

Personal details

Personal details

First / given name William
Second given name Ruairi
Third given name Ocean
Surname/family name Garrett
Date of birth 29 July 2002
Preferred first/given name Ruairi
Previous surname
Country of birth United Kingdom
Legal nationality British National
Dual nationality
Country of residence United Kingdom
Have you previously studied with us at the University of Bristol? No

Contact details

Home address

Please provide your permanent residential address. If you have another address and would prefer for us to contact you at that address instead you have the opportunity to add a correspondence address in the next section.

Country United Kingdom
Postcode OX2 0BA
Address Line 1 7 Bridge Street
Address Line 2
City Oxford
County
Telephone

If you would like us to send any postal correspondence to an address which is not your home address please enter an alternative address here. If you want us to send correspondence to your home address then please select No.

Do you want to add a correspondence address? Yes
Country United Kingdom
Postcode OX12DL
Address Line 1 St Peters College
Address Line 2
City Oxford
County
Telephone

Agent

Agent details

Agency Name
Email address

Other information

Additional Documents

Please upload required documents as outlined in your admissions statement

Mode of study

How would like to study this Full Time
programme?

Qualifications

Qualifications

Institution	Qualification	Type	Subject	Actual/predicted	Grade	Start date	End date
University of Oxford	Master's Degree (PG)	Academic Qualification	Mathematics	Predicted	First class - 7	11/Oct/2020	30/Jun/2024

If these qualifications have altered since your last application please note the changes in the free text box here.

English Language

Is English your first language? Yes

What is your first language?

Did you study at school/university where you were taught in English?

For how many years?

Have you sat a relevant English language test?

TOEFL (internet-based)

Registration number

Date of TOEFL test

TOEFL reading score

TOEFL listening score

TOEFL speaking score

TOEFL writing score

TOEFL total score

IELTS (International English Language Testing System)

Test report form (TRF) number

UKVI number (if applicable)

Date of IELTS test

IELTS listening score

IELTS reading score

IELTS writing score

IELTS speaking score

IELTS total score

Pearson Test of English

Score report code

Date of Pearson test

Pearson listening score

Pearson reading score

Pearson speaking score

Pearson writing score

Pearson overall score

Other English Language test

Name of course

Registration number

Date of test

Listening score

Writing score

Reading score

Total score

Experience

Current Employer

Employer name and address Activision Blizzard King 178 Wardour St, London W1F 8FY

Job title and main duties Data Science Intern - Candy Crush Saga player modelling Constructed continuous time Markov chain models to quantify player ability and engagement in the Candy Crush Saga mobile game franchise. Monte Carlo simulations. Terabytes of data analysed.

Full time/Part time Full time

Date of Appointment 19 June 2023

End date (if applicable) 08 September 2023

Previous employment 1

Employer name and address Oxford Mathematics (St. Peter's College research internship bursary) St. Peter's College, New Inn Hall Street, Oxford, OX12DL.

Job title and main duties Summer research project - Elliptic curve cryptography. Completed a 6 week research project learning some theory of elliptic curves; studying, implementing and testing their cryptographic applications.

Full time/Part time Full time

Date of Appointment 26 June 2022

End date (if applicable) 01 July 2022

Previous employment 2

Employer name and address

Job title and main duties

Full time/Part time

Date of Appointment

End date (if applicable)

Previous employment 3

Employer name and address

Job title and main duties

Full time/Part time

Date of Appointment

End date (if applicable)

Other Experience

Do you have any other relevant work experience to support your application?

Please provide details

Personal statement

Personal details

Do you have a personal statement to upload? Yes
Please type your personal statement in the box

Research proposal

Research proposal

Proposed supervisor 1 Marton Balazs

Proposed supervisor 1 Edward Crane

Proposed project title Marton Balazs: Fluctuations in interacting particle systems Edward Crane
(**max 150 chars**) (undiscussed): Random graphs and queue networks

Passport and visa

Visa required

Do you require a visa to study in the UK? No

Please fill out your passport details below. If you are unable to provide these at the current time you will have another opportunity to upload your passport after you submit the form. If you do not provide us with this information we will be unable to issue you with your confirmation of acceptance number and you will be unable to obtain a visa.

Passport details

Passport number

Further details

Have you previously studied in the UK?

What was the highest level of study in the UK?

Please confirm the total length of your UK study in years

Referees

Referee 1

Do you have a reference to upload? No

Type of reference Academic

Referee title Professor

Forename Balazs

Surname Szendroi

Position Professor of Algebraic Geometry

Institution/Company University of Vienna

Email address balazs.szendroi@univie.ac.at

Country Austria

Referee 2

Do you have a second reference to upload? No

Type of reference Academic

Referee title Professor

Forename Geoff

Surname Nicholls

Position Associate Professor of Statistics, Fellow, Tutor

Institution/Company University of Oxford

Email address nicholls@stats.ox.ac.uk

Country United Kingdom

Funding

Funding 1

What is your likely source of funding? University of Bristol scholarship

Please give the name of your scholarship or Studentship
Please specify

Percentage from this source 100

Is this funding already secured? No

Funding 2

What is your likely source of funding? Scholarship

Please give the name of your scholarship or Studentship Heilbronn Doctoral Partnership
Please specify

Percentage from this source 100

Is this funding already secured? No

Funding 3

What is your likely source of funding?

Please give the name of your scholarship or Studentship
Please specify

Percentage from this source

Is this funding already secured?

Other funding

I would like to be considered for other funding opportunities Yes

Documents

Document type	File name
Transcript	Transcript - Ruairi Garrett.pdf
Research proposal	Research Statement.pdf
Personal statement	Personal Statement.pdf
Curriculum vitae	CV.docx

By ticking the checkbox below and submitting your completed online application form, you acknowledge the University of Bristol will use the information provided from time to time, along with any further information about you the University may hold, for the purposes set out in the [University's full Data Protection Statement](#). Applicants applying to the collaborative programmes of doctoral training should also read the [Data Protection Statement](#) for collaborative programmes of doctoral training.

The information that you provided on your application form will be used for the following purposes:

- To enable your application for entry to be considered and allow our Admissions Advisors, where applicable, to assist you through the application process;
- To enable the University to compile statistics, or to assist other organisations to do so. No statistical information will be published that would identify you personally;
- To enable the University to initiate your student record should you be offered a place at the University.

All applicants should note that the University reserves the right to make without notice changes in regulations, courses, fees etc at any time before or after a candidate's admission. Admission to the University is subject to the requirement that the candidate will comply with the University's registration procedure and will duly observe the Charter, Statutes, Ordinances and Regulations from time to time in force.

By ticking the checkbox below and submitting your completed online application form, you are confirming that the information given in this form is true, complete and accurate and that no information requested or other material information has been omitted. You are also confirming that you have read the Data Protection Statement and you confirm the statement below.

I can confirm that the information I have provided is true, complete and accurate. I accept that the information given in my application will be stored and processed by the University of Bristol, in accordance with the *UK General Data Protection Regulation and Data Protection Act 2018*, in order to:

- Consider my application and operate an effective and impartial admissions process;
- Monitor the University's applicant and student profile;
- Comply with all laws and regulations;
- Ensure the wellbeing and security of all students and staff;
- If my application is successful to form the basis of the statement made within my application.

If the University of Bristol discovers that I have made a false statement or omitted significant information from my application, for example examination results, I understand that it may have to withdraw or amend its offer or terminate my registration, according to circumstances.

Curriculum Vitae

EDUCATION AND AWARDS

MMath Mathematics: St Peter's College, University of Oxford

2020-2024

First class grade (74.2 average)

Prizes

New Horizons Mathematics Prize: Won after all 3 years. Awarded for the best performance in end of year examinations at St. Peter's College, Oxford.

Domus Scholarship: An academic prize awarded by the college.

Collections prizes: Prizes won for performance in college run termly exams on every occasion.

Non-core modules taken:

Year 4: Stochastic Differential Equations, Stochastic Models of Mathematical Genetics, Stochastic Analysis and PDEs*, Probability on Graphs and Lattices, Additive Combinatorics, Combinatorics, Probabilistic Combinatorics*, Large Deviations in Probability*. (* = taking next term)

Year 3: Probability Measure and Martingales, Continuous Martingales and Stochastic Calculus, Applied Probability, Functional Analysis 1, Topology and Groups, Stochastic Modelling of Biological Processes, Galois Theory, Geometry of Surfaces, Algebraic Number Theory.

Year 2: Probability, Quantum Mechanics, Integration, Topology, Statistics, Rings and Modules, Group Theory, Number Theory, Graph Theory.

Secondary Education

A level: Maths A*, Further Maths A*, Physics A*, Chemistry A*

2020

Arkwright Scholarship: An A-level scholarship administered by the Arkwright trust recognizing technical ability and leadership

2018-2020

Gold Medals: British Physics and Chemistry Olympiads, and Cambridge Chemistry Challenge

2019

EXPERIENCE

Activision Blizzard King: Data Science Intern

June – September 2023

- Developed Markov Chain models of player progression through the levels of Candy Crush Saga.
- Used this to extract metrics of player skill, patience, and level difficulty.
- Removed survivorship bias from level difficulty estimates.
- Applied these models to data sets with hundreds of billions of entries.
- Built a Python library for these models with features to optimize the game to maximize player spend.
- **Key Ideas**: Continuous time Markov chains, Item response theory, genetic algorithms.
- **Technologies**: Python (esp. Scipy), SQL (BigQuery), Excel
-

Department of Mathematics, University of Oxford: Summer Research Project

June – July

2022

- Guided reading project funded by a research internship bursary from St. Peter's College, Oxford.
- Analysed the efficiency of the Rho attack on the Diffie-Hellman problem for Elliptic Curve Cryptography in Python and compared to the corresponding RSA protocols.

COVID-19 Vaccinator

Winter 2021

- Vaccinated over 2000 people against COVID-19 in the roll out of the third dose.

TEACHING AND OUTREACH

Mentor, Oxbridge Launchpad

- Two years working with students from underrepresented backgrounds to develop their problem-solving skills and build their confidence to apply to top universities.
- Led weekly problem-solving sessions, guiding the students through many interesting mathematical puzzles.

Outreach Ambassador, St. Peter's College Oxford:

- Worked as part of a team to organise school tours, visits and Q&A sessions with groups from our link area to encourage applications from deprived backgrounds.
- Led subject specific sessions for students interviewing at the college in Maths and Physics

Mentor, Problem Solving Matters course:

- Teaching on weekend problem solving courses for state-educated students taking university admissions tests (eg.MAT, STEP, TMUA)
- Graded work and led lessons and problem solving sessions on a variety of topics

ADDITIONAL SKILLS/INTERESTS

Mathematical art: Personal projects drawing portraits with paint brushes driven by Brownian motion, rendering images as string art, visualisations of percolation on the two-dimensional lattice. Mainly implemented in Python.

Music: ABRSM Grade 8 with Distinction, Piano (2018)

Sport: Squash team captain, experienced cricket and football player, avid hiker

Societies: Oxford Chess Club Treasurer, Oxford Go society, Oxford Invariants (Mathematics society)

Gold Duke of Edinburgh award

I am a 4th year Mathematics student at the University of Oxford specialising broadly in probability. My interests lie in interacting particle systems, random graphs, and stochastic analysis. I also take an interest in the application of these tools to problems in biology, such as evolutionary genetics and dynamical systems.

I got my first taste of conducting research in probability last summer when I worked as a Data Science Intern for King, the gaming company behind the mobile game Candy Crush Saga. Over the course of a 10-week research project I developed continuous-time Markov chain models to discover the impact of player skill on their progression through the levels of the game. In particular, I focused on their propensity to abandon the game or pay for additional “power-ups” at a given level. I developed an algorithm to calculate “true” level difficulties without the survivorship bias of the higher ability players who were reaching the later levels. This model has proved of genuine use to the team responsible for “End of Content”, who manage the final levels of the game and the players who have reached them. This team previously lacked a proper way to quantify the difficulty of these levels, at which the average “Attempts Per Pass” is extremely high. The experience of applying my theoretical knowledge of stochastic processes in a less rigorous setting emphasised the flexibility of these tools and my ability to work with them.

A course I have particularly enjoyed this year has been “Probability on Graphs and Lattices”, which has covered percolation and the Ising model. This was my first exposure to this geometric/combinatorial style of probability, and the beauty of the theory sparked a lot of excitement for me. I am currently studying probabilistic combinatorics, stochastic analysis and PDEs, and have just come off the back of a series of two courses on discrete and continuous time martingales which I really enjoyed. I love to find overlap between these schools of thought, and am particularly interested in problems that are susceptible to a variety of these tools.

This year I wanted to explore a new area of maths, and am writing my Masters thesis with the working title “Interactions between Ergodic Theory and Number Theory”, supervised by Emmanuel Breuillard. I will be studying a flurry of recent applications of techniques from Dynamical Systems to prove classical results, including the Prime Number Theorem. The interdisciplinary nature of the project is highly engaging, and I am looking forward to learning more about Number Theory, since I have not previously studied many courses in this area. This is not my first experience venturing into a new area of maths; after my second year I undertook a guided reading project funded by a research internship bursary from St. Peter’s College, Oxford. In this project I learned about some of the theory of Elliptic Curves and their applications in cryptography. Although this project was cut short by illness at its halfway point, having the freedom to explore my own ideas and interests cemented my belief that I will appreciate the independence of PhD research.

Outside of my studies I am heavily involved in access and outreach work, leading problem-solving sessions through the maths department, my college and the “Oxbridge Launchpad”. I care deeply about improving access to a good mathematical education and give a lot of thought to how best to communicate mathematical ideas in an accessible way. In the new year, I am taking up another mentorship role through MESME Maths Circles for ten state-educated students, and additionally will be teaching on a weekly series of departmental maths masterclasses throughout the spring. I have relished these opportunities and would enthusiastically look forward to any teaching responsibilities associated with the PhD program. I arranged the inaugural “Oxford Integration Bee” and contributed to a play about Fermat’s Last Theorem. I also play piano, chess, go, and several sports.

I am interested in many aspects of probability, stochastic analysis, and their applications. First, I will give a brief list of keywords to make it easier to get a flavour of my focus at a glance, and then go into more detail about my specific interests.

Potential supervisors

Marton Balazs, Edward Crane, Alexander Holroyd.

Areas of interest

Interacting particle systems, random graphs, percolation, stochastic models of biological systems (eg. evolutionary genetics, reaction-diffusion), random walks, martingales and SDEs.

With Professor Balazs I have already discussed a project studying a system of particles in \mathbb{Z} where each particle steps right at the increments of a Poisson process only if the next site is available. The aim would be to prove results about the fluctuations of the position of a particle around its expected position due to the drift. In particular, we might improve on fluctuation bounds and prove that a one-third power scaling arises in related systems.

I became interested in interacting particle systems initially when studying a model for the collective behaviour of locusts. In this model the position and velocity of each locust are governed by an SDE resulting in it behaving “more like its neighbours”, plus some random (Brownian) noise. The switching phenomena that emerges – all the locusts will align and, after some time, almost instantaneously switch their direction – massively intrigued me. This led me to be interested in other biological collective behaviours, superprocesses and “Brownian bees”.

I was intrigued by Edward Crane’s recent paper on the mean field forest fire model. This felt very much like a sweet spot to me between my interest in combinatorial objects and lean towards applications. I became interested in random graphs while studying a course on percolation and the Ising model under the name “Probability on Graphs and Lattices” which I found gripping, and this coming term I am taking Oliver Riordan’s course “Probabilistic Combinatorics”. What I love about these aspects of probability is their position at the intersection of “pure” and rigorous probability and its many valuable applications in network analysis, epidemiology and further afield.

On the purer side, I am currently writing my dissertation “Interactions between Ergodic theory and number theory” supervised by Emmanuel Breuillard. This will be based on a recent proof of the Prime Number Theorem given by Bergelson and Richter via the framework of dynamical systems.

As I have tried to emphasize with these brief summaries, I enjoy most aspects of probability that in some sense “span a gap”, be that between theory and application, measure theory rearing its head in studying the primes, or between two different styles of mathematical thinking (eg. the interplay between geometric and combinatorial proofs in the study of percolation).

Why Bristol

I find the range of work being done at Bristol very intriguing and feel that many aspects of it pair well with my current interests and what I can imagine myself being interested in the future. The group at Bristol was recommended to me by several academics I have spoken to in Oxford, and on top of this I love the city and its culture.

ACADEMIC TRANSCRIPT**Personal Information**

Student: William Ruairi Ocean Garrett
 University Reference: 1330534
 Qualification Sought: Master of Mathematics
 Start Date: 11 October 2020
 HESA Reference: 2011565059770
 FHEQ Level: Masters
 Expected end date: 30 June 2024

**Programme Information**

Teaching institution:	University of Oxford	Awarding Institution:	University of Oxford
College:	St Peter's College	Mode of Attendance:	Full-time
Programme of Study:	Master of Mathematics in Mathematics	Language of Instruction:	English

Award Information

The student has yet to complete the programme of study shown above

Assessment Information (Academic Year, Assessment Name, Result Mark/Grade)**Qualifying examinations**

2020/21	Computational Mathematics Practical Work	76
2020/21	Mathematics I	90
2020/21	Mathematics II	70
2020/21	Mathematics III	71
2020/21	Mathematics IV	71
2020/21	Mathematics V	66

Final Degree examinations

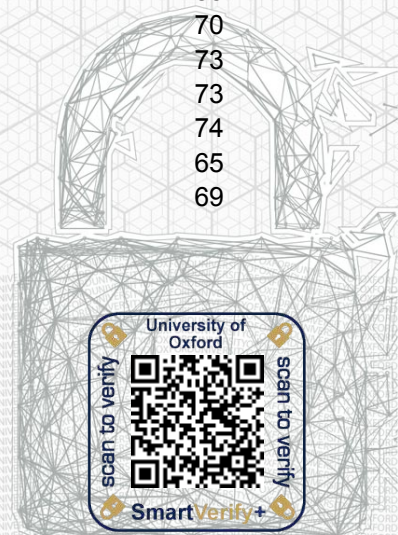
2021/22	A0 Linear Algebra	80
2021/22	A1 Differential Equations 1	68
2021/22	A2 Metric Spaces and Complex Analysis	89
2021/22	A3 Rings and Modules	79
2021/22	A4 Integration	68
2021/22	A5 Topology	65
2021/22	A8 Probability	72
2021/22	A9 Statistics	67
2021/22	ASO Short Options	65
2022/23	Applied Probability	81
2022/23	Continuous Martingales and Stochastic Calculus	88
2022/23	Functional Analysis I	70
2022/23	Galois Theory	73
2022/23	Probability, Measure and Martingales	73
2022/23	Statistical Machine Learning	74
2022/23	Stochastic Modelling of Biological Processes	65
2022/23	Topology and Groups	69

A handwritten signature in black ink, appearing to read "J. A. The".

Registrar

Transcript issued on 27 October 2023

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Some students that took Qualifying Examinations during the 2022/23 academic year may have "Pending" assessment results. These students completed all their assessments but as a result of industrial action some assessment results were delayed. They were permitted to progress based on a subset of their Qualifying Examination marks.

Students studying in the 2019-20/2020-21 academic years faced severe disruption due to the exceptional effects of the Covid-19 pandemic, impacting the 2020 and 2021 assessment periods, and this should be taken into account in reading the transcript. For some degree programmes, parts of assessments were cancelled for reasons entirely beyond students' control; where this is the case, students are deemed to have passed and these assessments are listed without an accompanying mark.

Students on the four year Master of Mathematics degree receive a double classification, one at the end of their third year based on their second and third year work (Parts A and B in the ratio 40:60), and one at the end of their fourth year based on their fourth year work alone (Part C). In 2019-20, due the pandemic, the safety net for their fourth year classification is the classification previously achieved in their third year. At Part A students are permitted to take an additional optional course and offer 6 papers from A3-A11. Students who do not obtain Honours at Part C are awarded the BA.

End of Transcript



A handwritten signature in black ink, appearing to read "J. A. the".

Registrar

Transcript Issued on 27 October 2023

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UNIVERSITY OF
OXFORD

About the University of Oxford

The University of Oxford is an independent self-governing university. It is the oldest university in the English-speaking world and has been in continuous existence for some nine centuries. It is an international leader in learning, teaching and research. As a collegiate institution, it comprises the central university and 39 colleges and 6 permanent private halls

University of Oxford Transcripts

The transcript should not be released to another person, organisation or institution except to officials internal to your own organisation or institution who have a reasonable business use for the information. Release to other parties requires the written consent of the student. The following information is provided to aid in the evaluation of this student's academic record. Further explanation or detailed information can be obtained by contacting Degree Conferals via the email address edocuments.support@admin.ox.ac.uk. Under University regulations, Boards of Examiners may, where appropriate, take account of information additional to the profile of marks listed overleaf in deciding the final degree classification awarded to any student. The explanatory text on the transcript is subject to change until such time that the programme of study is completed.

Academic Credit

The University does not routinely apply credit weightings to its programmes and its courses are not generally taught on a modular basis. We take each year of full-time undergraduate study to equal 120 UK credits and 180 UK credits for Masters-level postgraduate study according to the Higher Education Credit Framework for England. In relation to the European Credit Transfer Scheme (ECTS), this is equivalent to 60 credits for undergraduate study and 90 credits for Masters-level postgraduate study.

Framework for Higher Education Qualifications (FHEQ levels)

8 (Doctoral)	Doctoral Degrees (e.g. DPhil, DClinPsych)
7 (Masters)	Master's Degrees (including Integrated Master's Degrees) Postgraduate Diplomas & Certificates
6 (Honours)	Bachelor's Degrees with Honours Bachelor's Degrees Professional Graduate Certificate in Education
5 (Intermediate)	Undergraduate Diplomas
4 (Cert)	Undergraduate Certificates

Authentication

This academic transcript can be authenticated by scanning the QR code which is visible in the main section of the document. Further information on authentication may be obtained by contacting Degree Conferals on the email address edocuments.support@admin.ox.ac.uk.

Mark Scales

All marks included on a final academic transcript have been ratified by the Registrar. Examiners are required to express final agreed marks on all formally assessed work according to the following marking scales:

Undergraduate Programmes

	Model 1	Model 2
70-100	First Class	Distinction
60-69	Upper Second Class	Pass
50-59	Lower Second Class	Pass
40-49	Third Class	Pass
30-39	Pass	Fail
0-29	Fail	Fail

Model 1 will be used for all final assessments. Model 2 will be used for all qualifying assessments unless the explanatory text overleaf states otherwise.

Postgraduate Taught Programmes

For students who started their courses **before** October 2018.

Model 1	Model 2	
70-100	70-100	Distinction
50-69	60-69	Pass
0-49	0-59	Fail

For students who started their courses **from** October 2018.

Model 1	Model 2	
70-100	70-100	Distinction
N/A	65-69	Merit
50-69	50-64	Pass
0-49	0-49	Fail

Model 2 will be used for all Award Programmes unless the explanatory text overleaf states otherwise.

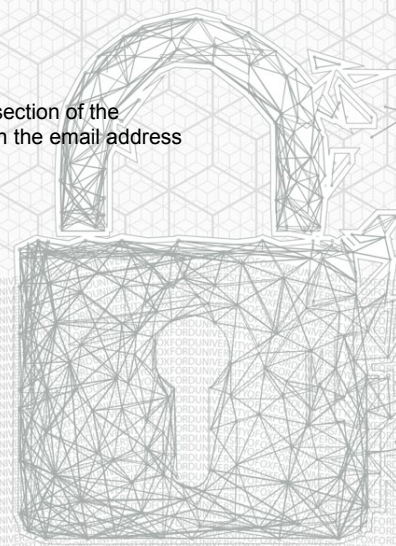
Transcript Terminology

Results Not Moderated (On-Course Transcripts Only):
Indicates a mark that may be subject to moderation in the process of concluding the final outcome of an examination comprising more than one part and taken over more than one year.

Declared to have deserved: the exam board considered the candidate was absent from part of the examination for good cause and declared them to deserve the Award.

Programme Information

The relevant *Examination Regulations* for the programme are available at: <https://examregs.admin.ox.ac.uk/>





DEPARTMENT OF
STATISTICS

Department of Statistics
University of Oxford
24 – 29 St Giles', Oxford, OX1 3LB
Tel: +44 (0)1865 272860
www.stats.ox.ac.uk

Graduate Admission

16th December 2023

Dear colleagues,

This is a reference for William (Ruairi) Garrett. I have known Ruairi for over three years as his tutor in St Peter's college. He will graduate with an MPhil in Mathematics in 2024. I taught him probability and statistics weekly in a group of two for two years in college as part of his early training in mathematics at Oxford and had oversight of his studies in his last two years. It is a pleasure to write a reference for him.

Ruairi is a first-class student in the Mathematics Department in Oxford, in the top 25% of Oxford Mathematics students by third year exam grade. Entry is highly competitive (the MMath is one of a handful of degrees at Oxford with the most applicants per place and the highest average A-level grades on entry) and this sort of standing in a strong peer group indicates real ability. He will surely get a distinction this year.

Ruairi's research interests are in probability and stochastic processes. He achieved very high first-class grades in Continuous Martingales and Stochastic Calculus and in Applied Probability in the third year exams and is doing a range of fourth year courses in probability this year, so he is well trained and has the skill set to go on to research in the field.

Ruairi is an outstanding student in his peer group in my college. It is not often we get someone with the combination of talent and character Ruairi shows. He has excellent work habits and showed good ethics in his studies. He is mature in outlook, and relates to his peers in a straightforward and respectful way. He communicates very well in speaking and in written work, and has been a pleasure to teach. He worked well in tutorial groups, taking something of a leadership role at times. He has the training, intelligence, independence and motivation to succeed in research.

Ruairi is strong young mathematician with broad interests in probability and I recommend him to you with complete confidence.

Yours sincerely,

A handwritten signature in black ink, reading 'G. K. Nicholls'.

Prof Geoffrey Nicholls
University of Oxford, Associate Professor
St Peter's College, Tutor in Statistics

Institut für Mathematik

Univ.-Prof. Balázs Szendrői, PhD
Oskar-Morgenstern-Platz 1
A-1090 Wien
balazs.szendroi@univie.ac.at

5 January 2024

To whom this may concern

Letter of recommendation for Mr William Ruairi Garrett

It is my pleasure to strongly recommend Mr Garrett for graduate study in mathematical sciences.

Mr Garrett was admitted to St Peter's College and the University of Oxford for 2020 entry following a very competitive admissions process, in which only about one in every 5 to 6 candidates gain admission. Between 2020 and 2022, I was one of Mr Garrett's personal tutors, tutoring him in algebra subjects.

Ruairi is without doubt among the top 10 strongest pure mathematicians I taught at St Peter's College, Oxford over the 17 years of my time with the College. He is very hard working, has good mathematical intuition, and wide interests. He always enjoyed exploring all facets of a problem and asked good questions in our tutorials. His examination results were impressive: he averaged over 75% in all his examinations, placing him in the top 25% of a strong Mathematics cohort at Oxford, and top of his group within College. His studies were impacted by the Covid-19 pandemic, but he weathered the difficulties well, continuing to enjoy learning mathematics in a remote environment if necessary.

Alongside his University studies, Ruairi also participated in a summer research project on elliptic curve cryptography one summer, followed by a Data Science internship the next summer. This shows his strong dedication to the mathematical sciences, as well as giving him a range of different experiences. He has also done some hugely impressive outreach work, detailed in his personal statement.

Ruairi has a cheerful personality, and a positive disposition. He will be able to thrive in an ambitious research environment. I am pleased to give William Ruairi Garrett's application for a doctoral position my strongest and unqualified support.

Yours faithfully,



Balázs Szendrői
Professor of Algebraic Geometry, Faculty of Mathematics, University of Vienna
(Until August 2022: Professor of Pure Mathematics, Mathematical Institute, University of Oxford; Fellow and Tutor in Pure Mathematics, St Peter's College, Oxford)