Mathematics Programmes & Admissions Process

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Mathematics Programmes

At Durham we offer:

- G100 – 3-year BSc Mathematics
- G104 – 4-year BSc Mathematics (European Studies)
- G103 – 4-year MMath
- G101 – 4-year MMath (European Studies)

All programmes have opportunities to specialise in pure, applied, statistics and probability.
Flexible: possible to switch between these programmes at any time during first 2 years – no difference in admissions process except A-level language (grade B) requirement for European Studies.

University Mathematics

It is important to realise that a University degree is a framework on which to base your own learning. The style is very different from school but extremely efficient: a crude estimate is that just in terms of raw material the MMath degree is the equivalent of about 20 A-levels. Therefore you will immediately notice a big difference in the style and purpose of University level mathematics ...

In particular, at University you will find more focus on:

- Proof – Deriving results, not just using them
- Problem solving – Tackling new (unseen) types of problems rather than just repeated calculations
- Connections between topics – pure, applied, statistics & probability are not separate subjects. Many techniques translate between them.

University maths is more challenging. It requires understanding abstract concepts and more independent study and introspection. However, at the same time it is very enjoyable and rewarding.

Programme Content Overview

- Durham has a modular system, you take 6 modules each year. All our maths programmes are the same in year 1 and 2, and all include a final year project module (double module for MMath.)
- Essentially year 1 contains core material which builds on what you have seen at school and will be required for future years, whatever options you choose. Some material will be repeated, depending on exactly which options you studied at school.
- Year 2 contains some more advanced core material, and options so you can start to specialise.
- Year 3 and 4 contain a large choice of optional modules, but some may require specific choices in year 2 or 3.

Programme Content by Year

- Year 1 – 4 Core Maths modules plus 2 free options, must include appropriate language for European Studies.
- Year 2 – 2 Core Maths modules plus 4 optional Maths modules. You can start to specialise, but can also keep all options open.
- Year 3 European Studies – Year abroad studying maths. Marks count towards degree classification on MMath programme.
- Year 3 – Wide choice of modules (around 20 modules) in pure, applied, statistics, must include a project module on BSc.
- Year 4 BSc European Studies – Same as year 3 BSc.
- Year 4 – Wide choice of modules with double project module.

Programme Content by Year

- Year 3 – Algebraic Geometry III, Analysis III, Bayesian Statistics III, Continuum Mechanics III, General Relativity III, Representation Theory III, Stochastic Processes III, Approximation Theory and Solution to ODEs III, Elliptic Functions III, Geometry III, Number Theory III, Probability III, Solitons III, Statistical Mechanics III, Topics in Statistics III, Decision Theory III, Differential Geometry III, Dynamical Systems III, Electromagnetism III, Galois Theory III, Mathematical Biology III, Mathematical Finance III, Operations Research III, Partial Differential Equations III, Quantum Mechanics III, Statistical Methods III, Topology III, Maths Teaching III

Programme Content by Year

- Year 4 – Algebraic Geometry IV, Analysis IV, Bayesian Statistics IV, Continuum Mechanics IV, General Relativity IV, Representation Theory IV, Stochastic Processes IV, Approximation Theory and Solutions to ODEs IV, Elliptic Functions IV, Geometry IV, Number Theory IV, Operations Research IV, Probability IV, Solitons IV, Statistical Mechanics IV, Topics in Statistics IV, Advanced Quantum Theory IV, Algebraic Topology IV, Mathematical Finance IV, Partial Differential Equations IV, Riemannian Geometry IV, Project IV

Assessment

- Most modules are assessed by an end of year exam.
- Projects are assessed by report, poster and presentation
- You must pass year 1, but your mark does not count towards your degree classification.
- For BSc programmes, year 2 and final count with weight 2:3.
- For MMath programmes, years 2, 3 and 4 count with weight 2:3:4.

Other Durham Programmes

Other programmes at Durham include maths. The most popular is Natural Sciences which includes Joint Honours programmes such as Maths + Physics. Programmes where students can study half maths are:

- Natural Sciences – 3-year BSc or 4-year MSci
- Combined Honours in Arts or Social Sciences

Students on these programmes study the same Mathematics modules as students on Mathematics programmes.

Application Process

- Apply via UCAS, deadline 15th January – late Home & EU applications not normally considered.
- You choose up to 5 programmes – admissions is competitive so find out all relevant information before applying, and be realistic.
- No distinction between Maths programmes so no point applying for e.g. G100 *and* G103.
- Our selection process focuses on evidence of ability and achievement in mathematics.

Durham Admissions Process

- Applications forwarded to University by UCAS
- Applications sent to department
- Department makes academic decisions – an offer will be made or the application will be rejected on the basis of this decision
- Offers made by colleges – applicants can state a preference but colleges also have fixed quotas

Durham Maths Admissions Process

- Forms assessed by admissions team – academic staff
- Further information will be requested from the applicant – UMS marks if taking A-level, perhaps about the lack of opportunity to do Further Maths, etc
- Decision made:
  - Offer $\rightarrow$ College
  - Reject - sorry
  - Grade and hold – final decision delayed until other applications have been received. Required to treat all on-time applications equally. This means that an application received in October may not have a final decision made until March!

College Allocation

- Students on each programme are distributed amongst all colleges (proportional to size) – no "maths colleges"
- If no college preference, then allocation is random (between colleges with spaces)
- Applications considered by first choice, then other colleges in pool, then other pools – colleges can accept or pass on, but not reject
- College confirmed after offer decision on UCAS so initial offer will not specify college
- Specific college not guaranteed for Insurance acceptance

Essentials

- Personal Statement – We look for interest and motivation to study programme, and other interests. Also of interest to college.
- Reference – We expect very strong references. Quantitative evidence is most useful. E.g. "best in year", "best in last 5 years", "qualified for Olympiad", "achieved 96% in AS-Further Maths which was mostly self-taught"
- Achieved and Predicted Grades – Predictions should at least meet our offer. Quality is more important than quantity. We don't focus too much on GCSE grades and will request UMS marks for all Maths modules.

Competition and Further Maths Policy

Admission to Durham Maths programmes is very competitive. Last year we made around 400 offers for 129 places from around 1000 applicants – nearly all predicted to meet or exceed our standard offer. Our policy is to focus on mathematical achievement and ability.

For A-level applicants we require Further Maths:

- A-level Further Maths required if offered by school
- AS-level Further Maths required if A-level not available at school – via the Further Maths Support Programme if required

Standard Offers

If we make an offer to an A-level applicant it would be:

- A*A (Maths + Further Maths) + A (Any Other except General Studies)
- A* (Maths) + AA (Any 2 Others except General Studies) + a (AS-Further Maths)

We accept any equivalent qualifications and make comparable offers, e.g.

- International Baccalaureate – 39 points with 7 for HL Maths
- Scottish Advanced Highers – A1 (Maths) + AA

We have no preferences for other subjects, e.g. A-level History is as good as A-level Physics, but language required for European Studies – grade B at A-level.

Selection Method – UMS Marks

We cannot select only on Personal Statement, Reference and Predicted Grades. For A-level applicants UMS Maths marks are very important – we accept resits and use what is available at the time of application. Important factors are:

- Average UMS mark
- Number of modules taken – typically 6, decisions based on 3 are more difficult, and averages for different numbers of modules are not directly comparable
- Preference for higher marks in Core and FP modules, and to a lesser extent Mechanics
- Level of support for Further Maths
- Exceptional Circumstances

Selection Method

- Applicants must be predicted to meet our offer. We do not have a strong preference for predictions above 3 A-levels as this is very dependent on opportunities available to applicants and does not necessarily indicate better preparation for our maths programmes.
- We do not require STEP or AEA, but we do believe that these are useful preparation for University level maths programmes.
- We do not make specific maths module grade requirements in our offers.

N.B. We cannot normally take any near-miss applicants but if there are exceptional circumstances, inform us as soon as possible.

Admission to Other Programmes

- Admissions to these programmes are not dealt with by the Maths Department. You can apply to these programmes instead of or in addition to a maths programme.
- Typical offer is A*AA for A-levels. Will not require but may prefer A-level Further Maths – will require AS-level Further Maths grade A. Decision is unlikely to be so dependent on maths UMS marks and will obviously be dependent on at least one other subject.
- There is some opportunity for students to switch between programmes during or at the end of year 1.

Finally

- If you have any further questions after this session, a member of the academic staff will be available in the Dunelm (Student Union) building between 4-5pm. You do not need to book this session, just turn up.
- Thanks for coming!!