Oxford Mathematics

UNIVERSITY OF OXFORD

MATHEMATICAL INSTITUTE
ANDREW WILES BUILDING

Job Description and Selection Criteria

Job title	Senior Research Fellow
Division	Mathematical, Physical and Life Sciences
Department	Mathematical Institute & Oxford-Man Institute of Quantitative Finance
Location	Andrew Wiles Building, Radcliffe Observatory Quarter, Woodstock Road, Oxford, OX2 6GG.
Grade and salary	Grade 10: £58,284 - £73,787 per annum
Hours	Full time
Contract type	Permanent
Reporting to	Head of Department, Mathematical Institute
Vacancy reference	161548
Additional information	This is a permanent position comparable in status with an Associate Professorship in US universities. Applicants should note the possibility for MPLS Division to confer the title of Associate Professor on appointment, should the successful candidate meet the University's criteria. 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. This post is subject to a 2-year probationary period. This post is permanently employed by the Mathematical Institute, with funding from the Man Endowment for Quantitative Finance in place for the first 10 years.

The role

The Senior Research Fellow (SRF) will join both the Mathematical Institute and the Oxford-Man Institute of Quantitative Finance (OMI). While the appointment is formally with the Mathematical Institute, the expectation is that the postholder will split their time 40/60 between the two departments.

The postholder will be a senior leader within a lively and intellectually stimulating research community which performs to the highest international levels in research and publications, and will have access to the excellent research facilities which Oxford offers.

The SRF will advance education (teaching and research) in the field of quantitative finance, and in particular data analytics and machine learning applied to quantitative finance. In addition to leading independent research within a broad programme in this area, the SRF will contribute to the teaching, research and academic administration of the Mathematical Institute.

Responsibilities

Research

- to engage in original research in the fields of data analytics and machine learning in quantitative finance;
- to initiate and implement long-term, often interdisciplinary research programmes;
- to secure substantial research funding and engage in the management of research projects;
- to disseminate their research through publication in prestigious international journals, presentation of papers at international conferences and seminars, and through other media;
- to carry out collaborative projects with colleagues in partner institutions, and research groups;
- to engage in knowledge transfer activities and actively promote the research area;
- to engage with the quantitative research teams at Man Group both to disseminate their research and identify suitable projects for academic study;
- to lead a research group; attracting and recruiting post-doctoral research associates, supervising and delegating responsibilities, and managing staff performance.

Teaching

- to supervise research and MSc students;
- to carry out teaching at undergraduate and graduate level under the direction of the Head of Department. The requirement will normally be to deliver two 16-hour lecture courses per year and serve as tutor for 12 sets of intercollegiate classes (subject to variation as agreed with the Head of Department, in consultation with the Director of OMI).

Examining

- to take part in University examining as and when requested to do so.

Administration

- to participate in the administration of the department as and when requested by the Head of Department and in consultation with the OMI Director.
- to chair committees and/or working groups

Selection criteria

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;

- Professor James Sparks, Head of Mathematical Institute (Chair)
- Professor Álvaro Cartea, Director of OMI
- Professor Jared Tanner (Mathematical Institute)
- Professor Sam Cohen (Mathematical Institute)
- Dr Anthony Ledford (OMI)
- Professor Carol Alexander (Sussex, External)

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 selection criteria

The successful candidate will be expected to meet the following criteria:

(a) A doctorate in mathematics or a closely related subject;

(b) The ability and/or potential to carry out high quality independent research at an international level, as evidenced by, for example, publications in leading international journals and international research collaborations; and a track record of working in data science, data analytics, and machine learning in finance;

(c) The ability and/or potential to attract research funding, with evidence (commensurate with career stage) of an excellent track record in obtaining research fellowships and grants;

(d) The ability to communicate and disseminate research (to specialists and non-specialists), as evidenced, for example, by invitation to and participation in conferences, seminars and research workshops;

(e) A demonstrated ability to teach effectively, in particular:

- in undergraduate and postgraduate lectures, not exclusively in the area of their research expertise;
- in problem classes or small groups on a broad range of topics in the undergraduate mathematics syllabus;

(f) The ability to supervise postgraduate students;

(g) The interpersonal skills necessary for undertaking tutorial teaching and the pastoral care of students;

(h) A commitment to improving diversity in mathematics; and

(i) The ability and willingness to undertake the full range of administrative duties within the department (subject to variation as agreed with the Head of Department, in consultation with the Director of OMI).

Desirable selection criteria

(a) High quality independent research at an international level in or related to data science and analytics, and machine learning in quantitative finance;

(b) Experience of supporting the personal and/or career development of under-represented groups within mathematics (for example through outreach activity, mentoring or acting as a role model).

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.

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) 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). The range of our research interests is well reflected by the profile of our faculty as listed at 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.

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 .

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[1] 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

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

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

About the Oxford-Man Institute of Quantitative Finance

The Oxford-Man Institute is hosted by the Department of Engineering Science, and it is underpinned by various departments of The Mathematical, Physical, and Life Sciences Division (Computer Science, Mathematical Institute, Statistics) and the Social Sciences Division (Economics and Saïd Business School).

At the OMI we address fundamental problems in quantitative finance with a strong focus on data driven models. We achieve this by providing a forum for academics from various disciplines and industry participants to create and implement ideas. Our members and visitors employ tools from various sources such as machine learning, artificial intelligence, financial theory and practice, and mathematics. Among our objectives are to provide new insights into how markets work, and to develop new tools for financial decision making. As a result, our research output and activities are relevant to all stakeholders in the economy, including industry participants, and financial regulators

The OMI provides the freedom to do innovative work. One of our main strengths is to attract distinguished experts and young researchers to an environment that stimulates collaboration. We endeavour to facilitate research and increase the impact of the OMI's research output in a number of ways, including cross-collaboration, seminars, and providing data and physical space. The breadth of the University of Oxford affiliated departments speaks to our interdisciplinary approach to problem solving. Our seminars and conferences are pivotal in the life of the OMI and key to the dissemination of cutting-edge ideas. Finally, we provide working space at the OMI offices in a premium location of the university and in a vibrant neighbourhood of Oxford.

For more information please visit: www.oxford-man.ox.ac.uk.

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.

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 three referees and indicate whether we can contact them now.

You will also be required to upload a curriculum vitae, list of publications, details of teaching experience, a statement of research interests 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 **161548**.

Applicants should ask their referees to send their letters of reference DIRECTLY to:

The Recruitment Coordinator (Vacancies)
Mathematical Institute, Andrew Wiles Building, Radcliffe Observatory Quarter, Woodstock Road, Oxford, OX2 6GG. Tel: 01865 273525: Email: vacancies@maths.ox.ac.uk

by the closing date (a letter by email is sufficient) **quoting the vacancy reference 161548.**

Referees should preferably not, all be from the same institution and whenever possible one should be the applicant's current, or most recent, supervisor. **NOTE: reference letters must be received from your referees by the closing date for your application to be complete.**

All applications must be received by **12.00 noon** UK time on **Monday 20th February 2023**.

Interviews are anticipated to take place in the week commencing **Monday 27th March 2023**.

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).

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.

Non-technical questions about this job should be addressed to the recruiting department directly at vacancies@maths.ox.ac.uk.

To return to the online application at any stage, please go to: 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 very senior research posts at **grade RSIV/D35 and clinical equivalents E62 and E82**, which with effect from 1 October 2023 will be 30 September before the 70th birthday. The justification for this is explained at: https://hr.admin.ox.ac.uk/the-ejra.

For **existing** employees on these grades, 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 other grades 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 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.