Guidance for students on the use of generative artificial intelligence in summatively assessed work

Scope of this guidance

This guidance applies to dissertations for the taught Masters courses MCF, MMSC, and MFoCS. For other submissions, the current default policy that unauthorised use of AI is prohibited applies[1].

Broader context of this guidance

The department encourages the experimentation with, and confident use of, generative artificial intelligence (Gen AI) tools in your studies. Gen AI significantly extends the established tool kit such as search engines, spell-checkers, or debuggers, and opens up new opportunities in collating material, improving your writing, or generating code. However, these wide-ranging and rapidly expanding capabilities require careful consideration in relation to originality, attribution, and good academic practice.

The present document clarifies and refines university-level guidance more specifically in the context of typical mathematical project work. It is to be seen in conjunction with the University's guidance[2] on the use of generative AI tools to support learning. We also refer to Appendix C of the University's Examination and Assessment Framework[1], specifically: *"Unauthorised use of artificial intelligence is the presentation of work produced wholly, or in part, by AI as your own. [...] Use of AI in the process of preparing work for summative assessment without authorisation is still academic misconduct, even if the student amends the AI output."* The consequences of unauthorized use through the University's procedure for plagiarism range from mark deductions in minor cases of bad academic practice to expulsion from the university in extreme cases.

You are bound by the university's declaration of authorship for all taught submissions, in which you pledge, among others, "that the work [you] are submitting is entirely [your] own work, except where otherwise indicated".[3]

General considerations for the use of Gen AI

Gen AI can assist, but not replace, your own critical engagement with the subject. It is therefore imperative to carefully examine any Gen AI output you build on, and be aware of the limitations

[1] https://academic.admin.ox.ac.uk/examiners
[2] https://www.ox.ac.uk/students/academic/guidance/skills/ai-study
[3] https://www.ox.ac.uk/students/academic/exams/open-book/honour-code

and pitfalls of the tools you use. These include, but are by no means limited to: reproducing information the model was trained on, potentially leading to classical plagiarism and copyright infringement; ‘hallucinations’, i.e., presenting false information as fact, either through training on erroneous data or incorrect synthesis of correct data, such as made-up references; producing biased or offensive output; predictive output that does not meet the standard of novelty and/or originality expected from the research work in question; code with incorrect syntax or which gives unintended results. Ultimately, you, the student, take full responsibility for the submitted work.

It is also worth pointing out that in mathematical writing you are not assessed on the correct or creative use of English, but rather the clarity and logical structure of your exposition. If you use a Gen AI tool to assist you in your writing (e.g. to eliminate grammatical mistakes), it is essential that you scrutinise the result and edit it such that it captures precisely what you want to say.

Declaration of AI use

The precise use of AI tools has to be declared in the same way that existing literature or available software has to be referenced adequately. This declaration has to include how the Gen AI tool was interacted with. While it is not generally expected that you give a complete list of individual prompts used, you need to make clear, for instance, whether a piece of software was constructed through an iterative process with Gen AI by building individual blocks, or fully AI generated.

Taking text or mathematics verbatim from generative AI is strongly discouraged, as it is not reproducible, and cannot be assigned authorship or cited as a permanent source. Any such verbatim passages need to be flagged up explicitly (e.g., in quotation marks) with citation in the style of a “personal communication”.

Permissible and impermissible use

As a broad principle, if it would be inappropriate to ask someone else to do a certain part of the work for you, it will also be inadmissible to use AI for that task. In the same way as it would be inappropriate to use existing mathematical results and software without acknowledgement, you are required to acknowledge the use of Gen AI to produce code or mathematical derivations.

Examples of generally **permissible** use of AI:

- searching for literature on a specific topic, provided you verify the relevance, correctness and unbiasedness of the references, and the discussion of the sources is your own;

- assistance in writing code[4], including generation of new code and translation of existing code into a different programming language;
- non-substantive alterations to figures that improve clarity and readability;
- formatting of lists or bibliographies;
- improving your grammar by an AI tool specifically designed and intended for that purpose (such as Grammarly).

In all cases, Gen AI use needs to be declared as outlined above. All Gen AI output has to be checked, and any errors may have an impact on the final mark, even where properly cited.

Examples of generally **impermissible** use of AI:

- substantive original writing by Gen AI, e.g., for an introduction or conclusion section, including verbatim or closely paraphrased use of Gen AI for a literature review;
- improvements to your original writing beyond spelling and grammar, e.g., that bring in domain knowledge or improve a logical argument;
- any use of AI generated code without declaration;
- production of plots by Gen AI, as this may obfuscate the data generating algorithm or the data source, including alteration of data in a diagram;
- asking Gen AI to produce an interpretation of mathematics or data.

Always follow the departmental[5] and the university's[6] information security policies and the university's data protection policy[7] when interacting with Gen AI.[8] In particular, do not enter private or confidential data into third-party AI tools as they may be stored or passed on to a wider audience, in their original or a processed form, for instance, by being used to train the Gen AI tool. An example of such data would be internal data provided by an industrial partner or data obtained under a licensing agreement.

[4] except in specific coding assignments, or if explicitly not allowed to use existing code
[5] https://www.maths.ox.ac.uk/members/it/it-notices-policies/information-security-policy
[6] https://www.infosec.ox.ac.uk/guidance-policy
[7] https://compliance.admin.ox.ac.uk/data-protection-policy
[8] https://infosec.ox.ac.uk/use-generative-ai-services-such-as-chatgpt-safely