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Job title	Geospatial Disease Modeller
Division	Medical Sciences
Department	Nuffield Department of Medicine
Location	Big Data Institute, Li Ka Shing Centre for Health Information and Discovery, Old Road Campus, Headington, Oxford, OX3 7LF
Grade and salary	Grade 7: £31,604 - £38,833 per annum
Hours	Full time or part time
Contract type	Funding available for a full time fixed term contract for 7 months. If part-time hours are agreed this range will be longer in conduction with those part-time hours.
Reporting to	Dr Catherine Moyes
Vacancy reference	135531

Research topic	Spatial variation in risk of Trypanosoma cruzi infection
Principal Investigator / supervisor	Dr Catherine Moyes
Project team	Moyes Group
Project web site	https://www.bdi.ox.ac.uk/Team/catherine-moyes https://map.ox.ac.uk/group/insecticide-resistance-and-malarial-vectors/ https://qaeco.com/researchfellows/
Funding partner	Wellcome
Recent publications	<p>Browne AJ, Guerra CA, Alves RV, Costa MA, Wilson AL, Pigott DM, Hay SI, Lindsay SW, Golding N, Moyes CL (2017) The contemporary distribution of Trypanosoma cruzi infections in humans, alternative hosts and vectors. Scientific Data, 4: 170050.</p> <p>Golding N, August TA, Lucas TCD, Gavaghan DJ, van Loon EE,</p>

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McInerny G (2018) [The zoon R package for reproducible and shareable species distribution modelling](#). Methods in Ecology and Evolution, 9:260-268.

Shearer FM, Longbottom J, Browne A, Pigott DM, Brady OJ, Kraemer MUG, Marinho F, Yactayo S, Valdelaine EM, Aglaer A, Fullman N, Ray SE, Mosser JF, Stanaway J, Lim S, Reiner RC, Moyes CL, Hay SI and Golding N (2018) Modelling existing and potential infection risk zones of yellow fever: a global analysis. The Lancet Global Health, 6:e270-278.

Golding N, Burstein R, Longbottom J, Browne AJ, Fullman N, Osgood-Zimmerman A, Earl L, Bhatt S, Blazes DL, Cameron E, Casey D, Dowell SF, Dwyer-Lindgren L, Farag TH, Flaxman AD, Gething PW, Gibson HS, Graetz N, Krause K, Lim SS, Mappin B, Morozoff C, Reiner Jr RC, Smith DL, Wang H, Weiss DJ, Murray CJL, Moyes CL and Hay SI (2017) Mapping under-5 and neonatal mortality in Africa, 2000 to 2015: a baseline analysis for the Sustainable Development Goals. The Lancet, 10108:2171-2182.

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. Income from external research contracts in 2016/17 exceeded £564m and we rank first in the UK for university spin-outs, with more than 130 companies created to date. 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.

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For more information please visit www.ox.ac.uk/about/organisation

Medical Sciences

The Medical Sciences Division is an internationally recognized centre of excellence for biomedical and clinical research and teaching. We are the largest academic division in the University of Oxford

World-leading programmes, housed in state-of-the-art facilities, cover the full range of scientific endeavour from the molecule to the population. With our NHS partners we also foster the highest possible standards in patient care.

For more information please visit: www.medsci.ox.ac.uk

Nuffield Department of Clinical Medicine (NDM) ...fostering your career in science

The Nuffield Department of Clinical Medicine (NDM) is one of the largest departments of the University of Oxford and is part of the Medical Sciences Division, with responsibility for a significant part of the teaching of clinical students within the Medical School.

NDM has significant financial turnover and complexity, resulting from its diverse research portfolio, its geographical spread and its close links with NHS funding and strategic teams involved in the development and delivery of increasingly integrated clinical research platforms. For more information please visit: <http://www.ndm.ox.ac.uk/home>

The Nuffield Department of Clinical Medicine has been presented with a Departmental Athena SWAN Silver award in recognition of the commitment made to promote gender equality through our organisational and cultural practices and our efforts to improve the working environment for both men and women. For more information please see our Departmental Athena SWAN pages: <https://www.ndm.ox.ac.uk/working-for-ndm/aboutndmatheneswan/>

Oxford Big Data Institute

The Big Data Institute (BDI) is a state-of-the-art building at Oxford University's Old Road Campus. When it opens in early 2017, this interdisciplinary research centre will focus on the analysis of large, complex, heterogeneous data sets for research into the causes and consequences, prevention and treatment of disease. To this end, BDI researchers will develop, evaluate and deploy efficient methods for acquiring and analysing information for large clinical research studies. These approaches will be invaluable in identifying the associations between lifestyle exposures, genetic variants, infections and health outcomes around the globe.

Research will be conducted in 4 general themes: genomics, population health, infectious disease surveillance, and methodology (including informatics, statistics, and engineering).

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Big Data methods could transform the scale (breadth, depth and duration) and efficiency (data accumulation, storage, processing and dissemination) of large-scale clinical research.

The work of the BDI requires people and projects that span traditional departmental boundaries and scientific disciplines, supported by technical resources to handle the vast quantities of data they generate.

Under the leadership of Professor Gil McVean (Director) and Professor Martin Landray (Deputy Director), the BDI will comprise around 350 researchers (approx. 30 research groups) drawn from a wide range of departments and will form an analytical hub, deeply connected to the wider experimental and clinical community in Oxford and beyond.

For more information please visit: <http://www.bdi.ox.ac.uk/>

Overview of the role

A new collaboration between the Moyes Group at the BDI and Dr Nick Golding at the University of Melbourne will map *Trypanosoma cruzi* infection risk in the Americas. The post-holder will be responsible for modelling spatial variation in the risk of vectorial transmission. The post-holder will contribute to the group's work as a whole, sharing ideas and methods, and advising more junior group members. This will include participation in the work of the Malaria Atlas Project, www.map.ox.ac.uk.

Responsibilities/duties

- 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 spatial modelling approaches based on greta (<https://greta-dev.github.io/greta/>) and its Gaussian process extension (<https://github.com/greta-dev/greta.gp>). This is a new approach that addresses some of the limitations of the methods used in the papers listed above.
- Investigate the predictive power of environmental factors that are expected to influence vector-mediated transmission, and the relationship between pathogen prevalence in vector populations and seroprevalence in human communities, in order to map infection risk to humans living within the endemic zone.
- Contribute ideas for new research projects.
- Develop ideas for new research grants, and present detailed research proposals to senior researchers.
- Draft papers based on the results of this work.

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- Present the results at international meetings.
- Act as a source of information and advice to other members of the group on aspects of geospatial modelling.
- 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.

Hazard-specific / Safety-critical duties:

This job includes the following hazards or safety-critical activities which will require successful pre-employment health screening through our Occupational Health Service before the successful candidate will be allowed to start work:

- Travel outside of Europe or North America on University Business

Selection criteria

Essential

- A PhD or equivalent experience in quantitative ecological or epidemiological analyses.
- An undergraduate degree in a relevant topic.
- Proficient in the use of the statistical language R
- This project is a collaboration with the University of Melbourne. There is considerable flexibility on which hours are worked (full or part time) but the post-holder must be able to participate in regular early morning or late evening teleconferences with Australia either from their desk or from home.
- Ability to travel to Australia for one trip lasting one to three weeks.
- Ability to manage own academic research and associated activities.
- Previous experience of contributing to publications/presentations.
- Ability to contribute ideas for new research projects.

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- Excellent communication skills, including the ability to write for publication, present research proposals and results, and represent the research group at meetings.

Desirable

- Experience of independently managing a discrete area of a research project.
- Experience using R for statistical computing.
- Experience using species distribution models or other geospatial models and/or using Gaussian Processes.

How to apply

Before submitting an application, you may find it helpful to read the 'Tips on applying for a job at the University of Oxford' document, at www.ox.ac.uk/about_the_university/jobs/research/

If you would like to apply, click on the **Apply Now** button on the 'Job Details' page and follow the on-screen instructions to register as a new user or log-in if you have applied previously. Please provide details of two referees and indicate whether we can contact them now.

You will also be asked to upload a CV and a supporting statement. The supporting statement should explain how you meet 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). Your application will be judged solely on the basis of how you demonstrate that you meet the selection criteria stated in the job description.

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

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 departments.

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)

Should you experience any difficulties using the online application system, please email recruitment.support@admin.ox.ac.uk. Further help and support is available from

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www.ox.ac.uk/about_the_university/jobs/support/. To return to the online application at any stage, please go to: www.recruit.ox.ac.uk.

Please note that you will be notified of the progress of your application by automatic emails from our e-recruitment system. **Please check your spam/junk mail** regularly to ensure that you receive all emails.

Important information for candidates

Pre-employment screening

Please note that the appointment of the successful candidate will be subject to standard pre-employment screening, as applicable to the post. This will include right-to-work, proof of identity and references. We advise all applicants to read the candidate notes on the University's pre-employment screening procedures, found at:

www.ox.ac.uk/about/jobs/preemploymentscreening/.

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: www.admin.ox.ac.uk/councilsec/compliance/gdpr/privacynotices/job/. The University's Policy on Data Protection is available at:

www.admin.ox.ac.uk/councilsec/compliance/gdpr/universitypolicyondataprotection/.

The University's policy on retirement

The University operates an Employer Justified Retirement Age (EJRA) for all academic posts and some academic-related posts. From 1 October 2017, the University has adopted an EJRA of 30 September before the 69th birthday for all academic and academic-related staff in posts at **grade 8 and above**. The justification for this is explained at:

www.admin.ox.ac.uk/personnel/end/retirement/acrelretire8+/.

For **existing** employees, any employment beyond the retirement age is subject to approval through the procedures: www.admin.ox.ac.uk/personnel/end/retirement/acrelretire8+/.

From 1 October 2017, 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



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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

University Club and sports facilities

The University Club provides social, sporting and hospitality facilities. It incorporates a bar, café and sporting facilities, including a gym. 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 www.sport.ox.ac.uk/oxford-university-sports-facilities.

Information for international staff (or those relocating from another part of the UK)

If you are relocating to Oxfordshire from overseas, or elsewhere in the UK, the University's International Staff website includes practical information related to moving to and settling in Oxford such as advice on immigration, relocation, accommodation, or registering with a doctor.

See: www.internationalstaffwelcome.admin.ox.ac.uk/

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 to settle into Oxford and to provide them with an opportunity to meet people in the area. See www.newcomers.ox.ac.uk/

Childcare

The University has excellent childcare services with 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 www.admin.ox.ac.uk/childcare.

Family-friendly benefits

The University subscribes to My Family Care (www.admin.ox.ac.uk/personnel/staffinfo/benefits/family/mfc/) and staff are eligible to register for emergency back-up childcare and adultcare services, a 'speak to an expert' phone line and a wide range of guides and webinars through a website called the Work + Family space.



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Disabled staff

We are committed to supporting members of staff with disabilities or long-term health conditions. Please visit www.admin.ox.ac.uk/eop/disab/staff for further details including information about how to make contact, in confidence, with the University's Staff Disability Advisor.

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 www.admin.ox.ac.uk/eop/inpractice/networks/

Other benefits

Staff can enjoy a range of other benefits such as free visitor access to the University's colleges and the Botanic Gardens as well as a range of discounts.

See www.admin.ox.ac.uk/personnel/staffinfo/benefits

