
Centre for Tropical Medicine and Global Health

Job title	Mathematical Modeller
Division	Medical Sciences
Department	Centre for Tropical Medicine and Global Health
Location	Centre for Tropical Medicine and Global Health, (MORU), The Peter Medawar Building, University of Oxford, South Parks Road, Oxford, OX1 3SY
Grade and salary	Grade 7: £32,817- £36,914 per annum
Hours	Full time
Contract type	Fixed-term (22 months)
Reporting to	<i>Research Fellow</i>
Vacancy reference	143831

The role

The Wellcome Trust - Mahidol University - Oxford Tropical Medicine Research Programme (MORU) aims to conduct research to improve the health and reduce the infectious diseases burden of rural communities in Asia and elsewhere in the developing world. The ATOME (Analytical Tools for Malaria Elimination) group is embedded in the Mathematical and Economic Modelling (MAEMOD) department at the Mahidol-Oxford Research Unit (MORU) and is currently entirely dedicated to the ENDGAME project, funded by the Bill and Melinda Gates Foundation. The project's focus is to engage with National Malaria Control Programmes in the Greater Mekong Sub-Region (GMS), calibrate malaria transmission models given epidemiological data and records of previous intervention deployments, and ultimately predict the impact and cost efficiency of different elimination driven strategies. Tools used to achieve those objectives include:

- Machine learning
- Dynamic population transmission modelling
- Within host modelling
- Health Economics



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Our mission is the ***continued development and provision of analytical tools to national malaria control programmes in the GMS in support of their efforts to eliminate *P. falciparum* malaria in the next decade.***

We are looking for an experienced and motivated mathematical modeller to support further development of individual (agent) based models for the design of bespoke malaria elimination strategies for countries in the Greater Mekong Subregion. You will be a senior mathematical modeller working in an international team and will collaborate with other modellers and a senior health economist. Your work will serve to inform National Malaria Control Programmes of how to optimally allocate their resources to reach elimination. You will be based in the MAEMOD office at the University of Oxford, with periodic visits to the MORU Bangkok office.

Responsibilities

- Contribute to the optimisation and continued development of the in-house individual based spatially explicit mathematical model for the transmission of drug sensitive and resistant *P. falciparum* parasites.
- Calibrate the model with the most recent within host parasitaemia data and PK/PD data.
- Develop a framework for model calibration given the current epidemiological landscape and the intervention history in each country.
- Explore tailored intervention packages for specific countries in the GMS and work together with health economists to evaluate the cost effectiveness of bespoke interventions and develop frameworks for optimal resource allocation.
- Manage own academic research and administrative activities. This involves small scale project management, to co-ordinate multiple aspects of work to meet deadlines.
- Contribute ideas for new research projects.
- Contribute to the teaching of short courses and workshops by giving lectures, leading practical sessions and developing teaching materials.
- 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, as well as supporting junior modellers.
- 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.

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Selection criteria

Essential

- Hold, or be close to completion of, a PhD/DPhil in mathematical modelling together with relevant experience.
- Programming skills in R, MATLAB, C/C++/Python coding languages.
- Experience in parallel computing.
- Experience in model calibration and model fitting.
- Possess sufficient specialist knowledge in the discipline to work within established research and control programmes.
- Ability to manage own academic research and associated activities.
- 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 malaria elimination modelling.
- Experience of engaging with control programmes or partners implementing interventions in endemic areas.
- Experience in model interface development.
- Experience with GPU programming.
- Experience of independently managing a discrete area of a research project.
- Experience of actively collaborating in the development of research articles for publication.

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.



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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.

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)

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. The Department also has a substantial research programme which requires high quality administrative management.

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>

.....fostering your career in science.

The University of Oxford is a member of the [Athena SWAN Charter](http://www.athenaswan.org/) and holds an institutional Bronze Athena SWAN award. The Nuffield Department of Medicine holds a Silver Athena SWAN award in recognition of its efforts to introduce organisational and cultural practices that



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promote gender equality in SET and create a better working environment for both men and women.

For more information please visit: www.ndm.ox.ac.uk/working-for-ndm/aboutndmatheneswan/

Tropical Medicine and Global Health

The Centre for Tropical Medicine and Global Health is a world leading Centre within the Nuffield Department of Clinical Medicine, University of Oxford, comprised of research groups who are permanently based in Africa and Asia as well as across two sites in Oxford. Our research ranges from clinical studies to behavioral sciences, with capacity building integral to all of our activities.

Our research is conducted at three Wellcome Trust Major Overseas Programmes in Kenya, Thailand and Viet Nam as well as a growing Centre in Oxford. The Centre for Tropical Medicine and Global Health also brings together a number of sister groups in Laos, Tanzania, Indonesia, the Democratic Republic of Congo, Myanmar, Cambodia and Nepal, as well as multiple collaborators around the world.

Tackling infectious diseases, which kill many millions of people every year, is one of the greatest challenges of the 21st century. We are researching solutions to the increasingly urgent problems these diseases cause.

The Centre's annual turnover is in excess of £48m per annum with over 100 externally funded research grants and donations.

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

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/jobs/supportandtechnical/.

If you consider that you meet the selection criteria, click on the **Apply Now** button on the 'Job Details' page and follow the on-screen instructions to register as a user. You will then be required to complete a number of screens with your application details, relating to your skills and experience. When prompted, please provide details of two referees and indicate whether we can contact them at this stage. You will also be required to upload a CV and a supporting statement which explains how you meet the selection criteria for the post. The supporting statement should explain your relevant experience which may have been gained in employment, education, or you may have taken time away from these activities in order to raise a family, care for a dependant, or travel for example.



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Your application will be judged solely on the basis of how you demonstrate that that you meet the selection criteria outlined above and we are happy to consider evidence of transferable skills or experience which you may have gained outside the context of paid employment or education.

Please save all uploaded documents to show your name and the document type.

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 [www.ox.ac.uk/about the university/jobs/support/](http://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

Training

You are required to undertake mandatory training as required by the University, Division and Department. The specific list of training courses may change from time-to-time, in response to both legal and internal University requirements.

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:



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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

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.

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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.

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



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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

