

Job description

Post	Postdoctoral Research Associate (Research Fellow)
Post information	Research fellow in pandemic sciences.
Department	Department of Biology
Division	Mathematical, Physical and Life Sciences Division (MPLS)
Location	Peter Medawar Building for Pathogen Research and The Life and Mind Building, Oxford
Grade and salary	Researcher Grade 7.1 – 7.8: £38,674 - £46,913 pa.
Hours	Full time
Contract type	Fixed-term till 31 March 2027
Reporting to	Prof. Moritz Kraemer
Application deadline	12 noon on Friday 30 th May 2025
Vacancy reference	179830
Recruitment contacts	HR: recruitment@biology.ox.ac.uk or PI: Prof. Moritz Kraemer moritz.kraemer@biology.ox.ac.uk
Additional Information	Please specify on your application which of the below research topics (or combination of topics) you specialise in:

Research topic	<p><u>AI & Epidemiology.</u></p> <p>We're interested in candidates with the motivation to make technical/methodological advances in infectious disease epidemiological analysis using AI. This can include, but is not limited to, applications of reinforcement learning in public health decision-making, development of machine-learning models to accelerate inference of epidemiological and evolutionary parameters, and the development and use of protein folding models for understanding viral fitness, immunity, emergence of infectious diseases, and predictions of future pandemics.</p> <p><u>Phylodynamics & Human Mobility.</u></p>
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	<p>We are looking to hire one fellow with the ambition to make theoretical advances in phylodynamic methodologies, potentially integrating novel data such as human mobility, to better characterize the spatiotemporal dynamics of infectious disease spread. A second fellow will work with empirical data, contributing to the improvement of the reliability and efficiency of phylodynamic analyses frameworks.</p> <p><u>Climate & Infectious diseases.</u></p> <p>We're interested in candidates with a strong background in climate science and/or epidemiological/statistical modelling (including econometrics) to help advance current understanding (inference) and prediction of how climate, urbanization, deforestation (and other global changes) impact infectious diseases globally. This can include linking extreme climate events to migration and health.</p> <p><u>Global health digital data science.</u></p> <p>We're interested in hearing from candidates with a background in equitable data sharing, federated learning, and/or applications of novel computational methods to advance data preparedness and response to infectious diseases.</p>
Principal Investigator / supervisor	Prof. Moritz Kraemer
Project team	<p>Team, research and environment: Our interdisciplinary team is led by Prof. Moritz Kraemer based across the Pandemic Sciences Institute, Oxford Martin School, and Department of Biology. The lab has between 10-15 researchers across various career stages from DPhil students to senior postdocs. Our work concerns the ecology, evolution, and mechanics of infectious diseases. We develop methods for the joint analyses of large-scale pathogen genomic, human mobility, and epidemiological datasets. We then translate insights from these analyses into actionable and equitable public health policies.</p> <p>Each current member contributes with their unique and diverse expertise to the group, with backgrounds ranging from astrophysics to molecular biology. We do not run a wet lab but have strong expertise in computational methods, access to high performance computing and strong links to global partners experiences in producing novel data for infectious disease epidemiology. Former members have gone on to hold independent research positions</p>

	<p>(lectureships, fellowships), received dissertation awards, and during their time published work in high impact journals including <i>Science</i> & <i>Nature</i>. We hold regular lab meetings, reading groups, and tutorials, often with participation from linked research groups (see below). Our work is currently funded by The Wellcome Trust, Google.org, Rockefeller Foundation, UK Research & Innovation, European Union and Oxford Martin School.</p> <p>The fellows will be based at the new Life and Mind Building (LAMB) with access to modern facilities, centrally located in the city with easy access to colleges, green space, and Departments. The Department and University offer multiple opportunities to get involved in teaching, mentoring, and supervising undergraduate and graduate students. Career progression guidance and support will be provided via the group and University, including training programmes. Fellows can apply for membership in Oxford Colleges but this is currently not part of the role.</p> <p>For any questions about our lab culture, please feel free to reach out to current members Joseph Tsui (lok.tsui@new.ox.ac.uk), Sumali Bajaj (sumali.bajaj@seh.ox.ac.uk) or Dr. Bernardo Gutierrez (bernardo.gutierrez@biology.ox.ac.uk).</p> <p>Collaborators: We work closely with many internationally leading scientific research groups at the University of Oxford (Profs. Pybus, Flaxman, Fraser, Donnelly) and beyond including Prof. Rambaut (University Edinburgh, Scotland) Prof. Marc Suchard (University of California Los Angeles, USA), Prof. Simon Cauchemez (Institut Pasteur, Paris), Dr. Houriiyah Tegally (Stellenbosch University, South Africa), Dr. George Githinji (KEMRI-Wellcome, Kenya), Prof. Rachel Lowe (Barcelona Supercomputing Centre, CNS), and Prof. Samir Bhatt (University of Copenhagen). Further, our work contributes directly to national and international epidemic preparedness and response plans via collaborations with UK Health Security Agency, Africa CDC, WHO Afro and the WHO Hub for Pandemic and Epidemic Intelligence.</p>
Funding partner	The funds supporting this research project are provided by Wellcome Trust, Google.org, Rockefeller Foundation, European Horizon 2020, UK Research and Innovation, Oxford Martin School
Recent publications	<ol style="list-style-type: none"> 1. Du Plessis L, McCrone JT, Zarebski AE, Hill V, Ruis C, Gutierrez B, Raghwanji J, Ashworth J, Colquhoun R, Connor TR, Faria NR, Jackson B, Loman NJ, O'Toole Á, Nicholls SM, Parag KV, Scher E, Vasylyeva TI, Volz EM, Watts A, Bogoch II, Khan K, COVID-19 Genomics UK (COG-UK) Consortium, Aanensen DM, Kraemer MUG, Rambaut A, Pybus OG. Establishment and

lineage dynamics of the SARS-CoV-2 epidemic in the UK. *Science*. American Association for the Advancement of Science (AAAS); 2021 Feb 12;371(6530):708–712. PMID: PMC7877493

2. Tsui J LH, McCrone JT, Lambert B, Bajaj S, Inward RPD, Bosetti P, Pena RE, Tegally H, Hill V, Zarebski AE, Peacock TP, Liu L, Wu N, Davis M, Bogoch II, Khan K, Kall M, Abdul Aziz NIB, Colquhoun R, O'Toole Á, Jackson B, Dasgupta A, Wilkinson E, de Oliveira T, COVID-19 Genomics UK (COG-UK) consortium¶, Connor TR, Loman NJ, Colizza V, Fraser C, Volz E, Ji X, Gutierrez B, Chand M, Dellicour S, Cauchemez S, Raghwani J, Suchard MA, Lemey P, Rambaut A, Pybus OG, Kraemer MUG. Genomic assessment of invasion dynamics of SARS-CoV-2 Omicron BA.1. *Science*. 2023 Jul 21;381(6655):336–343. PMID: PMC10866301
3. Tsui J LH, Pena RE, Moir M, Inward RPD, Wilkinson E, San JE, Poongavanan J, Bajaj S, Gutierrez B, Dasgupta A, de Oliveira T, Kraemer MUG, Tegally H, Sambaturu P. Impacts of climate change-related human migration on infectious diseases. *Nat Clim Chang*. Nature Publishing Group; 2024 Jul 30;14(8):793–802.
4. Kraemer MUG, Reiner RC Jr, Brady OJ, Messina JP, Gilbert M, Pigott DM, Yi D, Johnson K, Earl L, Marczak LB, Shirude S, Davis Weaver N, Bisanzio D, Perkins TA, Lai S, Lu X, Jones P, Coelho GE, Carvalho RG, Van Bortel W, Marsboom C, Hendrickx G, Schaffner F, Moore CG, Nax HH, Bengtsson L, Wetter E, Tatem AJ, Brownstein JS, Smith DL, Lambrechts L, Cauchemez S, Linard C, Faria NR, Pybus OG, Scott TW, Liu Q, Yu H, Wint GRW, Hay SI, Golding N. Past and future spread of the arbovirus vectors *Aedes aegypti* and *Aedes albopictus*. *Nat Microbiol*. 2019 May;4(5):854–863. PMID: PMC6522366
5. Faria NR, Kraemer MUG, Hill SC, Goes de Jesus J, Aguiar RS, Iani FCM, Xavier J, Quick J, du Plessis L, Dellicour S, Thézé J, Carvalho RDO, Baele G, Wu CH, Silveira PP, Arruda MB, Pereira MA, Pereira GC, Lourenço J, Obolski U, Abade L, Vasylyeva TI, Giovanetti M, Yi D, Weiss DJ, Wint GRW, Shearer FM, Funk S, Nikolay B, Fonseca V, Adelino TER, Oliveira MAA, Silva MVF, Sacchetto L, Figueiredo PO, Rezende IM, Mello EM, Said RFC, Santos DA, Ferraz ML, Brito MG, Santana LF, Menezes MT, Brindeiro RM, Tanuri A, Dos Santos FCP, Cunha MS, Nogueira JS, Rocco IM, da Costa AC, Komninakis SCV, Azevedo V, Chieppe AO, Araujo ESM, Mendonça MCL, Dos Santos CC, Dos Santos CD, Mares-Guia

	<p>AM, Nogueira RMR, Sequeira PC, Abreu RG, Garcia MHO, Abreu AL, Okumoto O, Kroon EG, de Albuquerque CFC, Lewandowski K, Pullan ST, Carroll M, de Oliveira T, Sabino EC, Souza RP, Suchard MA, Lemey P, Trindade GS, Drumond BP, Filippis AMB, Loman NJ, Cauchemez S, Alcantara LCJ, Pybus OG. Genomic and epidemiological monitoring of yellow fever virus transmission potential. <i>Science</i>. 2018 Aug 31;361(6405):894–899. PMID: PMC6874500</p>
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The role

We are looking for Postdoctoral Research Associates (G7 Research Fellows) to join our vibrant research environment at Oxford. Each fellow is expected to perform independent research on a topic of mutual interest, publish this work in peer-reviewed scientific journals, and represent the group at external scientific and public health policy meetings.

We value candidates with the ability to identify high-impact research questions and work independently with little day-to-day supervision, are self-motivated and have strong computational and scientific writing skills.

We provide a nurturing environment and access to high-dimensional pathogen genome, human mobility, epidemiological, and climate datasets. For those interested we provide travel bursaries to support visits to collaborators and to present work at scientific conferences.

Responsibilities

- Manage own academic research and administrative activities. This involves small scale project management, to co-ordinate multiple aspects of work to meet deadlines
- Adapt existing and develop new research methodologies and materials
- Prepare working theories and analyse qualitative and/or quantitative data from a variety of sources, reviewing and refining theories as appropriate
- Contribute ideas for new research projects
- Develop ideas for generating research income, and present detailed research proposals to senior researchers
- Collaborate in the preparation of research publications, and book chapters
- Present papers at conferences or public meetings
- Act as a source of information and advice to other members of the group on methodologies or procedures
- Represent the research group at external meetings/seminars, either with other members of the group or alone
- Carry out collaborative projects with colleagues in partner institutions, and research groups
- Teach or undertake ad-hoc teaching (this may include lecturing, demonstrating, small group teaching, tutoring of undergraduates and graduate students and supervision of projects).
- Embed the principles of mutual respect, equality, diversity, inclusivity and sustainability in all aspects of your work; undertake training as and when asked to do so.

Selection criteria

Essential selection criteria

- Hold, or be close to completion of, a relevant PhD/DPhil
- Possess sufficient specialist knowledge in the discipline to work within established research programmes
- Ability to manage own academic research and associated activities
- Previous experience of contributing to publications/presentations
- Ability to contribute ideas for new research projects and research income generation
- Excellent communication skills, including the ability to write for publication, present research proposals and results, and represent the research group at meetings

Desirable selection criteria

- Experience of independently managing a discrete area of a research project
- Experience of actively collaborating in the development of research articles for publication

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. If you have previously worked for the University we will also verify key information such as your dates of employment and reason for leaving your previous role with the department/unit where you worked. 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>

Hazard-specific / Safety-critical duties

This job includes hazards or safety-critical activities. If you are offered the post, you will be asked to complete a health questionnaire which will be assessed by our Occupational Health Service, and the offer of employment will be subject a successful outcome of this assessment.

The hazards or safety-critical duties involved are as follows:

- Travel outside of Europe or North America on University Business

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 Department of Biology

You will be joining the Department of Biology at an exciting time. The Department established from August 2022 as a result of a merger between the Departments of Zoology and Plant Sciences, and is preparing to move most of the department into the new state-of-the-art Life and Mind Building next year.

The Department of Biology is recognised internationally for its research in a wide range of fields spanning all levels from molecules to ecosystems, and tackling global challenges through fundamental bioscience research. Over time, the research interests of the Department has been focused on five primary themes: Behaviour & Biomechanics; Ecology & Conservation; Evolutionary Biology; Microbiology & Infectious Disease; and Molecular Plant Biology. Research is conducted in all spheres from laboratory and in silico analysis to theoretical and field-based research.

At all times we seek to reinforce the connections between research and our education offering, at both graduate and undergraduate level. The Department teaches a four-year undergraduate degree MBIol course in Biology, with fourth-year students undertaking a Masters-level research project. It also supports a variety of graduate placements and hosts the University's DPhil in Biology.

External research income to the Department is derived from over 50 different funding agencies, with the principal current funders being the European Research Council, the Royal Society, the Wellcome Trust, BBSRC and NERC. The Department has a significant record in integrating broader societal impacts of its research, including the provision of policy to government at the highest level, as well as

supporting the commercialisation of research through spin-out companies and licensing arrangements that have generated hundreds of millions of pounds' worth of innovation.

The Department is located in the University's Science Area at two sites, and will move into the new £200m Life and Mind Building in 2024 that will include extensive laboratory provision with controlled environment rooms, glasshouses and an imaging suite. The Department also benefits from extensive facilities at the John Krebs Field Station at Wytham, with Wytham Woods nearby, as well as partnerships with organisations in the area such as the Oxford Botanic Gardens and Oxford Natural History Museum.

For more information please visit: <https://www.biology.ox.ac.uk>

About the Mathematical, Physical, and Life Sciences (MPLS) Division

The Mathematical, Physical, and Life Sciences (MPLS) Division is one of the four academic divisions of the University, alongside the Humanities, Social Sciences and Medical Sciences Divisions. It is led by an academic Head of Division (Professor Sam Howison) and an administrative Divisional Registrar (Dr Tracy Gale) and comprises nine of the University's academic departments – Biology, Chemistry, Computer Science, Earth Sciences, Engineering Science, Materials, the Mathematical Institute, Physics, and Statistics – as well as Begbroke Science Park, the multidisciplinary Ineos Oxford Institute for Antimicrobial Research and an interdisciplinary Doctoral Training Centre.

The disciplines within the MPLS Division regularly appear at the highest levels in rankings, including the Times Higher Education and QS world rankings. Nationally, the quality of the Division's research outputs and environment, and the resulting impact, was recognised through strong performances in the UK Research Excellence Framework in both 2014 and 2021.

MPLS is proud to be home to some of the most creative and innovative scientific thinkers and leaders in academia, whose interdisciplinary research is tackling major societal and technological challenges, from new energy solutions or improved cancer treatments to understanding climate change processes and helping to preserve biodiversity, tackling antimicrobial resistance, advancing AI and quantum technologies and space exploration, and much more. The quality and impact of our work have been recognised by successive rounds of the national Research Excellence Framework and Teaching Excellence and Student Outcomes Framework exercises, and our departments frequently top the major higher education league tables. We teach around 7,300 students (including around 3,400 graduate students) and are playing a key part in training the next generation of leading scientists.

Divisional activity is co-ordinated and represented by the MPLS Divisional Office based at 9 Parks Road, in the heart of Oxford's Science Area. The Divisional Office, which is led by the Divisional Registrar, has around 55 dedicated members of staff, as well as a number of colleagues who are embedded in divisional teams but based in central University services (e.g. in Finance, HR and Development).

To find out more, please visit: www.mpls.ox.ac.uk.

How to apply

Applications are made through our online recruitment portal. Information about how to apply is available 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.

We ask that you clearly indicate which area you're applying to (AI & Epidemiology, Phylodynamics & Human Mobility, Climate & Infectious diseases, Global health digital data science), as well as your preferred starting date. We are looking to hear what major scientific question motivates you and how you're hoping to answer it within 2-3 years and in partnership with our research group (2 pages max., research statement). Please also submit a statement of interest describing your previous experiences that shaped your scientific interests and how you plan to use this opportunity to advance your own career, as well as contributions to the scientific community that demonstrate good citizenship, commitment to health equity, and communication skills (2 pages max., personal statement). Lastly, please supply an up-to-date academic CV. Applications for this vacancy are to be made online via our e-recruitment system.

Please upload all documents **as PDF files** with your name and the document type in the filename.

All applications must be received by **midday** UK time on the closing date stated in the online advertisement.

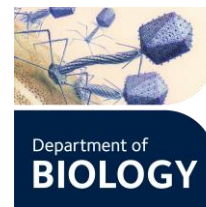
If you currently work for the University please note that:

- as part of the referencing process, we will contact your current department to confirm basic employment details including reason for leaving
- although employees may hold multiple part-time posts, they may not hold more than the equivalent of a full time post. If you are offered this post, and accepting it would take you over the equivalent of full-time hours, you will be expected to resign from, or reduce hours in, your other posts(s) before starting work in the new post.

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).



If you need help

Application FAQs, including technical troubleshooting advice is available at:

<https://staff.web.ox.ac.uk/recruitment-support-faqs>

Non-technical questions about this job should be addressed to the recruiting department directly at

recruitment@Biology.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 online recruitment portal 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** of 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, flexible working options, travel discounts including salary sacrifice schemes for bicycles and electric cars and other discounts. Staff can access a huge range of personal and professional development opportunities. See <https://hr.admin.ox.ac.uk/staff-benefits>

Employee Assistance Programme

As part of our wellbeing offering staff get free access to Health Assured, a confidential employee assistance programme, available 24/7 for 365 days a year. Find out more <https://staff.admin.ox.ac.uk/health-assured-eap>

University Club and sports facilities

Membership of the University Club is free for University staff. It 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 includes practical information about settling in the area, including advice on relocation, accommodation, and local schools. See <https://welcome.ox.ac.uk/>

Reimbursement Policy: <https://staffimmigration.admin.ox.ac.uk/reimbursement-policy>

There is also a visa loan scheme to cover the costs of UK visa applications for staff and their dependants. See <https://staffimmigration.admin.ox.ac.uk/visa-loan-scheme>

Family-friendly benefits

We are a family-friendly employer with one of the most generous family leave schemes in the Higher Education sector (see <https://hr.web.ox.ac.uk/family-leave>). Our Childcare Services team provides guidance and support on childcare provision, and offers a range of high-quality childcare options at affordable prices for staff. In addition to 5 University nurseries, we partner with a number of local providers to offer in excess of 450 full time nursery places to our staff. Eligible parents are able to pay for childcare through salary sacrifice, further reducing costs. See <https://childcare.admin.ox.ac.uk/>.

Supporting disability and health-related issues (inc menopause)

We are committed to supporting members of staff with disabilities or long-term health conditions, including those experiencing negative effects of menopause. Information about the University's Staff Disability Advisor, is at <https://edu.admin.ox.ac.uk/disability-support>. For information about how we support those going through menopause see <https://hr.admin.ox.ac.uk/menopause-guidance>

Staff networks

The University has a number of staff networks including for research staff, BME staff, LGBT+ staff, disabled staff network and those going through menopause. Find out more at <https://edu.admin.ox.ac.uk/networks>

The University of Oxford Newcomers' Club

The University of Oxford Newcomers' Club is 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.

Research staff

The Researcher Hub supports all researchers on fixed-term contracts. They aim to help you settle in comfortably, make connections, grow as a person, extend your research expertise and approach your next career step with confidence. Find out more <https://www.ox.ac.uk/research/support-researchers/researcher-hub>

Oxford's Research Staff Society is a collective voice for our researchers. They also organise social and professional networking activities for researchers. Find out more <https://www.ox.ac.uk/research/support-researchers/connecting-other-researchers/oxford-research-staff-society>

