

MMathPhys/MSc Mathematical & Theoretical Physics

Dissertation Guidance for Students 2025-26

Introduction

You may opt to offer a dissertation as one or two of your ten units. Writing a dissertation offers a substantial opportunity for independent study and research and is undertaken under the guidance of a member of the Department of Physics or the Mathematical Institute. A dissertation involves investigating, and then presenting in writing, a particular area of Mathematical Physics or Theoretical Physics. You would not be required to (but may) obtain original results.

Choosing a topic

A list of suggested dissertation topics is provided in Appendix E of the Course Handbook, but you are not limited to this list and may propose your own topic instead. If you have an idea for your own dissertation topic, you should discuss this with your Academic Adviser, the Course Director, or one of the course lecturers, who may be able to suggest a potential supervisor.

Choosing one or two units

For a one-unit dissertation, you are expected to spend the equivalent time and effort on your dissertation as a 16-hour lecture course, including the associated private study, completion of problem sheets, and dedicated revision for examinations.

For a two-unit dissertation, you are expected to spend the equivalent time and effort on your dissertation as a 32-hour lecture course, with the same considerations for associated work.

Applying to offer a dissertation

Students should approach supervisors directly whether following suggested topics in the Course Handbook or seeking a bespoke project from appropriate faculty members or research staff. Following discussion with, and agreement by, the prospective supervisor, students should complete the application form. It will be open from the end of week 3 and you must submit your application by **Monday, week 6 of Michaelmas term**.

The Course Director should be consulted in advance for cases that might be controversial, for example, if the topic is very far from topics on the MTP schedule or if the supervision is not from a faculty member or a postdoc recommended by a faculty member in the Department of Physics or the Mathematical Institute.

Students wishing to propose their own topic need to submit a typed abstract of at least 100 words (but no more than one A4 sheet) together with a list of the main references they plan to use. Students should discuss their abstracts with their proposed supervisors before submitting their applications.

It is expected that the dissertation should not contain significant amounts of material in courses taken by the candidate. Candidates taking courses with significant overlap with the topic of their proposed dissertation should list those courses in their application and in the preface to the dissertation.

All abstracts will be considered by the Joint Supervisory Committee. Approval will be confirmed by email in **Week 8 of Michaelmas term**.

Working on your dissertation

You should plan to begin work on your dissertation soon after your abstract has been approved. Manage your time wisely. You should have a clear plan for when and how you will work on your dissertation project across the Christmas vacation, Hilary term and the Easter vacation.

You are advised to bear in mind that you will need to balance your time usage in the Easter vacation and early Trinity term between preparing for Trinity term exams, working on your dissertation, and completing work for Trinity term courses.

Supervision arrangements

Once your dissertation proposal has been approved, you can expect to have an initial meeting with your supervisor to discuss your dissertation, and then may meet with them again once or twice while you are working on your dissertation. Students undertaking a double unit dissertation can expect to meet with your supervisor three or four times while working on it. You should expect to hold regular meetings with your supervisor.

In meetings with supervisors, you should expect to update your supervisor on the work you have done since the last meeting, including describing any difficulties encountered. You should expect to receive feedback on this and suggestions for overcoming the difficulties if appropriate. Students may also receive direction to the relevant literature and to receive comments on drafts of your dissertation.

A complete draft of the dissertation should be given to the supervisor at least two weeks prior to submission in order to allow plenty of time for the supervisor to read and comment on the draft and for changes to be implemented.

Oral Presentation

You are required to give an informal presentation to your supervisor and at least one other person as part of your supervision at the beginning of Trinity term. This does not form part of the assessment but checks your understanding of the subject matter. Further guidance will be provided closer to the time.

Writing Up

Students should put effort into presenting their work as clearly as possible. We have provided a list of articles and books that may help you develop your technical writing skills.

The paper by Ehrenberg [1] is only 4 pages long and contains good advice on technical writing. Strunk and White [11] is a guide to writing more generally. Katzoff [3] is an older report on technical writing. The book by Higham [2] gives very good tips on writing mathematics. The book of Krantz [5] is also recommended, as is the older book by Steenrod, Halmos, Schiffer and Dieudonne [10]. Section 1 of Knuth, Larrabee and Roberts [4] is a mini-course on technical writing and there is plenty of good advice in the rest of the book too.

The London Mathematical Society's advice to its authors [7] gives advice on how to reference the work of others and explains a common referencing system. The conventions for citing internet resources include stating the URL and date accessed.

The University also offers guidance here:

<https://www.ox.ac.uk/students/academic/guidance/skills/postgrad-taught-skills>

Appendix A lays out the marking criteria for dissertations.

Formatting

The submitted dissertation should conform to the following formatting guidelines:

- **The dissertation should be typewritten.** LATEX is recommended but it is not compulsory.
- **A 12pt font size should be used.** The width of the text should be at most 15cm (6 inches) per page and the height of the text should be at most 22.5cm (9 inches) per page. These width and height requirements will be automatically satisfied by using the OCIAM thesis class for LATEX which can be downloaded from <https://www.maths.ox.ac.uk/members/it/faqs/latex/thesis-class>.
- **The spacing of the text should be at least one and a quarter spacing** which can be achieved with the OCIAM thesis class by using a baselinestretch of 1.25.
- **The dissertation must include an abstract and a bibliography.**
- **The dissertation should have a title page which includes:**
 - the title of dissertation,
 - the candidate's examination number (do not include your student number or name),
 - the title of the candidate's degree course,
 - the term and year of submission.
- **The dissertation's length should not exceed 30 pages for a single unit and 60 pages for a double unit.** The page count may exclude any table of contents, diagrams, tables, bibliography, and the text of any computer programs. Footnotes and appendices do count towards the page limit.

NOTE: There is no formal penalty for exceeding this page limit. However, assessors will not be expected to read a dissertation beyond the specified page limit. So, it is to your own benefit to keep to the limit.

Plagiarism

Plagiarism is presenting work or ideas from another source as your own, with or without consent of the original author, by incorporating it into your work without full acknowledgement. All published and unpublished material, whether in manuscript, printed or electronic form, is covered under this definition, as is the use of material generated wholly or in part through use of artificial intelligence (save when use of AI for assessment has received prior authorisation e.g. as a reasonable adjustment for a student's disability). Plagiarism can also include re-using your own work without citation. Under the regulations for examinations, intentional or reckless plagiarism is a disciplinary offence.

The Examination Board shall deal wholly with cases of poor academic practice in submitted work and take-home examinations where the amount of material under review is small and does not exceed 10% of the whole. Assessors will mark work on its academic merit with the Board being responsible for deducting marks for derivative or poor referencing. Depending on the extent of poor academic practice, the board may deduct between 1% and 10% of the marks available for cases of poor referencing where material is widely available factual information or a technical description that could not be paraphrased easily; where passage(s) draw on a variety of sources, either verbatim or derivative, in patchwork fashion (and examiners consider that this represents poor academic practice rather than an attempt to deceive); where some attempt has been made to provide references, however incomplete (e.g., footnotes but no quotation marks); or where passage(s) are 'grey literature', i.e., a web source with no clear owner.

Where the consequence of the marks deduction would result in failure of the assessment and of the programme, the case will be referred to the Proctors. If a student has previously had marks deducted for poor academic practice or has been referred to the Proctors for suspected plagiarism, the case will be referred to the Proctors. More serious cases of poor academic practice than described above will also be referred to the Proctors.

See the University's guidance on plagiarism

<http://www.ox.ac.uk/students/academic/guidance/skills/>.

Use of AI

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.

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

Submitting your dissertation for assessment

You should submit your dissertation via Inspira by **12 noon on Monday, week 6 of Trinity Term.**

Upon electronic submission you will be required to complete a Declaration of Authorship that you have:

- read and understood
 - the University's disciplinary regulations concerning conduct in examinations and, in particular, the regulations on plagiarism
 - the Education Committee's information and guidance on academic good practice and plagiarism
- submitted work that is
 - entirely your own except where otherwise indicated
 - not copied from the work of another candidate
 - not from a service of any agency providing specimen, model, or ghostwritten work
 - not previously submitted, either partially or in full, to this qualification or any other Honour School or University qualification
- acknowledged
 - any assistance you received
 - all material quoted from other sources
 - all paraphrased material with appropriate references
- agreed to
 - retain an electronic copy of this work until the publication of the final exam result
 - make any such electronic copy available to the examiners should it be necessary to confirm the word count or to check for plagiarism.

Your dissertation will automatically be submitted to Turnitin plagiarism system. It is an electronic text matching system that can be used to find text matches between students' submitted work and existing electronic sources, including extensive databases of electronic articles, other student assignments and the internet.

See the following guide for problems submitting work and late submissions:

<https://www.ox.ac.uk/students/academic/exams/submission>

Late submission of coursework is a serious matter and will usually result in academic penalties unless prior permission for late submission has been given by the Proctors. In the absence of such Proctorial permission, the academic penalties will be as set out in the Examination Conventions on the course website.

Assessment of dissertations

Please see the Exam Conventions for details of how the dissertations will be assessed.

Dissertations will normally be marked by the dissertation supervisor and blind-marked by one additional assessor. The marks of the two assessors will be reconciled following the procedure detailed in Appendix B of the Exam Conventions. The assessors of a dissertation that, in your view, shows particular originality and/or insight may recommend to the Examiners that the dissertation be given a commendation.

Please note: **Assessors will not be expected to read a dissertation beyond the specified page limit** when assigning your marks.

Prizes for dissertations

The assessors of a dissertation that, in your view, shows particular originality and/or insight may recommend to the Examiners that the dissertation be given a commendation. The Examiners will consider all such recommendations and announce any commendations after the final Examiners meeting. Additionally, a prize may be awarded by the Examiners for the best dissertation.

Appendix A - Qualitative Criteria for Dissertations

The mark awarded to a dissertation should be according to the following qualitative criteria.

70 – 100 marks. The candidate has demonstrated an excellent understanding of almost all the material covered with a commensurate quality of presentation, and has completed almost all the assignment satisfactorily - further subdivided by;

90 – 100 marks. The candidate has shown originality or insight that goes beyond a basic completion of the task set, and in the case of the dissertation contains some original work of potential publication standard **where the original work was completed largely independently by the student.**

80 – 89 marks. The work submitted shows a near-perfect completion of the task in hand, but does not meet the additional requirements above, or does but has defects in presentation. **The work may be of publication standard, but the work may not have been completed entirely independently by the student.**

70 – 79 marks. The work submitted is of a generally high order but may have minor errors in content and/or deficiencies in presentation.

65 – 69 marks. The candidate has demonstrated a very good understanding of much of the material and has completed most of the assignment satisfactorily.

60 – 64 marks. The candidate has demonstrated a good understanding of much of the material and has completed most of the assignment satisfactorily.

50 – 59 marks. The candidate has demonstrated an adequate understanding of the material and an adequate ability to apply his or her understanding.

40 - 49 marks. The work submitted, while sufficient in quantity, suffers from sufficient defects to show a lack of adequate understanding or ability to apply results.

30 - 39 marks. The candidate, while attempting a significant part of the mini-project, has displayed a very limited knowledge or understanding at the level required.

0 – 29 marks. The candidate has either attempted only a fragment of a mini-project or has shown an inadequate grasp of basic material.

Appendix B - Supervisor Log

MMathPhys/MSc Mathematical & Theoretical Physics Dissertation Supervisor Log

Student:
Dissertation title:
Supervisor:

Please give details of supervision provided below.

Meeting Number	Date and Time	Nature of supervision/guidance
1		
2		
3		
4		
5		

Please note a redacted version of the supervisor's log will be shared with the second assessor

Appendix C - Dissertation Marksheet

MMathPhys/MSc Mathematical & Theoretical Physics Dissertation Marksheet 20205-26

Assessor:

Dissertation Title:

Candidate Number:

Proposed USM:

Please propose a USM for the Dissertation (see the attached letter from the Chair of Examiners and marking guidelines for information on USMs and assessment). The Dissertation will be independently marked by another assessor; you will be asked to reconcile in the event that the two marks differ by more than 10 USM.

Assessor's Comments (for examiners, these are not passed to the student):

Assessor signature:

Date:

Please note: In some circumstances an examiner may need to discuss your marks and reconciliation (if any) with you and the other assessor. You should prepare to be contacted about this if needed.

Appendix D - References

- [1] A. S. C. Ehrenberg, Writing Technical Papers or Reports, The American Statistician 36 (1982), no. 4, 326–329. <http://www.jstor.org/stable/2683079?origin=JSTOR-pdf>.
- [2] N.J. Higham, Handbook of Writing for the Mathematical Sciences, SIAM, 1998.
- [3] S. Katzoff, Clarity in Technical Writing, Second Edition, NASA, 1964.
https://archive.org/details/nasa_techdoc_19640016507.
- [4] S. G. Krantz, A Primer of Mathematical Writing, American Mathematical Society, 1997.
- [5] L. Lamport, LATEX: A Document Preparation System, Second Edition, Addison Wesley, 1994.
- [6] T. Oetiker, H. Partl, I. Hyna, and E. Schlegl, The Not So Short Introduction to LATEX2e.
<http://www.ctan.org/tex-archive/info/lshort/english/lshort.pdf>.
- [7] Sue Rodd and Ola Törnkvist, Journals of the London Mathematical Society: house style and instructions for copy-editors and typesetters.
<http://www.lms.ac.uk/sites/lms.ac.uk/files/Publications/LMSHouseStyle.pdf>.
- [8] N. E. Steenrod, P. R. Halmos, M. M. Schiffer, and J. R. Dieudonné, How to Write Mathematics, American Mathematical Society, 1973. Second Edition, 1981.
- [9] W. Strunk Jr. and E. B. White, The Elements of Style, Fourth Edition, Longman, 1999.
Available at <http://www.bartleby.com/141/>.

