



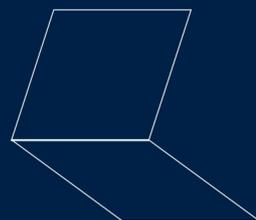
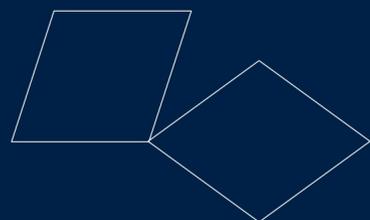
Mathematical  
Institute

# Project Work in Parts B and C

**Mathematical Institute**

Dmitry Belyaev  
Chair of Projects Committee  
Academic Lead (Parts B and C)

Oxford  
Mathematics



# Aim of these slides

- 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

All the options below are double units. Each is 7500 words, which equates roughly with 25-35 pages.

## Third Year:

- BSP: Structured project **NEW**
- BOE: Other extended essay

## Fourth Year:

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

# Why choose a project option?



DEPARTMENT OF  
**STATISTICS**



Mathematical  
Institute

- 
- 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

- This double-unit option is designed to help students understand 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
  - making an oral presentation to a non-specialist audience

# BSP Structured Projects



DEPARTMENT OF  
**STATISTICS**



Mathematical  
Institute

---

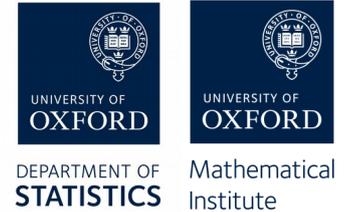
There are two types of projects

- pre-approved topics offered by supervisors
- custom student-led projects

# BSP Structured Projects

## Offered projects

---



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 will include pure options.

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

More to come...

---

# BSP Structured Projects

## Student-led projects

---

- Choose a topic and approach a supervisor – your college tutors or the Chair of Projects Committee can advise
- Students are expected to have corresponded with their supervisor before applying for a project
- Apply for approval: proposals go to the Secretary to Projects Committee, Mathematical Institute. Submit proposed thesis title, with abstract, reference list and name of supervisor by 12 noon, Friday, Week 0, MT.

# BSP Structured Projects

## Student-led projects

---

- 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 – re what they might want to do – and the supervisor – what's reasonable in scope.

# BSP Structured Projects Teaching

- 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 will include pure options
- 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

## Student-led projects



DEPARTMENT OF  
**STATISTICS**



Mathematical  
Institute

- 
- 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 Assessment

---



DEPARTMENT OF  
**STATISTICS**



Mathematical  
Institute

The mark breakdown will be as follows:

- Written work 75%
- Oral presentation 15%
- Peer review 10%

# BOE: Other Extended Essay



DEPARTMENT OF  
**STATISTICS**



Mathematical  
Institute

- 
- Similar to student-led BSP projects
  - Topics that 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

# Part C Dissertation (CCD or COD)



DEPARTMENT OF  
**STATISTICS**



Mathematical  
Institute

---

Part C dissertations (CCD or COD)  
are **obligatory for Mathematics students.**

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

# Part C Dissertation (CCD or COD)



DEPARTMENT OF  
**STATISTICS**



Mathematical  
Institute

- Part C dissertations are also 7500 words and are double units, which equates roughly with 25-35 pages.
- 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

- September – List of projects released
- MT Week 1 – Students submit up to 5 preferences in rank order (We may not be able to assign a project to those submitting fewer preferences) Note: Stats students have priority for stats projects. Some projects might be Stats 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



DEPARTMENT OF  
**STATISTICS**



Mathematical  
Institute

- 
- MT Week 3 – First meeting, of those doing a particular project, with the supervisor. 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

---



DEPARTMENT OF  
**STATISTICS**



Mathematical  
Institute

- 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.
- Dr Hollings will contact you to arrange a short informal interview to discuss the proposal further.

# History of Mathematics (HoM) arrangements 2

---

- All decisions made by Dr Hollings will be communicated to students by the end of week 2.
- 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 (CCD or COD)



DEPARTMENT OF  
**STATISTICS**



Mathematical  
Institute

- For Maths & Stats students, the dissertation is mandatory and such students will need to choose six proposals from the Statistics Department list of proposals.
- Maths & CompSci students must either do a Maths dissertation or a CompSci project at Part C.
- Maths & Phil students may do a Maths dissertation, a Philosophy thesis, neither or both.

# Workload Management

- 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.

# Appropriate Depth and Content



DEPARTMENT OF  
**STATISTICS**



Mathematical  
Institute

- 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 effort into their projects, because they are more 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.

# Appropriate Depth and Content

- BSP projects should be Part B level material; dissertation 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.

# Oral Presentation

- Each student is required to give an oral 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, but can bring a useful focus to the exposition of the dissertation before the final stages of writing-up.

# Submission

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

# Assessment

- 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.

# Further Information

- See the projects webpage

[http://www.maths.ox.ac.uk/current-students/  
undergraduates/projects](http://www.maths.ox.ac.uk/current-students/undergraduates/projects)

- Email questions to me at

[acadadmin@maths.ox.ac.uk](mailto:acadadmin@maths.ox.ac.uk)