, Language Tool, Perplexity, Jenni AI, Jasper.AI, QuillBot, Consensus, Copy a i, Rytr LLC, Paraphraser, Copyspace, Literature review tool, Paperpal, ProWritingAid, SciSpace, Scribble AI, Turnitin, Wordtune, Elicit, Scite

AI and Academic Writing: Tools

Data visualization

- f.ex. Tableau - transforms complex data into visually comprehensible formats but does not offer AI-generated content capabilities

Specialized AI tools like ArXiv and Semantic Scholar

- AI-driven tools transform how researchers access and summarize pertinent academic papers, keeping them updated on the latest advancements in their fields

AI and Academic Writing: Tools

Qualitative data analysis

- NVivo, MAXQDA, Leximancer, Quirkos, ATLAS.ti, Dedoose – offering automated coding, sentiment analysis and pattern identification in voluminous text data

Specialized AI tools like Provalis Research and RapidMiner

- AI with text analytics, facilitating sophisticated qualitative analysis

AI and Academic Writing: Debates and Issues

- Plagiarism
- Bias
- Deception
- Lack of Accountability

AI and Academic Writing: Prompting

Six (general) steps for writing good prompts, particularly for AI tools like GPT or DALL·E

- **Be Clear and Specific:** Clearly state what you want from the AI. Avoid ambiguous terms or overly broad requests.
- **Use Simple Language:** Write in straightforward language to avoid confusion or misinterpretation by the AI.
- **Set the Context:** Provide necessary background information or context that will help the AI understand your request better.
- **Include Desired Details:** Specify any particular elements you want, such as tone, style, or content focus (e.g., for images: colors, scene, mood; for text: formal, descriptive, etc.).
- **Avoid Overcomplicating:** Keep the request focused without overwhelming the prompt with too many instructions at once.
- **Test and Refine:** After running the prompt, assess the result and tweak the input to improve clarity, specificity, or outcomes for better responses in the future.
- (Chat GPT: Which are the six steps for writing good prompts?)

AI and Academic Writing: Prompting

<https://www.promptingguide.ai/introduction/examples>

Video: Basic Prompting

<https://youtu.be/TBhRC4Dath4>

AI and Academic Writing: Prompting

SUMMARIZING

- **Prompt:** Explain antibiotics
- **Output:** Antibiotics are a type of medication used to treat bacterial infections. They work by either killing the bacteria or preventing them from reproducing, allowing the body's immune system to fight off the infection. Antibiotics are usually taken orally in the form of pills, capsules, or liquid solutions, or sometimes administered intravenously. They are not effective against viral infections, and using them inappropriately can lead to antibiotic resistance.
- In fact, you can instruct the model to summarize into one sentence like so:
- **Prompt:** Antibiotics are a type of medication used to treat bacterial infections. They work by either killing the bacteria or preventing them from reproducing, allowing the body's immune system to fight off the infection. Antibiotics are usually taken orally in the form of pills, capsules, or liquid solutions, or sometimes administered intravenously. They are not effective against viral infections, and using them inappropriately can lead to antibiotic resistance. - Explain the above in one sentence:
- **Output:** Antibiotics are medications used to treat bacterial infections by either killing the bacteria or stopping them from reproducing, but they are not effective against viruses and overuse can lead to antibiotic resistance.

<https://www.promptingguide.ai/introduction/examples>