Mathematics at Warwick

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Why Maths at Warwick?

Reputation: why Warwick Maths is great?
Course: will it challenge and engage me?
University Life: will I enjoy myself?
Careers: is it a good move?
Reputation

2013 – Awarded the Regius Professorship.
2014 – Most invited speakers at ICM.
2014 – Martin Hairer awarded Fields Medal.
2014 – 3rd in Research Excellence Framework.
2015 – Queen's Anniversary Award for Further and Higher Education.
2016 – Seven Fellows of the Royal Society.
Research Income

Largest EPSRC grant portfolio of any Maths dept: £28M.
The Mathematics Department

35 professors, 40 lecturers, 50 research staff.
163 postgraduate students.
919 undergraduates (spread over 4 years).
New Building (£35M, open in 2018)
Degrees Run by Mathematics Dept

• Mathematics BSc (3 years)
• Master of Mathematics (4 years)
• Maths and Philosophy (joint degree, 3/4 years)
• Maths and Business Studies (joint degree, 3 years)
• Maths and Economics (joint degree, 3 years)

Entry requirement is the same for all these courses.
Degrees run by other departments

• Mathematics and Statistics (Stats Dept).
• MORSE (Stats Dept).
• Data Science (Stats Dept).
• Discrete Mathematics (Computer Science Dept).
• Mathematics and Physics (Physics Dept).

Entry requirement is set by other department.

Hard to switch from these to maths.
Teaching Methods

• Lectures: 3 hours/week for each module.
  Typical load: 5 modules/term in Terms 1 and 2.

• Tutorials: Each student has a Personal Tutor. Frequent meetings in 1st year, later according to students’ needs.

• Supervisions: 2 hours/week in first year, less in later years.

• Examples classes: subject based, for 3rd/4th year.

Typical work load = 40 hours/week.
If a sequence \((a_n)\) is increasing and bounded above, then it is convergent.

\[a_n \leq a_{n+1}\]

A sequence \((a_n)\) is called convergent if there exists a number \(L\) such that

\[\forall \varepsilon > 0, \exists N \in \mathbb{N} \text{ s.t. } n > N \Rightarrow |a_n - L| < \varepsilon\]
Maths BSc

1\textsuperscript{st} yr: 8 core modules (75% of normal load).

2\textsuperscript{nd} yr: 5 core modules + essay (55% of normal load).

3\textsuperscript{rd} yr: no core, must do at least 50% maths.

Remaining modules: choose from maths or many other subjects.
MMath and Joint Degrees

MMath:

• Same core as BSc.
• Must do 75% maths every year.

Maths & Business, Maths & Economics, Maths & Philosophy:

• First year is mostly maths.
• In second or third year student moves to other dept.

Easy to switch from any of these to Maths BSc within 1 year.
1st Year Modules
(Maths BSc & MMath)

Core: Foundations, Introduction to Abstract Algebra, Linear Algebra, Analysis I & II, Differential Equations, Geometry and Motion, Maths by Computer, Probability A.

Maths & Stats Options: Introduction to Geometry, Experimental Maths, Programming for Scientists, Probability B, Statistical Laboratory I.
1st Year Options (continued)

**Physics:** Classical Mechanics and Special Relativity, Electricity and Magnetism, Introduction to Astronomy, Introduction to Particle Physics, Quantum Phenomena.

**Economics:** Introduction to Quantitative Economics.

**Computer Science:** Design of Information Structures, Discrete Mathematics and Its Applications 2.
1st Year Options (continued)

**Philosophy:** Logic I, Issues of Philosophy, Descartes and Mill, Doing Philosophy of Maths, Elements of Scientific Method.

**Languages:** Arabic, Chinese, French, German, Japanese, Russian, Spanish, ...

**Business:** ..., **Engineering:** ...

Google “Warwick Mathematics Undergraduate Handbook”. 
Course: will it challenge/engage me?

• Course covers the entire breadth of mathematics:
  10 modules in 1\textsuperscript{st} year,
  17 modules in 2\textsuperscript{nd} year,
  41 modules in 3\textsuperscript{rd} year,
  36 modules in 4\textsuperscript{th} year.

• Many 3\textsuperscript{rd} and 4\textsuperscript{th} year modules reach frontiers of research.

• Can pursue and develop interests within and outside mathematics.
Erasmus Programme


• Graduate with BSc (Maths) with Intercalated Year (exams during year abroad don't count).

• Or MMath with Study in Europe (exams count).

• Year abroad arranged in 2nd year.

• Fees for Erasmus year: about £2000. Erasmus grant of €400/month from EU.
Typical Offers

Offer for 2017 entry to be decided in September. Please see website.

Typical 2016 offers:

**A-Levels:** A* (Maths), A* (FM), A, Grade 2 STEP
  or  A* (Maths), A* (FM), A*
  or  A* (Maths), A* (FM), A, A

**IB:** 39 points, 6 HL Maths, 6 in two more HL, Grade 2 STEP.
  or 39 points, 7,6,6 in HL subjects, including HL Maths.
Offers and Entry (continued)

• We accept all three STEP papers.
• We accept Distinction in AEA instead of Grade 2 in STEP.
• No interviews.
• Other qualifications welcome (please see website).
• We expect to make offers to most applicants predicted A(M), A(FM), A or higher.
Why FM and STEP/AEA?

We want you to make the right choices:

• Ensure that you enjoy maths at a deeper level.
• Develop problem solving skills.
• Prepare to tackle our challenging maths degree.

A large proportion of our intake come from schools that do not offer help with FM or STEP/AEA.

Study independently with help from Further Maths Support Programme.
Our Intake

2015 entry:
• 2037 students applied.
• 1875 were made offers.
• 663 held offer as 1st choice, 234 as insurance.
• Intake: 300 home students, 22 overseas.

82% of home students are from state schools.

2017 target: 270 home students+25 overseas.
Is a maths degree a good career move?

From a Deloitte report commissioned by the Engineering and Physical Sciences Research Council:

“The quantified contribution of mathematical science research to the UK economy in 2010 is estimated to be approximately 2.8 million in employment terms (around 10 per cent of all jobs in the UK) and £208 billion in terms of GVA contribution (around 16 per cent of total UK GVA)”
Destinations of Warwick maths graduates

- 89.7% in graduate level employment or further study 6 months after graduation.
- Average starting salary: £27,000.
- 3% of Alumni earn more £100K.
- Recruiters include: Audit Office, British Aerospace, Barclays, the Civil Service, Detica, Deloitte, KPMG, MOD, NHS, Network Rail, Price Waterhouse Coopers, Siemens and UBS.
Job roles include: Accountant, Actuary, Audit Associate, Charity Worker, Industrial Mathematician, Investment Banker, Game Developer, Management Consultant, Quantitative Analyst, Statistician, Teacher.

Further Study: many proceed to higher degrees such as MSc, PhD, PGCE or other professional training.
Why employers value Warwick maths?

• Solid and demanding degree that develops problem solving skills, communications skills, computing skills, ...

• Flexible course composition allows you to tailor your course to suit your potential career.
Reasons NOT to do maths at Warwick

Warwick atmosphere might not suit you. Visit other universities!

Our degrees are hard work.
Reasons to do maths at Warwick

Great department, with outstanding reputation.

Excellent mathematics degree programmes.

Flexibility in course composition.

Warwick campus atmosphere and social life.
Thank You!

Please join us for tea and informal Q&A (exit by the top door and cross the bridge).

Enjoy the rest of the day.