

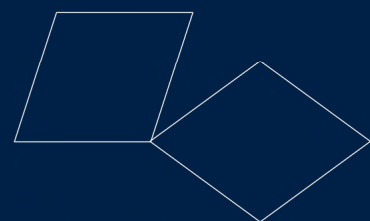


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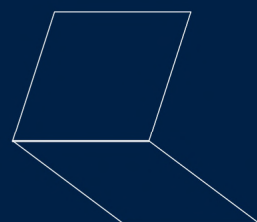
# Project Work in Parts B and C

**Mathematical Institute**

Eamonn Gaffney  
Chair of Projects Committee  
Academic Lead (Parts B and C)



Oxford  
Mathematics



# Aim of these slides



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- To offer general advice and suggestions.
- Questions about projects can be sent to me via [acadadmin@maths.ox.ac.uk](mailto:acadadmin@maths.ox.ac.uk) at any point

## Assumption

- That you are in your 2nd or 3rd year reading Mathematics or a joint School with Mathematics and beginning to plan your 3rd- or 4th-year options.

# What are the project options



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All the options below are **double units**.

All require a dissertation of **7500 words**, which equates roughly with 25-35 pages.

## Third Year:

- BSP: Structured project
- BOE: Other extended essay

## Fourth Year:

- CCD: Mathematical dissertation
- COD: History of Mathematics dissertation

# Why choose a project option?



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- Engaging in the research for a thesis is a different way of learning mathematics deeply – and it's exciting
- Writing a thesis develops valuable skills, different from those learned through more traditional courses
- The timing of the project option permits adjustment of workload over the year
- Some students find writing a thesis more successful than writing an examination against the clock

# BSP Structured Projects

## Learning Outcomes

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- The aim is for students to see mathematical research and to learn some of the necessary techniques.

Students will gain experience of

- reading and understanding research papers
- introduction to mathematical research
- presenting a well-structured written report, using LaTeX
- undertaking peer review
- making an oral presentation to a non-specialist audience

# BSP Structured Projects

## The Two strands.

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There are two types of projects

- **Strand A.**
  - Pre-approved topics offered by supervisors
  - **Limited numbers**
- **Strand B**
  - Custom student-led projects

# BSP Structured Projects

## Strand A. Pre-approved Topics.

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In past years projects have included applications to numerical analysis, biology, finance, and earth sciences. From 2024-2025 the list of topics will be extended and it may include.

- Fractal Sets and Measures
- Gaussian Fields
- Numerical Linear Algebra
- Modelling HPV
- Thermohaline Circulation

More to come...

# BSP Structured Projects

## Strand A. Pre-approved Topics.



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- Students wanting to do a BSP project **must state their preference** on the provisional course registration form
  - Registration is opened towards the end of term, with an email notification and due in by the end of week 12.
- Choose a topic and approach a supervisor
- Students are expected to have corresponded with their supervisor before applying for a project
- Apply for approval.
  - Forms should be emailed to the Undergraduate Studies Administrator at [acadadmin@maths.ox.ac.uk](mailto:acadadmin@maths.ox.ac.uk) by midday on Friday of week 0, Michaelmas term.



# BSP Structured Projects

## Strand B. Student-led projects

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- Think about your topic and start looking for a supervisor soon.
- You should get ideally agreement from someone to supervise you well ahead of the deadline.
- Remember email contact may be difficult during the vacation.
- In practice, a project proposal will be a negotiation between the student – what they might want to do – and the supervisor – what's reasonable in scope.

# BSP Structured Projects

## Strand B. Student-led projects



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- The Proposal should be at least 150 words, at most one page.
- Must be word-processed and on the standard form
- Should be understandable by non-expert members of Projects Committee and the course coordinator.
- Should have sufficient information for the course coordinator to judge scope and content.
- Should give a good sense of what work will be involved for you, and what makes the project original in its aims or something new within the literature.
- Should include main references, with full bibliographic details to help give context and idea of scope and content.

# BSP Structured Projects Teaching

- In past years projects have included applications to numerical analysis, biology, finance, and earth sciences.
- At the beginning of the course students will be given written instructions for their chosen project.
  - In MT students will read around their chosen topic and take preparatory course in LaTeX.
  - In HT students will meet regularly with their specialist supervisors. You will have **5 hours** of specialist supervision.

The submission deadline is in Week 10 and in Week 1 of TT there is an oral presentation of the work.

# BSP Structured Projects Assessment

The mark breakdown will be as follows:

- Written work 75%
- Oral presentation 15%
- Peer review 10% [The peer review report is assessed; peer review does not impact the project mark].

Final Word ...

Please visit the BSP organiser, Dr Cath Wilkins, at the BSP options fair table, to ask questions and to pick up the BSP handout.

# BOE: Other Mathematical Extended Essay



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- **Similar to Strand B, student-led BSP projects**
- **Topics are not completely mathematical but they must have a significant mathematical content.**
- Projects are often supervised by faculty from other departments
- The application process is the same
- Assessment is based on the written project only, though there is still a presentation.

# Part C Dissertation (CCD or COD)

## Part C, Mathematics students.

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Part C dissertations are **obligatory for Mathematics students.**

CCD. Dissertation on a Mathematical Topic.

COD. Dissertation of the History of Mathematics.  
Very limited numbers, **cap of four.**

The arrangements for choosing a Part C dissertation are noticeably different from Part B.

# Part C Dissertation (CCD or COD)

## Part C, Joint Degree students.

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- **Maths & Statistics students** must do a dissertation, choosing six proposals from the Statistics Dept list of proposals.
- **Maths & Computer Science students** must either do a Maths dissertation or a CompSci project at Part C.
- **Maths & Philosophy students** may do a Maths dissertation, a Philosophy thesis, neither or both.

# Part C Dissertation (CCD or COD)



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- The Mathematics and Statistics departments produce a long list (50+) of proposals, and students make a ranked list of preferences.
- Typically up to 4 students will be able to do each proposal.



# Part C Dissertation timeline



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- Late September – List of projects released
- MT Late Week 0. Dissertation Information Session.
- **MT Mid Week 1. Submit up to 5 preferences in rank order**
  - We may not be able to assign a project to those submitting fewer preferences.
  - Statistics students have priority for statistics projects.
  - Some projects might be statistics students only.
- MT Week 2 – Projects are assigned to students on the basis of their preferences and students find out their project.

# Part C Dissertation timeline



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- MT Week 3 onwards
  - First meeting, of those doing a particular project, with the supervisor. This could be a group meeting
- MT/HT – Students have a further 5 hours of supervision per group.
- HT Week 7/8 – Student gives a short presentation on their project (non-assessed)
- TT Week 1 – Deadline for submission

# History of Mathematics (HoM)

## Arrangements 1.

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- Dissertations in HoM are somewhat different.
- There is a cap of 4 on the number of students taking the HoM dissertation.
- Students wishing to do an HoM dissertation should contact [christopher.hollings@maths.ox.ac.uk](mailto:christopher.hollings@maths.ox.ac.uk) with a short draft proposal before Wednesday week 0.
- Dr Hollings will contact you to arrange a short informal interview to discuss the proposal further.

# History of Mathematics (HoM)

## Arrangements 2.

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- All decisions made by Dr Hollings will be communicated to students, provisionally by mid-week 1
- All supported proposals will then be referred to Projects Committee for final approval.
- Students whose proposal is not supported by Dr Hollings will be given a week to make a ranked list of other dissertation choices.

# Part C Dissertation

## Verbal Presentation

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- Each student is required to give a verbal presentation to their supervisor and at least one other person with some knowledge of the field of the dissertation.
- These will usually take place in the final two weeks of Hilary Term.
- The presentation does not count towards the final assessment of the project
  - It is still a useful focus on the exposition of the project before the latter stages of dissertation writing.

# Part C Dissertation Submission

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- The submission deadline is  
**Monday noon, Week 1, Trinity term.**
- Submission is electronic

# Part C Dissertation

## Workload Management

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- Depending on other workload we would typically expect students to do most of the work in HT and over the two short vacations.
- It is therefore important not to overburden yourself in Hilary Term, possibly by choosing to do fewer units that term and more in Michaelmas.

# Part C dissertation

## Assessment overview

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- Dissertations are independently double-marked, normally by the dissertation supervisor and one other assessor.
- The two marks are then reconciled to give the overall mark awarded.



# Part B and Part C

## Appropriate Depth and Content

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It is impossible to be specific on appropriate depth and content but here are guidelines.

- The Part B projects and Part C dissertations are 7,500 words and are equivalent to two 16-lecture courses.
- A concern for supervisors is sometimes that students put too much time into their projects, because they are proud of them as individual pieces of work.
- Other concerns are students beginning writing-up too late.
- Advisory talks by the Chair of Projects Committee are given during the year. There will be guidance (videos or talks) about LaTeX.

# Part B and Part C

## Appropriate Depth and Content

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- BSP projects should be Part B level material; dissertations should be Part C level material.
- **The subject should be adequately mathematical:**
  - For BOE essays a project closely related to mathematics is fine; this can be historical, philosophical or pedagogical.
  - For COD dissertations these are in History of Mathematics.
- For BSP and Part C dissertations the project should be mathematical, understood in a broad technical sense.

# Further Information



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- See the projects webpages
- <https://www.maths.ox.ac.uk/members/students/undergraduate-courses/teaching-and-learning/part-b-students/projects/essays>
- <https://www.maths.ox.ac.uk/members/students/undergraduate-courses/teaching-and-learning/part-c-students/teaching-and-learning/dissertations>
- Email questions to me via  
[acadadmin@maths.ox.ac.uk](mailto:acadadmin@maths.ox.ac.uk)