# **TOOLKIT** FOR A RESPONSIBLE USE OF GENERATIVE AI IN MASTER'S AND DOCTORAL THESES

## Guidelines for Master's and Doctoral Students

Faculty of Graduate and Postdoctoral Studies

UNIVERSITÉ LAVAL

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# INTRODUCTION

The deployment of generative artificial intelligence (AI) is profoundly transforming university teaching and research practices. While these tools offer unprecedented possibilities, they also present many pedagogical and ethical challenges, particularly with regard to graduate-level research training.

The effects of using generative AI on students' learning abilities and intellectual skill development are a concern in the university education community.

In its **Guiding Principles on Artificial Intelligence in Teaching and Learning** (available in French only), Université Laval has adopted an open yet cautious stance. When generative AI tools are used in academic work, the principles emphasize the importance of doing so in an informed, ethical, and transparent manner in order to ensure high-quality degrees, promote excellence and innovation, and preserve standards of academic rigor and integrity.

With this in mind, the FESP has adopted an accountability-based approach and is offering these guidelines for master's and doctoral students. In it, you will find:

- Information on ethical risks and challenges
- Some tips and suggested practices for a responsible use of AI
- Guidelines on the **mandatory disclosure** of the use of generative AI in master's and doctoral theses

## IMPORTANT

Additional rules may apply to your research.

Generative AI tools can have a variety of applications and present different challenges from one discipline to another, which must be taken into account to ensure the responsible use of these technologies.

- Check with your program director to see if there are any specific rules for your faculty, department, or program.
- Discuss the practices suggested in this toolkit with your research supervisor and confirm them with them to ensure their relevance and applicability to your research project.
- If you plan to publish an article based on your thesis (or a report, research note, or other document), find out about the rules adopted by the scientific journals to which you will be submitting it.
- If you are writing a grant or scholarship application, also check with the funding agency about their requirements for the use of generative AI.

Throughout the development of your project, and particularly during the meeting to establish your collaboration plan, it is essential to discuss this with your research supervisor. You must obtain their approval for the use of generative AI tools and ensure that there is a common understanding of how they will be used.

These guidelines are based on the best practices of the first principle of the Policy on Responsible Conduct in research, Creation, and Innovation (available in French only), which calls for «conducting research activities in a genuine spirit of pursuit of knowledge or creation [...] while respecting the principles of rigor and integrity in the collection, recording, validation, and analysis of data, as well as in the communication of results.»

# 1. What is generative AI

Generative AI is a branch of artificial intelligence that stands out for its ability to autonomously produce content (such as text, images, videos, audio, or computer code) in response to requests made by the person using it.

It works by analyzing vast sets of existing data to learn patterns and structures. This knowledge is used to respond to queries addressed to it in natural language with plausible content, in a form similar to that which could be generated by humans.

Generative AI can be used in various fields, such as writing all kinds of texts, software development, artistic, dramatic, or musical creation, product design, etc.

It should be noted that these contents are formulated on the basis of probabilistic predictions. The same query can produce several different and incompatible responses. Consequently, these responses cannot replace reasoning or human creativity. They must be reviewed and explained by users independently, according to the requirements of their field of expertise or study.

### To learn more

- Artificial intelligence (AI) terminology concept map
- Generative artificial intelligence (available in French only)
- Building my success — Leveraging generative artificial intelligence (available in French only)

# 2. Uses of generative AI tools in research

In the context of scientific research, there are many possible uses for generative AI, depending on the discipline. However, they must always complement intellectual work and be supervised by humans. Their potential use, as illustrated by the following examples, should be discussed with your research supervisor.

- Generating ideas and formulating research hypotheses
- Documentary research and literature review
- Development of methodological specifications
- Experimentation, data analysis, and hypothesis testing
- Writing, translation, and linguistic revision
- Presentation (generation of diagrams, tables, and graphs; audiovisual representation of data or concepts)
- Programming and code development
- Etc.

### Useful links
**(available in French only)**

- Using AI in a knowledge synthesis project
- Using generative AI in documentary research

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# 2

# MANDATORY DISCLOSURE OF USES OF AI IN MASTER'S AND DOCTORAL THESES

If you use generative AI tools in the process of writing your master's or doctoral thesis, you must:

- declare this use and explain its significance for your research work in the preface to your thesis or dissertation;
- explicitly mention the use of generative AI tools in your master's or doctoral thesis whenever relevant.

This disclosure demonstrates your commitment to transparency and academic integrity. You must explain the choices you made throughout your research process, justify your use of AI, and demonstrate that you acted responsibly, in compliance with the present guidelines detailed in this document. This information is crucial for the evaluation committee, which will then be able to assess the originality of your contribution with full knowledge of the facts.

Similarly, if no generative AI tools were used in the research, creation, or writing, you must explicitly state this in preface to your master's or doctoral thesis.

In both cases, the disclosure is mandatory and will be verified upon intial submission. For more information and examples of declarations, see the Responsible Use of Generative AI in Master's and Doctoral theses page.

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# 3

# GUIDELINES FOR A RESPONSIBLE USE OF GENERATIVE AI

# 1. Maintaining research skills development

Current knowledge about the effects of generative AI on the development of students' skills is limited. Although some studies have already been published, the phenomenon is still recent and constantly evolving. The lack of hindsight prevents us, for the time being, from fully assessing its impacts.

For this reason, generative AI tools should only be used to enhance students' abilities without replacing activities that are essential to the development of their scientific research skills.

For more information, please refer to the FESP web pages that detail the high-level skills to be developed at the master's and doctoral levels, which should reflect the originality of the conceptualization, contextualization, and analysis of your research topic and its results.

Although generative AI can transform certain stages of the research process, the fundamental objectives of graduate education remain unchanged.

The use of generative AI should not detract from your learning experience or your motivation to pursue your research project. If used, generative AI should encourage your engagement in understanding the phenomena under study with a view to participating, if you are a master's student, or making an original contribution, if you are a doctoral student, to the development of knowledge.

### Suggested practices

Here are some pratices to prevent generative IA from intefering with the acquisition of research skills. It is still necessary to discuss these with your research supervisor to ensure their relevance in the specific context of your field of study or research project and, if necessary, to define other courses of action.

- Clearly identify the tasks for which generative AI can be used (e.g., assistance with documentary research, translation and summarization of an article before reading it in depth, linguistic revision) and those for which it should not replace intellectual effort (e.g., critical analysis, argument construction).
- Take the time to construct your arguments and demonstrations yourself, without relying solely on the results proposed by generative AI.
- Prioritize discussions with faculty members and other students to compare ideas and refine your thinking.
- Write down your ideas first before using these tools for linguistic revision. Writing stimulates your engagement with the content and allows you to develop your own style and critical thinking. Do not use generative AI to write entire sections of your work.
- Don't fall into the trap of taking the easy way out: keep reading, analyzing, comparing, interpreting, and writing on your own.

## WARNING

Any use of generative AI that is not authorized by your research supervisor and does not comply with academic ethics and integrity standards may result in penalties.

Unauthorized use may be classified as unauthorized assistance, devices, or instruments under sections 34 and 35 of the Disciplinary Regulations for Students at Université Laval (available in French only) and may result in disciplinary sanctions.

## Useful links

- Writing assistance workshop
- Writing assistance software (available in French only)

# 2. Checking and validating content

Generative AI tools rely on statistical models that generate plausible statements, but cannot «understand» the underlying causalities. Although they are capable of establishing correlations, these tools can also produce inaccurate information or «hallucinations,» i.e., erroneous data. They can also reproduce or amplify biases present in the training data and produce discriminatory results.

At the same time, human capabilities, primarily critical thinking, but also intuition, sensitivity, morality, creativity, and understanding of cultural and social nuances, must be preserved and developed. They are essential for conducting in-depth analysis as part of the scientific research process.

To fully exploit the potential of generative AI, specialized knowledge of the subject is required. A person with expert knowledge is better equipped to formulate relevant queries, identify potential errors or biases, and critically integrate AI contributions into their thinking.

### Suggested practices

Here are some courses of action to promote the veracity and accuracy of AI-generated content. It is still necessary to discuss this with your research supervisor team to determine all the measures to be taken based on the specificities of your field of study and your research project.

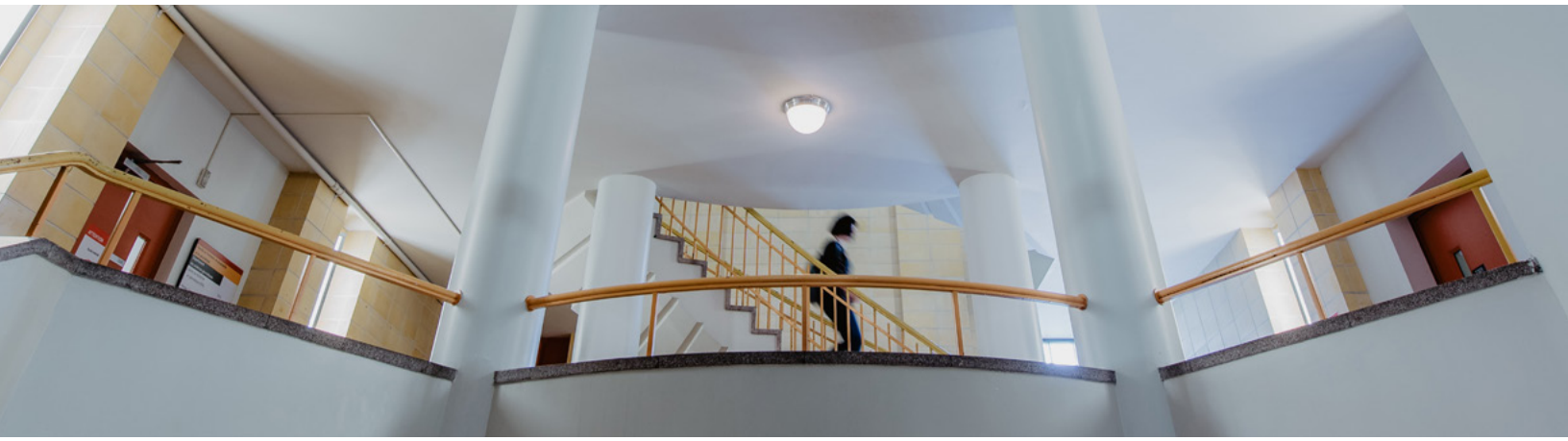
- Learn about the capabilities and limitations of generative AI tools before using them.
- Never rely solely on AI-generated content. Always verify the accuracy of the information provided with reliable sources.
- Examine AI-generated content critically and compare it with facts, logic, and human reasoning.
- Correct AI-generated content before incorporating it into your research.

### CAUTION

Responsibility for AI-generated content included in master's and doctoral theses (validity of information, legal and ethical responsibility) lies solely with the student.Students must be able to validate the generated content and correct it if necessary, as they alone are accountable for the text produced, since AI has no legal personality.

In the case of master's and doctoral theses consisting of co-authored articles, responsibility for the content of each chapter lies with all the authors who contributed to the article.

Please note that producing fabricated data, facts, or information constitutes a violation of the Disciplinary Regulations for Students at Université Laval (Article 32) (available in French only).



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# 3. Complying with standards of academic integrity

At Université Laval, the fundamental values of academic integrity and responsible research conduct must not be compromised by the misuse of generative AI.

Academic integrity is based on two essential principles:

- Transparency, which requires rigorous and comprehensive citation of sources and accurate presentation of the data used.
- Honesty, which prohibits the appropriation of the work or ideas of others, as well as any falsification or manipulation of data.

Every student must integrate these principles into their academic journey, thereby ensuring the credibility of their research and adherence to the highest scientific standards.

Please note that AI-generated content is not truly original. Rather, it represents an amalgamation of existing data and may contain excerpts from protected works.

## WARNING

For your own protection, in order to avoid any accusations of plagiarism, you must place AI-generated responses in quotation marks, as they may include excerpts from third-party works.

### Suggested practices

Here are some steps you can take to demonstrate your integrity and ethical approach to using AI:

- Openly discuss the use of generative AI with your research supervisor, especially when drawing up your collaboration plan.
- Make sure you have the approval of your research supervisor and a common understanding of these uses and any adjustments that may need to be made.
- Any new decisions on the use of generative AI tools must be made in consultation with your research supervisor.

## WARNING

**Any use of generative AI that is not authorized by your research supervisor and does not comply with ethical and academic integrity standards may result in sanctions.**

Unauthorized use may be considered unauthorized assistance, devices, or instruments under sections 34 and 35 of the Disciplinary Regulations for Students at Université Laval (available in French only) and may result in disciplinary sanctions.

- If you plan to write an article in collaboration with your research supervisor, make sure you have a common understanding and clearly define the terms of use for generative AI. As a co-author, you are jointly responsible for the content of the article, particularly with regard to scientific integrity and copyright compliance.
- Document the processes and decisions influenced by generative AI to ensure the traceability of your reasoning. To this end, we recommend that you keep a logbook to record your uses throughout your journey and reflect on them critically. The FESP provides a logbook template that can be adapted to suit your needs and accessible from the Responsible Use of Generative AI in Master's and Doctoral theses page.

## MANDATORY DISCLOSURE IN MASTER'S AND DOCTORAL THESES

It is mandatory to make a general disclosure about the uses of generative AI tools and explain their scope for your research work in **the preface** to your manuscript.

If no generative AI tools were used, you must also specify this.

In both cases, the disclosure is mandatory and will be verified upon initial submission. For more information and examples of declarations, see the Responsible Use of Generative AI in Master's and Doctoral theses page.

In addition to the general disclosure in the preface to your master's or doctoral thesis, provide adequate details on any specific uses of generative AI, in accordance with the standards of your discipline or your faculty, department, or program.

- For scholarship and grant applications, as well as for the publication of articles in scientific journals, refer to the policies of the targeted journals and funding agencies regarding the use of generative AI and the required disclosure procedures.

### Useful links

**(available in French only)**

- Academic regulations
- Disciplinary regulations
- Responsible and ethical conduct in research
- Student space: Rights and responsibilities
- Copyright Office: Intellectual integrity

Photo: Pub Photo/ULaval

# 4. Complying with and protecting copyright rules

The use of generative AI also raises copyright issues. To achieve a high level of performance, AI tools must be fed, either manually or through automated processes. However, most of the content used to train generative AI tools is protected by copyright.

It is important to be aware that the content you submit to generative AI tools (text, images, or other) may be incorporated into their training databases. If you submit documents for which you do not own the copyright, you may unwittingly contribute to copyright infringement. Respect for intellectual property and copyright remains mandatory when using AI.

## CAUTION

When using a generative AI tool to summarize or process content created by others (such as text excerpts or scientific articles), you must always clearly indicate the original references for this content in your manuscripts.

Furthermore, please note that your own copyright may be at risk when you feed texts you have written into an unsecured generative AI tool, for example for linguistic revision. These texts will then be used as training data and may contribute to the generation of new content in which your intellectual work will not be recognized.

### Suggested practices

Here are some steps you can take to ensure copyright compliance when using generative AI. It is still necessary to discuss this with your research supervisor to determine all the measures to be taken in the context of your research project.

- If you use generative AI tools other than Copilot, whose institutional license allows for user data protection, make sure you only submit content that is royalty-free, freely accessible, or for which you hold the rights.
- The use of protected material must be in accordance with the Copyright Act or with the permission of the copyright owners.

**Information about Copilot:** Use your email <IDUL@ulaval.ca > and the associated password to access the protected version available to the entire Université Laval community through the Microsoft 365 license. For more information, visit the Copilot institutional license page (available in French only).

### Useful links

**(some are available in French only)**

- Generative AI and potential violations of disciplinary regulations (Web capsule)
- Copyright Office: Artificial Intelligence
- Copyright Act (sections 3 and 14.1)

## 5. Respecting confidentiality, privacy issues, and protecting data

One of the main ethical issues related to generative AI concerns the protection of personal data. More specifically, the risks relate to sensitive information, such as people's identities, their privacy, and research data submitted to generative AI tools for analysis, writing, or editing purposes. This information could be incorporated into training data and made accessible to other users.

Work produced by students contains personal information and is therefore subject to the Act respecting Access to documents held by public bodies and the Protection of personal information, as well as the Rules for the Protection of Personal Information adopted by Université Laval (available in French only).

### Suggested practices

Here are some steps you can take to promote confidentiality, privacy, and data protection. It is still necessary to discuss these with your supervisory comittee order to determine all the measures to be taken based on the specific characteristics of your field of study and your research project.

- Find out about the privacy and data use policies of the generative AI tools you use.
  Useful link: Navigating the terms and conditions of generative AI
- Do not enter sensitive or personal data about individuals or organizations into unsecured generative AI tools.
- Only collect or provide necessary data. Avoid collecting or transmitting unnecessary information.

- Choose Copilot (with ULaval authentication) (available in French only): the institutional license allows you to use a protected version of this generative AI, which complies with security and confidentiality requirements. Your data is protected when you log in with your ULaval credentials.
- If other applications seem to better meet your needs, find out in advance about their privacy and data use policies. Some tools allow you to disable conversation history and the use of this data for model training.
- Follow best practices for privacy and data protection.

**Information about Copilot:** Use your email address <IDUL@ulaval.ca > and the associated password to access the protected version available to the entire Université Laval community through the Microsoft 365 license. For more information, visit the Copilot institutional license page (available in French only).

## 6. Taking environmental issues into account

The development and operation of AI systems require significant material resources, such as rare metals, as well as large amounts of energy to power data centers. Considering the significant environmental impacts of AI development and use, Université Laval, in line with its ongoing commitment to sustainable development, encourages digital sobriety by promoting the responsible use of AI to minimize its ecological footprint.

### Suggested practices

Here are some steps you can take to address environmental concerns.

- Before using a generative AI tool, check if there is another less energy-intensive tool that can meet your needs (search engine, database, consulting physical documents at the library, etc.).
- Use open-access resources such as Pixabay, OpenVerse, or YouTube's audio library rather than generating audiovisual content using generative AI tools, which are particularly energy-intensive.
- When using generative AI tools, limit the number of queries and make sure to structure them well to avoid repetitive processing.

### Evolving nature of AI guidelines in master's and doctoral theses

Université Laval continues to reflect on the issues and challenges posed by generative AI in higher education and research. These guidelines will be updated in light of technological advances, developments in research on the impact of AI on skills development in graduate studies, legal developments related to copyright, and any other factors that may influence the training of future researchers.

Photo: Pub Photo/ULaval

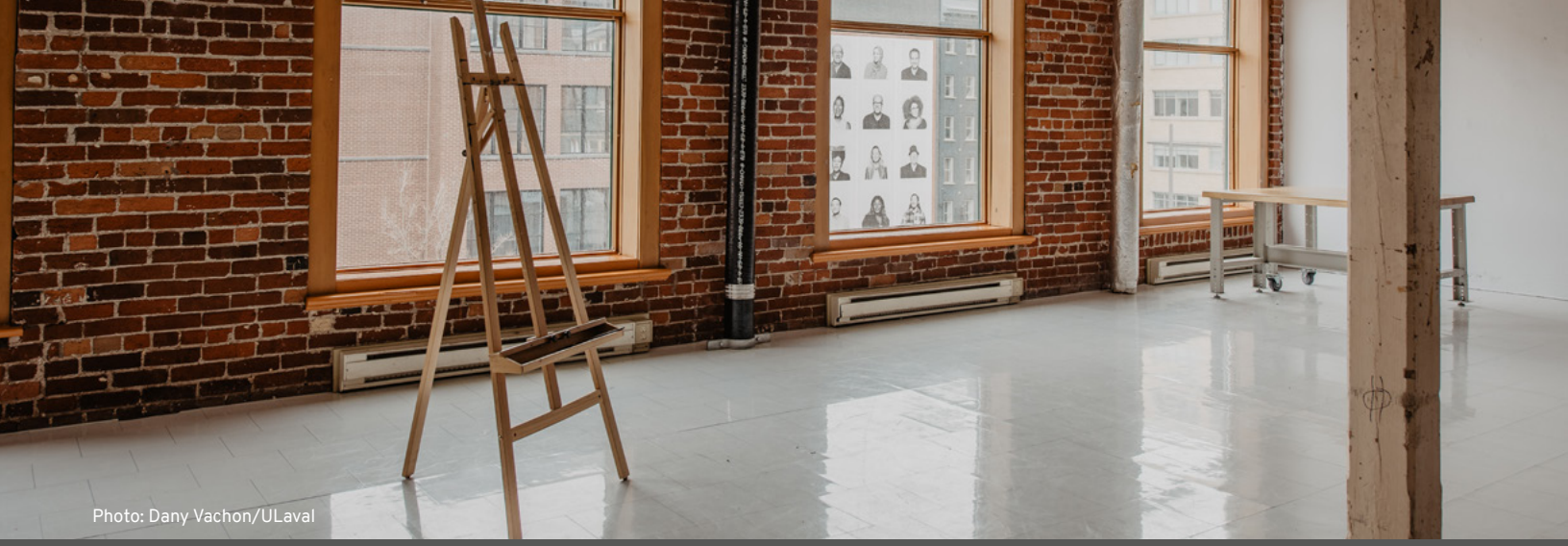

Photo: Dany Vachon/ULaval

Generative AI tools were used for information research, translation, and initial linguistic review of this toolkit. All AI-generated responses were rigorously verified and validated.

**Version dated August 8, 2025.**

**For more information, visit the Responsible Use of Generative Artificial Intelligence page on our website: fesp.ulaval.ca/ia-generative**