



**MATHEMATICAL INSTITUTE**  
ANDREW WILES BUILDING

## Job Description and Selection Criteria

<b>Job title</b>	Full-Stack Development Lead
<b>Division</b>	Mathematics Physical and Life Sciences
<b>Department</b>	Mathematical Institute
<b>Location</b>	Andrew Wiles Building, Radcliffe Observatory Quarter, Woodstock Road, Oxford, OX2 6GG
<b>Grade and salary</b>	Grade 9: £48,355 - £56,587 per annum with discretionary range to £61,818 per annum (the post may be under-filled at grade 8 £42,149 - £50,296 per annum with change in duties)
<b>Hours</b>	Full time (37.5 hours per week)
<b>Contract type</b>	Permanent
<b>Reporting to</b>	Head of IT
<b>Vacancy reference</b>	159422
<b>Additional information</b>	<p>This is a full-time position that cannot be held concurrently with any other substantive post without the explicit permission of the Head of Department.</p> <p>This position is subject to a 12-month probationary period.</p> <p>Whilst this role is a Grade 9 position, we would be willing to consider candidates with potential but less experience who are seeking a development opportunity, for which an initial appointment would be at Grade 8 with the responsibilities adjusted accordingly. This would be discussed with applicants at interview/appointment where appropriate.</p>



## **The role**

### **Overview of the role**

The Full-Stack Development Lead is an exciting new role for the Mathematical Institute, a pivotal post designed to ensure that our IT and software development operations run smoothly.

Many of the department's members are involved in challenging and innovative projects, which increasingly require specialist IT systems and technical support. The department also runs very specialised software platforms which have been developed or adapted specifically for the department's use, such as the departmental website (based on Drupal 9), the examinations database, the visitor system, the door access system, the asset database and various other database frontends and custom automations.

As a senior member of the IT team, you will support service delivery by leading, driving and delivering longer-term technical projects to meet deadlines and by maintaining agreed service levels. This new role builds our IT team's resilience at a senior technical level; you will report to the Head of IT who, amongst other management duties, acts as the overall IT architect and also leads, drives, and delivers various technical projects. You will be expected to take on ownership of various projects from the Head of IT, which could include some of the following:

- Maintain and further develop the departmental website
- Redesign and reimplement the examinations database
- Reimplementation of the door entry system
- Further develop our online workflow ecosystem
- Implement various database frontends as required by the department
- Develop various helper and automation scripts for the maintenance and automation of our IT systems
- Review and improve AV control and configuration management

The IT Team of seven also collectively manage 1500+ devices and systems providing facilities and services to around 250 members of departmental staff, 300 postgraduate research (PGR) students, 175 postgraduate taught (PGT) students and 900 undergraduate students, as well as numerous visitors and collaborators. As Full-Stack Development Lead, you will be expected to take a high-level approach, engaging with service delivery by understanding departmental IT strategy and policy and proactively contributing to their creation and evolution. As a senior leader, you will also act as a mentor to more junior team members to assist them in developing existing skills and gaining new ones.

We have a supportive, helpful culture and work very closely with end users; all members of the IT team are therefore expected to provide user support as required. The department's IT systems themselves are large and complex, with numerous physical and virtual servers (approximately 90% Linux), 700+ managed machines (80% Linux, 15% Windows and 5% Mac OS), a further 300+ machines provisioned for self-management, and numerous personal devices all connecting via the managed network infrastructure. You must also therefore have excellent communication skills, to a very high technical level when dealing with other IT professionals, but also be able to vary correspondence according to the individual's technical competence to clearly answer user queries.

### **Responsibilities/duties**

The IT staff work together as a team to collectively share delivery and support of the IT systems, particularly in relation to the systems administration, security and support areas and tasks outlined below.

The exact duties will be determined by the successful candidate's level of experience and expertise, including the option of initially under filling the post at grade 8 if appropriate.

### **1) Strategy/Policy/Planning**

- Contribute to strategic and operational planning across the Maths IT operation, horizon scanning and offering guidance to the Head of IT and Director of IT & Physical Resources on direction and development of our tailored custom software base
- Coordination and planning of complex technical projects and large systems developments. Independently lead specific project teams, managing junior team members, and consulting with, and advising as necessary, key stakeholders
- Champion best practice software development techniques and disseminate within the IT team and wider department where appropriate
- Assessment and recommendation of new IT services, equipment and software

### **2) Technical leadership**

- Lead the delivery of complex IT projects, ensuring that the software development outputs meet agreed objectives
- Drive a culture of continuous improvement for the team, and promote interdisciplinary collaboration
- Coach non-engineering team members in software engineering techniques and culture
- Advise on software development best practice to academic colleagues and departmental leadership, including, for example, HPC software development
- Champion reproducibility, automation, and transparency across the entire organisation

### **3) Operational activity**

- Maintain and develop our websites and custom tools within the Drupal 9 CMS framework
- Maintain and/or (re)develop a variety of custom software (e.g. examination database, visitor system, workload model, door-entry system, asset database etc) using modern software development techniques as required by the department
- Create and further develop the infrastructure to support good practice in software development (e.g. code reviews, unit testing, best use of Git etc)
- Collaborate with the other IT team members on system maintenance and longer-term development of the IT systems taking the technical lead where appropriate
- Scripting of repetitive reporting, administration, or support tasks to improve efficiency, remove duplication of effort and eliminate common human errors
- Writing technical and non-technical documentation of our products and systems
- Maintain other IT services as required

### **4) Security**

- Design and implement processes to ensure maximum security of our software products
- Investigate, and resolve, suspected security breaches

### **5) Other**

- Mentoring junior team members
- User administration / support, as and when required
- Attend weekly IT team meetings
- Obtain quotes and liaise with suppliers when necessary
- Occasional hardware maintenance and repairs
- Such tasks as requested by the Head of Administration and Finance, Head of IT or Director of IT and Physical Resources, according to operational needs.

## **Selection criteria**

The responsibilities/duties outlined above reflect the wide range of activities and services the IT team collectively manage. Working as a team there is flexibility to share and collaborate on tasks and work on different aspects of the systems over time.

Your application will be judged only against the criteria which are set out below. You should ensure that your application shows clearly how your skills and experience meet these criteria.

The Selection Committee for this process is expected to comprise;

- Dr Keith Gillow, Director of IT and Physical Resources (Chair)
- Dr Waldemar Schlackow, Head of IT
- Dr Jocasta Gardner, Head of Administration and Finance
- Ali Goodall, Head of Faculty Services and HR
- Dameon Wagner, Technical Lead, Unix Platform Services

The University is committed to fairness, consistency and transparency in selection decisions. Members of the selection committee are aware of the principles of equality of opportunity, fair selection and the risks of bias.

If, for any reason, you have taken a career break, parental leave or have had an atypical career and wish to disclose this in your application, the selection committee will take this into account, recognising that the quantity of your experience may be reduced as a result.

## **Essential**

### **Technical**

- Thorough understanding of the principles and technical processes of full-stack web application development;
- Substantial development experience with an expert level in at least one of Python, PHP or Ruby on Rails;
- Substantial frontend development experience e.g. using JavaScript, CSS, HTML etc;
- Experience with DVCS (ideally Git);
- Excellent database skills and experience with Web services/APIs development;
- Commercial-grade experience in systems administration / DevOps, covering full-stack web and database development and administration, often in a Linux environment;
- Able to take responsibility for complex apps: this means new features, maintenance, and DevOps.

### **Competencies**

- An honours degree or equivalent experience and evidence of strong intellectual capacity and analytical skills;

- Excellent communication skills, including the ability to communicate deeply technical concepts to non-technical audiences;
- Strong interpersonal skills and able to contribute to a supportive, helpful culture and work very closely with end users;
- Enjoy working independently, in a small team, with a light management touch;
- Self-motivated and able to combine strategic thinking with hands-on engineering skills, with a drive for performance and quality improvement;
- Be a role model with a high work ethic, strong professionalism, and the ability to quickly become an effective member of the team;
- Be happy switching between quite different domains – we take joint responsibility for all our outputs and activities;
- Have a “leave it better than you found it” mentality and be willing to work with and improve on code you did not originally write;
- Have a natural curiosity about topics outside normal area of expertise, demonstrated through a willingness and ability to learn new skills.

### **Desirable**

- Experience with the Drupal CMS
- Experience with web development frameworks such as Web2Py
- Experience with Microsoft Access
- Experience of IT support in an academic environment

### **What we can offer you:**

- Flexible working hours
- Remote working for typically 2 days a week
- The package includes generous holiday, defined-benefits pension, and associated benefits
- Departmental Employee Assistance Programme, alongside dedicated support both within the Department and wider University for your personal and career development.

If you wish to speak to someone informally about this post, please contact Dr Waldemar Schlackow (Head of IT) [<mailto:waldemar.schlackow@maths.ox.ac.uk>] or Dr Keith Gillow (Director of IT and Physical Resources) [<mailto:keith.gillow@maths.ox.ac.uk>]. Further information about the department is available at <http://www.maths.ox.ac.uk/>. In particular, IT information is at <http://www.maths.ox.ac.uk/members/it>.

## **Pre-employment screening**

### **Standard checks**

If you are offered the post, the offer will be subject to standard pre-employment checks. You will be asked to provide: proof of your right-to-work in the UK; proof of your identity; and (if we haven't done so already) we will contact the referees you have nominated. You will also be asked to complete a health declaration so that you can tell us about any health conditions or disabilities for which you may need us to make appropriate adjustments.

Please read the candidate notes on the University's pre-employment screening procedures at: <https://www.jobs.ox.ac.uk/pre-employment-checks>

## About the University of Oxford

Welcome to the University of Oxford. We aim to lead the world in research and education for the benefit of society both in the UK and globally. Oxford's researchers engage with academic, commercial and cultural partners across the world to stimulate high-quality research and enable innovation through a broad range of social, policy and economic impacts.

We believe our strengths lie both in empowering individuals and teams to address fundamental questions of global significance, while providing all our staff with a welcoming and inclusive workplace that enables everyone to develop and do their best work. Recognising that diversity is our strength, vital for innovation and creativity, we aspire to build a truly diverse community which values and respects every individual's unique contribution.

While we have long traditions of scholarship, we are also forward-looking, creative and cutting-edge. Oxford is one of Europe's most entrepreneurial universities and we rank first in the UK for university spin-outs, and in recent years we have spun out 15-20 new companies every year. We are also recognised as leaders in support for social enterprise.

Join us and you will find a unique, democratic and international community, a great range of staff benefits and access to a vibrant array of cultural activities in the beautiful city of Oxford.

For more information, please visit [www.ox.ac.uk/about/organisation](http://www.ox.ac.uk/about/organisation).

## The Mathematical Institute

The Mathematical Institute, as Oxford's Department of Mathematics is known, is one of the leading mathematics departments in the world. Our mathematical research, impact and environment have twice been ranked first in the UK, in the 2021 and 2014 Research Excellence Framework exercises, a government review of research in all UK universities. The Mathematical Institute is the focus of research into both fundamental mathematics and its applications, and our inclusive nature and overall size are key factors in the provision of an outstanding research environment for our members. The large number of faculty, postdocs and students in the Mathematical Institute, all supported by excellent facilities, allows us to maintain a critical mass in research groups encompassing a wide spectrum of mathematics, while our integrated nature fosters collaboration between fields. We also host a large number of academic visitors. Our web pages ([www.maths.ox.ac.uk](http://www.maths.ox.ac.uk)) provide comprehensive information about all of our activities.

The research activities of the Institute as a whole can be gauged from the web pages of the research groups and centres within the Institute ([www.maths.ox.ac.uk/research](http://www.maths.ox.ac.uk/research)). The range of our research interests is well reflected by the profile of our faculty as listed at [www.maths.ox.ac.uk/people](http://www.maths.ox.ac.uk/people). Many members of the Institute have received prestigious prizes and other special recognition for their work; some recent examples can be found at [www.maths.ox.ac.uk/news](http://www.maths.ox.ac.uk/news).

The Mathematical Institute moved into the purpose-built Andrew Wiles Building in the University's Radcliffe Observatory Quarter in September 2013. As well as providing offices for all staff and graduate students, it houses a range of other facilities available to members of the department, including the Whitehead Library, a large range of meeting rooms, teaching spaces, lecture rooms, and social spaces, and a small laboratory for carrying out table-top experiments. For more information, see [www.maths.ox.ac.uk/about-us](http://www.maths.ox.ac.uk/about-us).

Teaching is central to the life of the Mathematical Institute and we have around 900 undergraduates on course, some on joint courses with other departments. We teach around 250 students each year across five taught master's degree courses, and have over 250

doctoral students in residence at any one time. Our doctoral programme always attracts the best research students from across the world, and we have a broad mentoring and training programme.

The Mathematical Institute strives to ensure that all staff and students are given the opportunities and support they need to achieve their potential. We are committed to equality of opportunities and to advancing women's careers. We support staff returning from long-term absence with teaching relief, offer flexible working arrangements, and the department sponsors University nursery places to support the priority allocation of childcare to our staff. Further information about family support can be found below under University Benefits, Terms and Conditions. Our [Equality, Diversity & Inclusion Committee](#)<sup>1</sup> contributes to many aspects of our work.

As part of the department's commitment to openness, inclusivity and transparency, we strongly encourage applications from all who consider they meet the requirements of the post, and particularly from women and ethnic minorities.

We have a number of family-friendly policies, such as the right to apply for flexible working, hybrid working, and support for staff returning from periods of extended absence. We are committed to ensuring an inclusive interview process and will reimburse up to £250 towards any additional care costs (for a dependent child or adult) incurred as a result of attending an interview for this position, which may not be applicable if the interviews are held remotely.

For more information on the Mathematical Institute, please visit: [www.maths.ox.ac.uk](http://www.maths.ox.ac.uk)

The Mathematical Institute holds a silver Athena Swan award to recognise advancement of gender equality: representation, progression and success for all.

## **The Mathematical, Physical, and Life Sciences Division**

The Mathematical, Physical, and Life Sciences (MPLS) Division is one of the four academic divisions of the University. In the results of the six-yearly UK-wide assessment of university research, REF2014, the MPLS division received the highest overall grade point average (GPA) and the highest GPA for outputs. We received the highest proportion of 4\* outputs, and the highest proportion of 4\* activity overall. More than 50 per cent of MPLS activity was assessed as world leading.

The MPLS Division's 10 departments and 3 interdisciplinary units span the full spectrum of the mathematical, computational, physical, engineering and life sciences, and undertake both fundamental research and cutting-edge applied work. Our research addresses major societal and technological challenges and is increasingly focused on key interdisciplinary issues. MPLS is proud to be the home of some of the most creative and innovative scientific thinkers and leaders working in academe. We have a strong tradition of attracting and nurturing the very best early career researchers who regularly secure prestigious fellowships.

We have around 6,000 students and play a major role in training the next generation of leading scientists. Oxford's international reputation for excellence in teaching is reflected in its position at the top of the major league tables and subject assessments.

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<sup>1</sup> The Mathematical Institute was a founding supporter of the London Mathematical Society's Good Practice Scheme ([www.lms.ac.uk/women/good-practice-scheme](http://www.lms.ac.uk/women/good-practice-scheme)). We have held an Athena SWAN Silver Award since 2016.

MPLS is dedicated to bringing the wonder and potential of science to the attention of audiences far beyond the world of academia. We have a strong commitment to supporting public engagement in science through initiatives including the Oxford Sparks portal (<http://www.oxfordsparks.net/>) and a large variety of outreach activities. We also endeavour to bring the potential of our scientific efforts forward for practical and beneficial application to the real world and our desire is to link our best scientific minds with industry and public policy makers.

For more information about the MPLS division, please visit: <http://www.mpls.ox.ac.uk/>

## How to Apply

Applications are made through our e-recruitment system and you will find all the information you need about how to apply on our Jobs website <https://www.jobs.ox.ac.uk/how-to-apply>.

Your application will be judged solely on the basis of how you demonstrate that you meet the selection criteria stated in the job description.

As part of your application you will be asked to provide details of two referees and indicate whether we can contact them now.

You will be asked to upload a CV and a supporting statement. The supporting statement must explain how you meet each of the selection criteria for the post using examples of your skills and experience. This may include experience gained in employment, education, or during career breaks (such as time out to care for dependants)

Please upload all documents **as PDF files** with your name and the document type in the filename, quoting vacancy reference **159422**.

All applications must be received by **12.00 noon UK time on Friday 2nd September 2022**.

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## Information for priority candidates

A priority candidate is a University employee who is seeking redeployment because they have been advised that they are at risk of redundancy, or on grounds of ill-health/disability. Priority candidates are issued with a redeployment letter by their employing department(s).

If you are a priority candidate, please ensure that you attach your redeployment letter to your application (or email it to the contact address on the advert if the application form used for the vacancy does not allow attachments).

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**DATA PROTECTION:** All data supplied by applicants will be used only for the purposes of determining their suitability for the post, and will be held in accordance with the principles of the Data Protection Act 1998 and the department's data protection policy.

<https://www.maths.ox.ac.uk/members/policies/data-protection/statement>

Due to the large volume of recruitment that the department administers we are unable to provide feedback to non-shortlisted applicants.

## If you need help

Help and support is available from: <https://hrsystems.admin.ox.ac.uk/recruitment-support>

If you require any further assistance please email [recruitment.support@admin.ox.ac.uk](mailto:recruitment.support@admin.ox.ac.uk).



To return to the online application at any stage, please go to: [www.recruit.ox.ac.uk](http://www.recruit.ox.ac.uk).

Please note that you will receive an automated email from our e-recruitment system to confirm receipt of your application. **Please check your spam/junk mail** if you do not receive this email.

## Important information for candidates

### Data Privacy

Please note that any personal data submitted to the University as part of the job application process will be processed in accordance with the GDPR and related UK data protection legislation. For further information, please see the University's Privacy Notice for Job Applicants at: <https://compliance.admin.ox.ac.uk/job-applicant-privacy-policy>. The University's Policy on Data Protection is available at: <https://compliance.admin.ox.ac.uk/data-protection-policy>.

### The University's policy on retirement

The University operates an Employer Justified Retirement Age (EJRA) for all academic posts and some academic-related posts. The University has adopted an EJRA of 30 September before the 69<sup>th</sup> birthday for all academic and academic-related staff in posts at **grade 8 and above**. The justification for this is explained at: <https://hr.admin.ox.ac.uk/the-ejra>

For **existing** employees, any employment beyond the retirement age is subject to approval through the procedures: <https://hr.admin.ox.ac.uk/the-ejra>

There is no normal or fixed age at which staff in posts at **grades 1–7** have to retire. Staff at these grades may elect to retire in accordance with the rules of the applicable pension scheme, as may be amended from time to time.

### Equality of opportunity

Entry into employment with the University and progression within employment will be determined only by personal merit and the application of criteria which are related to the duties of each particular post and the relevant salary structure. In all cases, ability to perform the job will be the primary consideration. No applicant or member of staff shall be discriminated against because of age, disability, gender reassignment, marriage or civil partnership, pregnancy or maternity, race, religion or belief, sex, or sexual orientation.

## Benefits of working at the University

### Employee benefits

University employees enjoy 38 days' paid holiday, generous pension schemes, travel discounts, and a variety of professional development opportunities. Our range of other employee benefits and discounts also includes free entry to the Botanic Gardens and University colleges, and discounts at University museums. See <https://hr.admin.ox.ac.uk/staff-benefits>

### University Club and sports facilities

Membership of the University Club is free for all University staff. The University Club offers social, sporting, and hospitality facilities. Staff can also use the University Sports Centre on Iffley Road at discounted rates, including a fitness centre, powerlifting room, and swimming pool. See [www.club.ox.ac.uk](http://www.club.ox.ac.uk) and <https://www.sport.ox.ac.uk/>.

### Information for staff new to Oxford

If you are relocating to Oxfordshire from overseas or elsewhere in the UK, the University's Welcome Service website includes practical information about settling in the area, including advice on relocation, accommodation, and local schools. See <https://welcome.ox.ac.uk/>. There is also a visa loan scheme to cover the costs of UK visa applications for staff and their dependents. See <https://staffimmigration.admin.ox.ac.uk/visa-loan-scheme>

### Family-friendly benefits

With one of the most generous family leave schemes in the Higher Education sector, and a range of flexible working options, Oxford aims to be a family-friendly employer. We also subscribe to My Family Care, a service that provides practical advice and support for employees who have caring responsibilities. The service offers a free telephone advice line, and the ability to book emergency back-up care for children, adult dependents and elderly relatives. See <https://hr.admin.ox.ac.uk/my-family-care>

The University has excellent childcare services, including five University nurseries as well as University-supported places at many other private nurseries.

For full details, including how to apply and the costs, see <https://childcare.admin.ox.ac.uk/>

### Disabled staff

We are committed to supporting members of staff with disabilities or long-term health conditions. For further details, including information about how to make contact, in confidence, with the University's Staff Disability Advisor, see <https://edu.admin.ox.ac.uk/disability-support>

### Staff networks

The University has a number of staff networks including the Oxford Research Staff Society, BME staff network, LGBT+ staff network and a disabled staff network. You can find more information at <https://edu.admin.ox.ac.uk/networks>

### The University of Oxford Newcomers' Club

The University of Oxford Newcomers' Club is an organisation run by volunteers that aims to assist the partners of new staff settle into Oxford, and provides them with an opportunity to meet people and make connections in the local area. See [www.newcomers.ox.ac.uk](http://www.newcomers.ox.ac.uk).