Job title | Mathematical Modeller  
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Division | Medical Sciences  
Department | Nuffield Department of Medicine, Centre for Tropical Medicine and Global Health  
Location | Peter Medawar Building, South Parks Road, Oxford, OX1 3SY  
Grade and salary | Grade 7: Salary in range £32,817 - £36,914 per annum  
Hours | Full time  
Contract type | Fixed-term contract until 30 November 2021  
Reporting to | Research Fellow  
Vacancy reference | 146671  
Additional information | Funded by the Bill and Melinda Gates Foundation  

The role

The Wellcome - 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
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 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.
- Participate in and support the public engagement and widening access activities of the Department and the University. This is anticipated to be not more than 2 days per year.
- 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**

All offers of employment are made subject to standard pre-employment screening, as applicable to the post.

If you are offered the post, you will be asked to provide proof of your right-to-work, your identity, and 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 so that we...
can discuss appropriate adjustments with you), and a declaration of any unspent criminal convictions.

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/.

**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**

- 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.

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.
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: 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 behavioural sciences, with capacity building integral to all of our activities.

Our research is conducted at three Wellcome Trust Africa and Asia 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 research income is around £60m per annum with over 200 externally funded research grants and donations.
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 http://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 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).

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

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

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/. 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: 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. 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+.

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 www.admin.ox.ac.uk/personnel/staffinfo/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 www.sport.ox.ac.uk/oxford-university-sports-facilities.

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 www.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 www.admin.ox.ac.uk/personnel/permits/reimburse&loanscheme/.

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 www.admin.ox.ac.uk/personnel/staffinfo/benefits/family/mfc/.

Childcare
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 www.admin.ox.ac.uk/childcare/.

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 www.admin.ox.ac.uk/eop/disab/staff.

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/.

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.