3.6 Theses and Dissertations

A. Theses

In degree programs requiring preparation of a thesis, master's students must undertake an original investigation into a subject that has been approved by the student's advisory committee. All theses must be submitted in accordance with the Electronic Thesis and Dissertation (ETD) Guide (https://grad.ncsu.edu/students/etd/). Theses should be submitted to the advisory committees at least two weeks prior to the final defense.

B. Dissertations

The doctoral dissertation must present the results of the student's original investigation in the field of primary interest. It must represent a contribution to knowledge, adequately supported by data, and be written in a manner consistent with the highest standards of scholarship. All dissertations must be submitted in accordance with the ETD Guide. Publication is expected and encouraged. Dissertations should be submitted to the advisory committees at least two weeks prior to the final defense.

C. Company-Funded Research

For thesis or dissertation research that is funded by a company, students and their advisors must ensure that there is a clear agreement as to the ability to place the results in an ETD and, should there be proprietary information, that a mechanism be in place to ensure that the ETD remains viable. Furthermore, if a company's requires approval of the document prior to a defense, this will require additional lead time to insure that only the appropriate information is included.

D. Submission Procedures for Theses and Dissertations

1. All advisory committee members must approve the thesis/dissertation prior to submission to the library for publication.

2. After receiving an unconditional pass on the final oral exam, the student must submit the thesis/dissertation electronically to the ETD system.

3. A thesis/dissertation must be submitted by the ETD deadlines as published in the Graduate School Calendar.

4. At the time of dissertation submission, students are also required to submit the required forms and fee as outlined on the ETD website. The Graduate School will not award the degree until these forms and fees have been submitted.

E. Publication in Compliance with Nondisclosure Provisions

Theses and dissertations containing disclosures of patentable discoveries may be embargoed by submitting a request through the ETD system. They may be granted for up to one year. Placing an embargo on a thesis or dissertation until a patent application is filed will not prevent a student from graduating on time.

F. Artificial Intelligence policy for dissertations and theses

Overview

Large Language Models (LLM) such as ChatGPT and, more generally, tools from Generative Artificial Intelligence (GAI) have impacted academic work by assisting in research and writing as well as by providing feedback and assessment, among other emerging applications. These tools offer promises of increased efficiency but also bring to the fore delicate questions about the very nature of our work. The goal of this document is to propose a framework to allow our graduate students to use these tools ethically while developing their dissertations and theses.

The debate on the use of LLMs within Academia is raging and is somewhat reminiscent of the debate on the use of calculators at school. In fact, LLMs are sometimes described as “calculators for words”. We summarize the position of the NC State Graduate School on the matter as follows:

• Our students would benefit from receiving training on how to use GAI tools efficiently, ethically and reliably.

• The mere use of LLMs does not constitute plagiarism; the uninformed and/or poorly documented inclusion of outputs from LLMs into dissertations and theses may constitute a form of plagiarism.

The Graduate School follows one main guiding principle which largely matches the approach proposed in Nature and other publications, such as Science.

Guiding principle

• Candidates utilizing GAI tools must document their use clearly and thoroughly in their dissertation or thesis.

General guidance for graduate students and advisors

• Graduate students should discuss general authorship principles and issues as well as acceptable use of LLMs or other GAI tools as early as practically possible with their advisor.

• Advisors need to be direct and transparent about what tools students are permitted to use, and about the reasons for any restrictions. Additional guiding principles and approaches for the use of GAI in their specific field(s); if such principles are adopted by the program, they must be clearly communicated to the students and applied uniformly by advisory committees.

• GAI tools raise issues of privacy and intellectual property. Material submitted can become part of the application's database, user's information may be collected and cookies installed to track further activity.

Bias and Statistics

• LLMs are models; therefore, there are inherent biases associated with them. Users must, at a minimum, be aware of the existence of such issues. For instance, LLMs may attempt to “average” the set of opinions they are trained on which may lead to surprising and/or unwanted results (statisticians will tell you that averages may be low probability states...).
• The accuracy, or lack thereof, of detection tools for AI-generated texts has been studied. Due to their unreliable nature, the use of AI tools claiming to detect LLM generated text is discouraged.

Other editorial issues

• The guidelines from Nature also state that no LLM tool should be credited as co-author on a research paper. That is because any attribution of authorship carries with it accountability for the work, and AI tools cannot take such responsibility.

• The above guiding principle does not directly address the use of GAI in generic courses. For additional guidelines, please, refer to the Navigating the Landscape of Higher Education in the Age of Artificial Intelligence page from the Office for Faculty Excellence or to Developing an AI Syllabus Statement for Your Course from Delta.

• The use of writing assistance tools such as Grammarly is generally allowed and rarely acknowledged. Grammarly, for instance, is in fact based on GAI. If in doubt, students should contact their advisory committee and/or err on the side of caution and acknowledge use. This very document was typed using the Google Docs Editor with Smart Compose (another AI based tool) turned on and hereby acknowledged. Clearly, legislating all this to the n-th degree will not be possible because of the constant evolution of the tools available to us; good judgment from all sides is likely to be needed.

Definitions

• Generative Artificial Intelligence (GAI) is the broad category of AI capable of generating new data such as text, images, video, music and other forms of media.

• Large Language Models (LLM) are a subset of GAI and are designed to work with human language (language is the focus) such as ChatGPT.

• Writing Assistant Tools are designed but not limited to checking spelling and grammar, such as Grammarly.

* This document has benefited from consultations with the NC State Office for Faculty Excellence (https://provost.ncsu.edu/ofe/) and with the Data Science Academy (https://datascienceacademy.ncsu.edu/).