Effective and Responsible Use of AI:
Guidance for Performing Graduate Research and Writing Dissertations, Theses, and Manuscripts for Publications[1]

General Guidance on the Use of Generative AI

- **Understand strengths and limitations:** As with any research tool, it is the user's responsibility to understand and weigh the advantages and the limitations and potential pitfalls of the tools and methods they employ.
- **Be scientific with your prompts:** The value of the response depends on the value of the prompt. Learn how to iterate on prompts to refine results or use initial result to identify new avenues of inquiry. For strategies see the OpenAI Guide and this GeorgiaTech website. Prompting is not deterministic: the same prompt at a different time may result in a different response. Small changes in the wording of the prompt may yield very different responses. Keep records, make small changes, and see how these affect outcomes.
- **Be skeptical of results.** Quality of the output depends both on the algorithmic approach and the quality of the training data. AI can pick up human biases from the training data and amplify them. Do not trust any outputs that you cannot evaluate yourself or trace back to credible original sources.[2]
- **Don't share any data or information that are confidential, proprietary, or have IP implications to an open-source AI engine**. Confidentiality and security of data voluntarily input to a Large Language Model (LLM) depends on the policies and practices of platform. Your uploaded data or ideas might be incorporated into the learning model to be available for others in your research area prior to you having a chance to publish it. If your paper has not yet been submitted for peer review, consider using AI editing only on sections that don't contain new research content. If you intend to pursue commercialization or other IP avenues, putting the information into an open AI platform may be considered as disclosure. In some cases, you may be able to opt out of your information being included in training data.

Use of Generative AI to Generate Research Ideas or Approaches

Use AI judiciously as a research tool:

- LLMs can sort through and synthesize a large amount of information quickly; they can summarize existing information that is freely available and is neither too old nor too recent
- AI tools can serve as an iterative brainstorming partner
- LLMs trained broadly in a topic can give good initial literature overviews. Note that library databases are more reliable in terms of accuracy of peer-reviewed content[3]
- Current algorithms don't necessarily generate accurate and dependable new or creative ideas

[1] This condensed guidance is based on the UVM GEC's adaptation (April 2025) of Georgia Institute of Technology's "Effective and Responsible Use of AI in Research: Guidance for Performing Graduate Research and in Writing Dissertations, Theses, and Manuscripts for Publications" (July 2024). For the GEC's longer version, please reach out to Associate Dean Chris Berger.

[2] For generative AI citing fictitious articles, see M. Hicks, "No, ChatGTB Can't be Your New Research Assistant," *Chronicle of Higher Education*.

[3] Rutgers University Library site.

Use of Generative AI in Writing Assignments, Theses, Dissertations, and Publications

- **Understand the expectations of instructors, advisors, and studies committees:** Students should seek guidance for the use of AI platforms in class assignments, theses, dissertations, and other genres of writing that are part of their academic and professional portfolios. Clear communication as to when and how AI can be used in academic writing will limit the risk of inadvertent misuse of AI tools. Ideally, instructors will provide clarity in course syllabi and assignment instructions. If in doubt, students have the responsibility to ask before using AI tools. The same applies to theses and dissertations: students should work with their advisors and committee members to ensure appropriate guidelines are understood with respect to AI usage in writing scholarly texts.
- **Don't short-circuit the learning process:** An important part of the learning process is for students to develop their skills in analyzing, summarizing, and discussing their research results. Inputting data into a generative AI platform and asking it to write up results does not allow the student to develop those skills and *may* produce content that might not withstand expert scrutiny.
- **Research assistance during writing:** Using an AI platform for literature searches, data analysis, and citation management is acceptable provided care is taken to avoid substantive Generative AI assistance as described below that could be construed as plagiarism. Independently vet specific information, including citations.
- **Editorial assistance:** Using an AI platform for grammar checks, editorial improvements, or translation is similar to a person helping edit or proofread a paper or essay; it generally does not require acknowledgement. Depending on the AI platform, keep in mind that a grammar check may put your ideas into a system over which you don't have control. Ensure that a translation or generative AI engine does not inadvertently change meaning; include human proofreading as appropriate.
- **Publishing:** understand and abide by a publisher's restrictions on the use of AI in the writing of a publication to be submitted for review. As authors are responsible for the content of their submissions, they are responsible for errors in AI-generated content. Some publishers require full transparency and credit for the sources of AI-ideas in the manuscript.
- **Preserve confidentiality of information**: see above.
- **Act ethically:** Consider UVM's Code of Academic Integrity and the tenets of the responsible conduct of research:
  - Artificial Intelligence and UVM's updated **Code of Academic Integrity** (August 2025): Standard 4 ("cheating") includes: "Students may not claim as their own work any portion of academic work that was not created by the student. Work generated by artificial intelligence is not considered to be created by the student and is not permitted unless expressly stated by the instructor." As AI-generated response might include passages taken verbatim from other sources, quoting an AI-generated response may cross over to plagiarism.
  - Falsification or fabrication of data: there is no guarantee that Generative AI will produce accurate results or that it will not create new false data.
  - Responsible collection and management of data: ethical standards for the treatment of research subjects and their data must be upheld. Do not upload sensitive data to an open AI platform.
  - Awareness of the tool you're using: make sure you're aware of its terms of service, where it obtained its data, and how it will use the information you put into it.