# Personal details

## Personal details

| | |
|---|---|
| **First / given name** | Claire |
| **Second given name** | Ruth |
| **Third given name** | |
| **Surname/family name** | Connell |
| **Date of birth** | 19 April 2002 |
| **Preferred first/given name** | Claire |
| **Previous surname** | |
| **Country of birth** | England |
| **Legal nationality** | British National |
| **Dual nationality** | |
| **Country of residence** | England |
| **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** | England |
| **Postcode** | YO12 4AE |
| **Address Line 1** | 25 Springhill Road |
| **Address Line 2** | |
| **City** | Scarborough |
| **County** | North Yorkshire |
| **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?** | No |
| **Country** | England |
| **Postcode** | YO12 4AE |
| **Address Line 1** | 25 Springhill Road |
| **Address Line 2** | |
| **City** | Scarborough |
| **County** | North Yorkshire |
| **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 programme?** | Full Time |

# Qualifications

## Qualifications

| Institution | Qualification | Type | Subject | Actual/predicted | Grade | Start date | End date |
|---|---|---|---|---|---|---|---|
| University of Nottingham | Master's Degree (PG) | Academic Qualification | Mathematics | Predicted | First | 01/Sep/2020 | 26/Jul/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**
**Job title and main duties**
**Full time/Part time**
**Date of Appointment**
**End date (if applicable)**

## Previous employment 1

**Employer name and address**
**Job title and main duties**
**Full time/Part time**
**Date of Appointment**
**End date (if applicable)**

## 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** | Tim Dokchitser |
| **Proposed supervisor 1** | Celine Maistret |
| **Proposed project title (max 150 chars)** | An investigation into L-functions on Elliptic curves using computational methods |

# 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** | Kristoffer |
| **Surname** | van der Zee |
| **Position** | Professor |
| **Institution/Company** | University of Nottingham |
| **Email address** | KG.vanderZee@nottingham.ac.uk |
| **Country** | England |

## Referee 2

| | |
|---|---|
| **Do you have a second reference to upload?** | No |
| **Type of reference** | Academic |
| **Referee title** | Professor |
| **Forename** | Rüdiger |
| **Surname** | Thul |
| **Position** | Associate Professor |
| **Institution/Company** | University of Nottingham |
| **Email address** | ruediger.thul@nottingham.ac.uk |
| **Country** | England |

# Funding

## Funding 1

| | |
|---|---|
| **What is your likely source of funding?** | Scholarship |
| **Please give the name of your scholarship or Studentship** | Heilbronn Instute Doctoral Partnership |
| **Please specify** | |
| **Percentage from this source** | 100 |
| **Is this funding already secured?** | No |

## Funding 2

| | |
|---|---|
| **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?** | |

## 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 |

# Submission

## Documents

| Document type | File name |
|---|---|
| Research proposal | Research Proposal.pdf |
| Transcript | Transcript.pdf |
| Curriculum vitae | CV.pdf |
| Personal statement | Personal Statement.pdf |

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 signification 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.

# CV for PhD Application

## RESEARCH INTERESTS

- Algebraic Geometry
- Elliptic Curves
- Group Theory
- Finite Fields
- Scientific Computation
- Computational Number Theory

## CODING EXPERIENCE

- Python (12 years)
- HTML/JS (6 years)
- R (3 years)
- C++ (6 months)

## EXTRACURRICULAR

### UKMT Maths Olympiad

Best in School – Senior Maths Challenge (2018, 19)

Distinction – BMO1 (2018, 19)

1st in Regional Qualifier – Senior Team Maths Challenge (2019)

## EDUCATION

Mathematics MMath – University of Nottingham, September 2020 – Current
• Expected completion: June 2024
• Expected grade: First
Notable Modules:
• Elliptic Curves (91%, 2022-23)
• Group Theory (74%, 2022-23)
• Scientific Computation and Numerical Analysis (79%, 2022-23)
• Algebra and Number Theory (89%, 2021-22)

A-Levels – Scarborough Sixth Form College, September 2018 – May 2020
• A* - Mathematics
• A* - Further Mathematics
• A* - Physics

GCSEs – Scarborough Pupil Referral Unit, September 2014 – June 2018
• 8 – Chemistry (2018)
• 8 – Computer Science (2018)
• 8 – Physics (2018)
• 7 – English Language (2018)
• A – Statistics (2017)
• A – German (2016)
• A* - Mathematics (2013)

## WORK EXPERIENCE

SEP 2017 – JUN 2018
### GCSE Maths Tutor

SEP 2016 – JUN 2017
### A-Level Maths Tutor

SEP 2015 – JUN 2016
### Volunteer Computer Skills Teacher · Scarborough Library

SEP 2014 - JUN 2015
### KS2 Maths Tutor

Key responsibilities: Planning lessons, adjusting work to students' abilities, teaching students in a 1:1 setting, organising curriculum

## REFEREES

Kristoffer van der Zee – Professor, University of Nottingham
KG.vanderZee@nottingham.ac.uk
Rüdiger Thul – Associate Professor, University of Nottingham
ruediger.thul@nottingham.ac.uk

# Personal Statement for PhD Application

During college maths lessons and my university lectures, I was never satisfied with simply being taught facts without context, and prioritised learning the underlying logic and explanations wherever possible. In addition, I enjoy looking for other methods and proofs to arrive at the solution, often using my coding expertise. An example of this is my dissertation project – an analysis of network dynamics – in which I spent the first part of the research period coding my own model to better understand the system.

I am eager to continue these investigations further in a PhD research position, to enhance my understanding of my preferred fields – algebraic geometry and computational number theory. I believe that a PhD would allow me to gain essential research skills by working with leading mathematicians in my area of interest while providing an opportunity for further study of topics I enjoy. This position would prepare me for a future academic career, either for my own independent research or as a lecturer.

Prior to my time at university, I had the opportunity to attend an Oxford lecture on elliptic curves that piqued my interest towards abstract algebra. I was so fascinated by visualising these abstract spaces that I chose several related modules during my degree to investigate them further. These include multiple modules studying Group Theory, and one on Elliptic Curves themselves, in which I received my highest mark (91%).

I have programmed using Python for many years as a tool for experimentation regarding my mathematical studies. My university modules have also taught me the essentials of C++ and R for focused code relating to scientific computation and statistical methods. I am interested to discover where my coding experience, along with specialist tools such as the GAP system for computational discrete algebra, can extend my postgraduate research.

Throughout my time at college, I participated in multiple extracurricular maths challenges to push myself and develop my problem-solving skills, including the UKMT British Maths Olympiad (BMO1 and BMO2). In 2019, I was instrumental in enabling the college team to win their first ever UKMT Team Maths Challenge regional qualifier, allowing us to participate in the National Finals.

While I'm currently undecided regarding where my research project would take me, I am confident that an academic career would suit my skills and desires, as I enjoy discussing and sharing my enthusiasm for learning. Postgraduate studies would provide a perfect opportunity to express myself in the world of mathematics.

There are several areas I would be very enthusiastic about researching, supervised by a member of the University of Bristol's pure mathematics team.

One branch of mathematics that I particularly enjoyed studying during my degree and would appreciate the opportunity to study further is algebraic geometry, specifically relating to elliptic curves. Part of my interest in elliptic curves stems from their practical applications. The study of elliptic curves is a relatively modern field with many uses in cryptography, and factorisation of large numbers, among others. This is one possible starting point for a research project I could undertake at the University of Bristol.

However, while the applications of this topic are plentiful, my main motivation for postgraduate studies is my own personal enjoyment of the subject.

I was first introduced to this field through a lecture at Oxford University that I attended during my time at sixth form college, and I was immediately intrigued by the subject of projective geometry and the joys of visualising these fascinating and unusual spaces.

When I returned to college, I was keen to discuss what I had learned with my maths teachers and studied the basics of group theory with their guidance in small after-hours classes, along with my own independent reading. These extended tutorials also prepared me for extra-curricular activities, such as the UKMT British Maths Olympiad.

By the time I arrived at university, I enjoyed taking pure mathematics modules relating to these interests to enhance my understanding – modules on 'Mathematical Structures' and 'Algebra and Number Theory' in the first half of my course, and more specialised 'Group Theory' and 'Elliptic Curves' modules in my third year. The elliptic curves module was taught by Dr Chris Wuthrich, who was a significant motivation to continue this further in a postgraduate research position.

Another avenue for research would be using my passion for coding to explore problems in computational number theory. I have programmed in Python for many years, which I often use to gain a deeper understanding of mathematical topics. For example, during my dissertation studying network dynamics, I coded my own model to better understand the mechanics of the system. My fluency in Python has been essential during my time at university, both in familiarising myself with the material throughout lectures, and leading the programming for group projects I have been part of.

To complement my use of Python, I have learned the essentials of C++ and R, and how they relate to computational number theory through my 'Scientific Computation' modules. I am

certain that my coding experience will assist my postgraduate research, and I am excited to see how specialist tools such as Magma and Sage can enhance this further.

Ideally, any research project I partake in would combine the pure, analytical perspective of algebraic geometry with the experimentation of computational number theory, and I am interested to learn how to best combine these skills during my postgraduate studies.

Dr Wuthrich directed me to the University of Bristol's pure mathematics team, as they have many researchers investigating the properties of high genus curves. With that in mind, two potential supervisors I would be interested in working with are Professor Tim Dokchitser and Dr Celine Maistret, as their work on elliptic curves and computational number theory correlates highly with my interests.

Through a brief discussion with Professor Dokchitser, we have identified areas that we could study, such as research connected to the Birch-Swinnerton-Dyer conjecture, a major open problem in group theory, as well as other research relating to L-functions and group theory on elliptic curves in general.

Throughout my academic career, I have enjoyed sharing my mathematical knowledge as it has developed. By providing personal tutoring to students both above and below my academic level, I could solidify my understanding and push myself further to enhance my knowledge. A crucial skill that I obtained here was communicating the material from my own perspective, at an appropriate level and context for each individual student's needs.

I believe that research undertaken within a PhD position with the University of Bristol's mathematics team would allow me to continue expressing myself and contribute to the wider mathematical community, while preparing me for my future academic endeavours.

University of Nottingham
UK | CHINA | MALAYSIA

## Individual Student Marks (Provisional Transcript)

04/01/2024 15:10

**Student ID:** 20232328

**Last Name:** Connell

**Given Names:** Claire

**Programme:** MMath Hons Mathematics

**2023/2024**

| Code | Title | Credit | Semester | Mark | First Resit |
|---|---|---|---|---|---|
| MATH 4063 | Scientific Computing & C++ | 20 | Autumn UK | | |
| MATH 4085 | Metric and Topological Spaces | 20 | Autumn UK | | |
| MATH 4001 | Mathematics Dissertation | 40 | Full Year UK | | |
| MATH 4074 | Mach Lear & Infer for Diff Equ | 20 | Full Year UK | | |
| MATH 4027 | Combinatorial Group Theory | 20 | Spring UK | | |

**2022/2023**

| Code | Title | Credit | Semester | Mark | First Resit |
|---|---|---|---|---|---|
| MATH 3001 | Group Theory | 20 | Autumn UK | 74 | |
| MATH 3011 | Coding & Cryptography | 10 | Autumn UK | 78 | |
| MATH 3031 | Elliptic Curves | 20 | Autumn UK | 91 | |
| MATH 4045 | Mathematics Group Projects | 20 | Full Year UK | 68 | |
| MATH 3004 | Game Theory | 10 | Spring UK | 82 | |
| MATH 3012 | Further Number Theory | 20 | Spring UK | 79 | |
| MATH 3036 | Sci Comp and Num Analysis | 20 | Spring UK | 79 | |

**2021/2022**

| Code | Title | Credit | Semester | Mark | First Resit |
|---|---|---|---|---|---|

| Code | Title | Credit | Semester | Mark | First Resit |
|---|---|---|---|---|---|
| MATH 2005 | Vector Calculus | 10 | Autumn UK | 80 | |
| MATH 2009 | Mathematical Analysis | 10 | Autumn UK | 87 | |
| MATH 2012 | Modelling with Diff Equations | 20 | Full Year UK | 71 | |
| MATH 2013 | Introduction to Math Physics | 20 | Full Year UK | 85 | |
| MATH 2015 | Algebra & Number Theory | 20 | Full Year UK | 89 | |
| MATH 2019 | Intro:Scientific Computation | 20 | Full Year UK | 86 | |
| MATH 2007 | Complex Functions | 10 | Spring UK | 88 | |
| MATH 2008 | Diff Eq.s & Fourier analys | 10 | Spring UK | 70 | |

**2020/2021**

| Code | Title | Credit | Semester | Mark | First Resit |
|---|---|---|---|---|---|
| MATH 1001 | Probability | 10 | Autumn UK | 90 | |
| MATH 1008 | Foundations of Pure Math | 10 | Autumn UK | 79 | |
| MATH 1005 | Analytical & Comput Foundation | 20 | Full Year UK | 84 | |
| MATH 1006 | Calculus | 20 | Full Year UK | 89 | |
| MATH 1007 | Linear Mathematics | 20 | Full Year UK | 89 | |
| MATH 1016 | Applied Mathematics | 20 | Full Year UK | 88 | |
| MATH 1009 | Mathematical Structures | 10 | Spring UK | 90 | |
| MATH 1010 | Statistics | 10 | Spring UK | 77 | |

Please note: Any marks for full year modules may be incomplete at the current time

Date January 9, 2024
Our reference Miss Claire Connell
Contact person Prof K.G. van der Zee
Telephone +44 115 8467914
E-mail kg.vanderzee@nottingham.ac.uk
Subject Letter of recommendation

University of Nottingham
UK | CHINA | MALAYSIA

Postal address
School of Mathematical Sciences
The University of Nottingham
University Park
Nottingham NG7 2RD
United Kingdom

To whom it may concern

Dear Sir/Madam,

It is with great pleasure that I write this reference letter in support of *Miss Claire Connell*.

I've been Claire's personal tutor since the beginning of her studies, Sep 2020, at the University of Nottingham.

Claire is one of the strongest students I've had as a tutee, and certainly also one of the strongest students in her year group. She performs outstandingly well in the some of the hardest courses we have in the Maths programme.

Claire has always been a delight to have around. She's easy going and very friendly, and very bright: It was obvious during the weekly tutorials in the first year that she can easily grasp the more complicated Maths.

Also, Claire was a Student of MATH2019 Introduction to Scientific Computation and of MATH3036 Scientific Computation and Numerical Analysis, which I taught during 2021-2022 and 2022-2023, respectively, at the University of Nottingham. Notably, for MATH2019, Claire received an outstanding mark of **85** out of 100 for the final exam, which was a **top 2% mark**. The mean for all the 206 students was 48 out of 100.

Claire's outstanding list of marks, averaging **83 out of 100** for 2020-23, can be found below. *Certainly I recommend Miss Claire Connell in the strongest possible terms.* Don't hesitate to contact me for further questions.

Yours faithfully,

Prof Kristoffer G. van der Zee
Full Professor of Numerical Analysis & Computational Applied Mathematics
School of Mathematical Sciences, University of Nottingham

University of Nottingham
UK | CHINA | MALAYSIA

**Individual Student Marks (Provisional Transcript)** 04/01/2024 15:10

**Student ID:** 20232328

**Last Name:** Connell

**Given Names:** Claire

**Programme:** MMath Hons Mathematics

**2023/2024**

| Code | Title | Credit | Semester | Mark | First Resit |
|---|---|---|---|---|---|
| MATH 4063 | Scientific Computing & C++ | 20 | Autumn UK | | |
| MATH 4085 | Metric and Topological Spaces | 20 | Autumn UK | | |
| MATH 4001 | Mathematics Dissertation | 40 | Full Year UK | | |
| MATH 4074 | Mach Lear & Infer for Diff Equ | 20 | Full Year UK | | |
| MATH 4027 | Combinatorial Group Theory | 20 | Spring UK | | |

**2022/2023**

| Code | Title | Credit | Semester | Mark | First Resit |
|---|---|---|---|---|---|
| MATH 3001 | Group Theory | 20 | Autumn UK | 74 | |
| MATH 3011 | Coding & Cryptography | 10 | Autumn UK | 78 | |
| MATH 3031 | Elliptic Curves | 20 | Autumn UK | 91 | |
| MATH 4045 | Mathematics Group Projects | 20 | Full Year UK | 68 | |
| MATH 3004 | Game Theory | 10 | Spring UK | 82 | |
| MATH 3012 | Further Number Theory | 20 | Spring UK | 79 | |
| MATH 3036 | Sci Comp and Num Analysis | 20 | Spring UK | 79 | |

**2021/2022**

| Code | Title | Credit | Semester | Mark | First Resit |
|---|---|---|---|---|---|
| MATH 2005 | Vector Calculus | 10 | Autumn UK | 80 | |
| MATH 2009 | Mathematical Analysis | 10 | Autumn UK | 87 | |
| MATH 2012 | Modelling with Diff Equations | 20 | Full Year UK | 71 | |
| MATH 2013 | Introduction to Math Physics | 20 | Full Year UK | 85 | |
| MATH 2015 | Algebra & Number Theory | 20 | Full Year UK | 89 | |
| MATH 2019 | Intro:Scientific Computation | 20 | Full Year UK | 86 | |
| MATH 2007 | Complex Functions | 10 | Spring UK | 88 | |
| MATH 2008 | Diff Eq.s & Fourier analys | 10 | Spring UK | 70 | |

**2020/2021**

| Code | Title | Credit | Semester | Mark | First Resit |
|---|---|---|---|---|---|
| MATH 1001 | Probability | 10 | Autumn UK | 90 | |
| MATH 1008 | Foundations of Pure Math | 10 | Autumn UK | 79 | |
| MATH 1005 | Analytical & Comput Foundation | 20 | Full Year UK | 84 | |
| MATH 1006 | Calculus | 20 | Full Year UK | 89 | |
| MATH 1007 | Linear Mathematics | 20 | Full Year UK | 89 | |
| MATH 1016 | Applied Mathematics | 20 | Full Year UK | 88 | |
| MATH 1009 | Mathematical Structures | 10 | Spring UK | 90 | |
| MATH 1010 | Statistics | 10 | Spring UK | 77 | |

Please note: Any marks for full year modules may be incomplete at the current time

University of Nottingham
UK | CHINA | MALAYSIA

**Faculty of Science**
**School of Mathematical Sciences**
University of Nottingham
University Park
Nottingham
NG7 2RD

11 January 2024

Dear Admissions Team,

I am writing in support of Claire Connell's application for a PhD position at your institution. Claire is currently a 4th year MMath student at the University of Nottingham and is expected to graduate this summer with a first-class degree.

I have known Claire since September 2023 when she started a year-long dissertation with me. Her project focusses on agent-based dynamics in networks. What impressed me from the start was Claire's independence and critical thinking. To help students get started with the project, I usually offer them some computer code. Claire decided to code up the entire agent-based network simulation from scratch, which was a non-trivial task. Also, the original motivation for the project was language change in networks. Even before our first meeting, Claire had done some research on language idiosyncrasies used by thieves and artificially generated languages. This was very impressive and demonstrated that Claire had already fully understood the main aim of the project and its value to real-world applications. In addition to the application side, Claire is also extremely interested in the mathematical analysis of agent-based models as exemplified by her passion to investigate mean field equations for dynamics on random networks. The mathematical challenges involved are more commensurate with a PhD thesis than an UG dissertations, and Claire's preliminary work and insight already demonstrates her excellent analysis skills.

Overall, Claire is an extremely good student who excels at all aspects of her dissertation, starting from the conceptual framework to the numerical exploration and the mathematical analysis. I would also like to highlight Claire's exceptionally high marks. In her second year, none of her marks were below 70%, and she achieved an excellent 91% in Elliptical Curves and 82% in Game Theory.

I most strongly support Claire's application. She is an excellent student, and I believe that she will excel as a PhD student.

Yours sincerely,

Dr Rüdiger Thul
Associate Professor in Applied Mathematics

+44 (0)115 846 7913
ruediger.thul@nottingham.ac.uk

**nottingham.ac.uk/mathematics**