

# RESEARCH FELLOW



<b>Job Title:</b>	<b>Research Fellow in Outbreak Analytics</b>
<b>Department:</b>	Data Science
<b>Faculty:</b>	MRC Unit The Gambia
<b>Location:</b>	Fajara, The Gambia
<b>FTE:</b>	Full Time and fixed term until August 2024
<b>Grade:</b>	G6
<b>Accountable to:</b>	Head of Data Science at MRC Unit The Gambia
<b>Job Summary:</b>	<p>Applications are invited for a research fellow to join a new team that will develop an ecosystem of free, open-source R software tools for outbreak analytics, to support global preparedness and response. The role will be part of the major new 'EpiVerse' initiative at LSHTM, a joint collaboration between researchers in London and The Gambia supported by data.org, which builds on previous policy-relevant analysis for outbreaks such as COVID-19 and Ebola within our Centre for Mathematical Modelling of Infectious Diseases (CMMID), and analytics development programmes such as the R Epidemics Consortium and EpiForecasts.</p> <p>The post involves developing methods and contributing to software tools for the analysis and integration of multiple data sources to inform outbreak analysis, such as reconstructing outbreak dynamics and understanding the factors driving transmission. This will include developing links with teams working on epidemiological, behavioural and genomic data.</p> <p>The post-holder will join a successful and supportive team of the Data Science Cluster at MRCG and centre at LSHTM working on a range of infections, including Ebola, measles, influenza, and SARS-CoV-2, with scope to lead a range of data science projects, in collaboration with colleagues at LSHTM and external partners. It is expected that the project will involve a range of complex and collaborative work that requires a high degree of personal motivation.</p> <p>The successful applicant will have a PhD or equivalent research experience in statistics, epidemiology or another relevant discipline with a strong quantitative component. Candidates should also demonstrate experience in data science, preferably of epidemic-prone infections. Further particulars are included in the attached job description.</p>

## General Information

### The London School of Hygiene & Tropical Medicine

The London School of Hygiene & Tropical Medicine (LSHTM) is renowned for its research, postgraduate studies and continuing education in public and global health.

Our mission is to improve health and health equity in the UK and worldwide; working in partnership to achieve excellence in public and global health research, education and translation of knowledge into policy and practice.

We embrace and value the diversity of our staff and student population and seek to promote equity, diversity and inclusion as essential elements in contribution to improving health worldwide. We believe that when people feel respected and included, they can be more creative, successful, and happier at work. While we have more work to do, we are committed to building an inclusive workplace, a community that everyone feels a part of, which is safe, respectful, supportive and enables all to reach their full potential.

## **History**

Founded in 1899 at the London Docks, LSHTM is now based in Bloomsbury, where it has two main sites at Keppel Street and Tavistock Place, and additional sites in The Gambia and Uganda. Today, our staff, students and alumni work in government, academia, international agencies and health services across the world.

## **Research**

Research income has grown to more than £180 million per year from national and international funding sources including UK government and research councils, the European Union, the Wellcome Trust, Gates Foundation and other philanthropic sources.

Our diverse research talents, skills and experience underpin our position as a leader in public and global health. These range from the molecular to the global, the theoretical to the applied, the analytical to the political. Our staff are conducting research in more than 100 countries.

## **Staff community**

We have 3,300 staff based all around the world with core hubs in London and at the MRC Units in The Gambia and Uganda, which joined LSHTM in February 2018. Our outstanding, diverse and committed staff make an impact where it is most needed - deploying research in real time in response to crises, developing innovative programmes for major health threats, or training the next generations of public and global health leaders and researchers.

## **Partnerships**

Working in partnership is central to achieving our mission. Our strategic collaborations in the UK and across high-, middle- and low-income countries deliver health and socioeconomic benefits across the world, especially in the most disadvantaged communities.

LSHTM is also a member of the M8 Alliance of Academic Health Centers, Universities and National Academies, the Association of Schools of Public Health in the European Region, and the Consortium of Universities for Global Health.

## **Education**

We deliver research-led educational programmes to future health leaders, managers and researchers across the world. We have more than 1,200 face-to-face Master's and Doctoral students, 3,000 studying by distance learning, and 1,000 each year on short courses and continuous professional development. Our free online courses are studied by more than 270,000 participants globally.

## **Excellence in research and education**

We perform strongly in various global university league tables. In the ShanghaiRanking's Global Ranking of Academic Subjects 2020 we placed 3rd in public health (1st in the UK). In the 2020 CWTS Leiden Ranking LSHTM is ranked the UK's top university for the proportion of academic research with women listed as authors, and third in Europe for publishing open access research.

In the US News Best Global Universities Ranking 2021, we ranked 3rd in the world for public, environmental & occupational health, 4th in the world for infectious diseases, 11th in the world for social sciences & public health, and 12th best University in the UK overall. We ranked 27th for medicine in the 2019 QS World University Rankings.

In 2017, the inaugural Center for World University Rankings by Subject placed LSHTM first in the world for tropical medicine research, second for parasitology and seventh for infectious diseases, public, environment and occupational health, and social sciences and biomedical.

LSHTM was named University of the Year 2016 by Times Higher Education and awarded a Queen's Anniversary Prize for Higher and Further Education in 2017 in recognition of our response to the 2014 Ebola epidemic in West Africa. LSHTM does not appear in the Times Higher Education World University Rankings as universities are excluded if they do not teach undergraduates.

We seek to foster and sustain a creative and supportive working environment based upon an ethos of respect and rigorous scientific enquiry. We embrace and value the diversity of our staff and student population and seek to promote equality as an essential element in contribution to improving health worldwide.

LSHTM is one of around 20 specialist institutions that receive institution specific funding from the Office for Students (OfS). This funding recognises the additional costs that LSHTM incurs because of its unique range of teaching, specialist facilities, and the scale of its contributions to national and international agencies.

## **Faculty Information**

### **MRC Unit The Gambia at LSHTM (MRCG)**

MRC Unit The Gambia (MRCG) at the London School of Hygiene and Tropical Medicine is a leading research centre in sub-Saharan Africa. Research is carried out by three major Research Themes (Disease Control & Elimination; Vaccines & Immunity; and Nutrition & Planetary Health) that benefit from the core-supported strategic platforms and of the research services. Disease Control & Elimination investigates the interactions between hosts, pathogens and vectors; and evaluates interventions aimed at interrupting transmission and/or reducing the burden of diseases.

Research is multidisciplinary and include a large epidemiological component complemented by social sciences and combined with strong laboratory and genomics support. Vaccines & Immunity studies the ontogeny of immunity as a baseline to inform the design of vaccines and maximise their impact. It hosts a portfolio of Phase 1-4 clinical trials of existing and novel vaccines and employs cutting-edge system biology methods to understand host responses to infection and vaccination. The Theme is also working on tuberculosis by examining host/pathogen interactions in adults and children. Nutrition & Planetary Health aims to understand the pathophysiology of diet-disease interactions in order to accelerate the development of more effective next-generation community and clinical interventions, and to build a major new program in planetary health. Two Cross-Cutting Programs, i.e. Maternal & Neonatal Health and West Africa, involve all Themes, often in synergy, and underpin the Unit's commitment to carry out research to decrease the current high burden of maternal and neonatal mortality in sub-Saharan Africa and the Unit's vocation as a Regional Centre of Excellence for Research and Training. A third cross-cutting Program, Planetary Health, is currently being developed.

Besides the main campus in Fajara, the MRCG has 2 field stations, Keneba and Basse. The Unit, led by Professor Umberto D'Alessandro, receives an MRC core investment grant every 5 years, following the review of past activities and future plans. In addition, all research activities are supported by external grants from a variety of sources. The Unit has a turnover of in excess of £22m per annum and employs about 1500.

### **The Data Science Cluster at MRCG**

Data Science is a new cluster within MRCG at LSHTM. The cluster's Data Science and Artificial Intelligence (AI) ecosystem includes the following departments.

1. Data Architecture & Management
2. Statistics & Computational Bioinformatics
3. Applications Development & e-Health applications
4. High Performance Computing (HPC)

With the increased complexity of data sources, bioinformatics research and the emergence of e-health and artificial intelligence, the Unit re-organized the established departments as the key components of a Data Science centre of excellence. This will help to diversify the traditional quantitative role as research support for publication. In addition to the continuing research support, the new Data Science Cluster will undertake research in cutting-edge methods and applications of machine learning with a focus on health and bio-medical problems and to translate the academic work into tangible e-health and AI public health applications. Indeed, the Unit plans to leverage the use of AI algorithms in the large amount of health data it has obtained to provide for more accurate diagnosis of diseases and support epidemic response and preparedness related research. Research

on climate change and its impacts on health will increasingly depend on a highly complex computational data analysis infrastructure. A key goal of the Data Science Cluster is to establish the Unit as regional centre of excellence and expand the funding streams of the current departments.

## **THE CENTRE**

The **Centre for the Mathematical Modelling of Infectious Diseases (CMMID)** is a multidisciplinary grouping of epidemiologists, mathematicians, economists, statisticians and clinicians from across all three faculties of the LSHTM. Research focuses on understanding and predicting the epidemiology of infectious diseases so that more effective control programmes can be devised. Researchers are developing and applying mathematical models to a range of infections including HIV and other sexually transmitted infections, HPV, tuberculosis, hepatitis C, influenza, rotavirus, measles, varicella, pneumococcal disease, Hib, malaria and sleeping sickness. More fundamental research includes developing methods to measure underlying contact patterns, sampling hard-to-reach populations (such as drug users), efficiently fitting complex mathematical models to data, and the integration of epidemiological models with economic analyses. CMMID runs the flusurvey, an online influenza surveillance platform. CMMID is actively engaged in developing links with other modelling groups; members of the CMMID include mathematical modellers working at Public Health England (formerly the HPA) and the Royal Veterinary College.

The portfolio of duties outlined below will vary in accordance with the detailed expectations of the role (attached), which may be varied from time to time, and agreed at your annual Performance and Development Review (PDR).

## **Job Description**

### **Main Activities and Responsibilities**

### **Knowledge Generation**

1. To undertake high quality research & scholarship, including contributing to drafting major grant proposals and/or leading on drafting small grant proposals, and evaluating teaching practice;
2. To contribute to peer-reviewed publications and other outputs, including as lead author;
3. To make a contribution to doctoral student supervision, as appropriate to qualifications and experience;
4. To manage small grants or elements of larger grants, ensuring compliance with good practice in relation to the conduct of research, the ethics policy and other relevant School policies.
5. Develop methodology for integration between MRCG at LSHTM tools and external data and software tools, as well as middleware to bridge more complex workflows.
6. Take responsibility for creating and consolidating collaborative links between MRCG@LSHTM and other teams working on epidemiological software packages.
7. Contribute to efficient and shareable model code

### **Education**

1. To contribute to the delivery of high quality, inclusive, research-informed teaching and assessment in relation to your specific subject and within the broader area covered by your department and disciplinary field;
2. To contribute to the improvement of the quality of the School's education, by participating in the development of new and updated learning and teaching materials or approaches.

### **Internal Contribution**

1. To undertake activities that support the Department, Faculty, MRC Unit or the School;
2. To reflect LSHTM's EDI goals in your work and behaviour;
3. To participate in the School's PDR process.
4. Contribute to the activities of the Centre for Mathematical Modelling of Infectious Diseases and wider Epiverse initiative.

## External Contribution

1. To demonstrate good external citizenship by contributing to learned society/conference events, journal and grant reviews etc;

## Professional Development and Training

1. To keep up to date with the latest research/thinking in your academic field and with changes to pedagogic practice within the School and more generally;
2. Where the length and nature of the position permits, to apply for and, if accepted, undertake a doctoral degree (if not already acquired);
3. To undertake and successfully complete the mandatory training required by the School appropriate to the role.

## General

All academic staff are free within the law to question and test received wisdom, and put forward new ideas and controversial or unpopular opinions, to enable the School to engage in research and promote learning to the highest possible standards.

All staff at LSHTM are also expected to:

1. Act at all times in the School's best interests;
2. Treat School staff, students and visitors with courtesy and respect at all times;
3. Comply fully with School policies, procedures and administrative processes relevant to the role, including when acting as Principal Investigator, accepting academic, managerial, financing and ethical responsibility for a project
4. Uphold and support the School's values (as set out in the School Strategy);
5. Act as ambassadors for the School when hosting visitors or attending external events.

*The above list of duties is not exclusive or exhaustive and the role holder will be required to undertake such tasks as may reasonably be expected within the scope and grading of the role.*

*Role descriptions should be regularly reviewed to ensure they are an accurate representation of the role.*

## Person Specification

This form lists the essential and desirable requirements needed by the post holder to be able to perform the job effectively.

Applicants will be shortlisted solely on the extent to which they meet these requirements.

### Essential criteria:

1. A postgraduate degree, ideally a doctoral degree, in a relevant topic.
2. Relevant experience in developing and implementing data science workflows for infectious disease analysis.
3. Contributions to written output, preferably peer-reviewed, as expected by the subject area/discipline in terms of types and volume of outputs.
4. Proven ability to work independently, as well as collaboratively as part of a research team, and proven ability to meet research deadlines.
5. Evidence of excellent interpersonal skills, including the ability to communicate effectively both orally and in writing
6. Evidence of good organizational skills, including effective time management.
7. Demonstrable interest in the epidemiology of epidemic-prone infections.
8. Evidence of commitment to open and collaborative science.
9. Experience with analysis and package development in the R software environment.
10. Willingness/ability to travel to international conferences and the field (subject to restrictions resulting from COVID-19).

### Desirable Criteria:

1. Some experience of contributing to research grant applications.
2. Some experience of teaching and assessment.
3. Some experience of supervising and supporting junior researchers and/or research degree students, and non-academic staff.
4. Experience of generating high quality peer-reviewed research into the dynamics of infectious diseases.
5. Experience of working with a range of epidemiological data sources and integrating them in analysis.
6. Ability to collaborate effectively with public health agencies and organisations.
7. Experience of developing collaborative and reproducible code for data analysis and statistical inference.



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## Salary and Conditions of Appointment

The post is full time 35 hours per week, 1.0 FTE and fixed-term until 31 August 2024 with a possibility of extension subject to funding. The post is funded by the New Venture fund.

The salary will be on the Academic Pathways salary Grade 6 in the range of £41,829 - £47,503 per annum (inclusive). The post is subject to LSHTM terms and conditions of service. Annual leave entitlement is 30 working days per year, pro rata for part time staff. In addition to this there are discretionary "Wellbeing Days". Membership of the Pension Scheme is available. A package of overseas allowances is available including allowance for accommodation. The post is available immediately and will be based in The Gambia.

Applications should be made on-line via our website at <http://jobs.lshtm.ac.uk>. Applications should also include the names and email contacts of 2 referees who can be contacted immediately if appointed. Online applications will be accepted by the automated system until 10pm of the closing date. Any queries regarding the application process may be addressed to [jobs@lshtm.ac.uk](mailto:jobs@lshtm.ac.uk).

The supporting statement section should set out how your qualifications, experience and training meet each of the selection criteria. Please provide one or more paragraphs addressing each criterion. The supporting statement is an essential part of the selection process and thus a failure to provide this information will mean that the application will not be considered. An answer to any of the criteria such as "Please see attached CV" will not be considered acceptable.

Please note that if you are shortlisted and are unable to attend on the interview date it may not be possible to offer you an alternative date.

## Asylum and Immigration Statement

This post is based overseas and candidates will be required to email a copy of their passport (and visa if applicable) to HR prior to their interview and if appointed will be asked to send a notarised copy of their passport prior to their start date.

Applicants will be required to have the right to work in the country in which the post is based (or be eligible to apply for a suitable work visa).

Date amended: Sept 2022

## Academic Expectations: Research Fellow

Examples of expected types of activities are listed; the selection of activities will vary from year to year and not all activities in each category would necessarily be done in any one year. The statement in each shaded heading summarises the general expectations for contributions in each category. Research Fellows employed on research projects will be expected to focus on Knowledge Generation, in accordance with their job description, but some activity in other areas is required and will support career progression. Research Fellows predominantly employed to support Education will be expected to focus on Education, again as reflected in their job description.

### ***Knowledge generation: Independent contributions and a clear trajectory towards excellence in knowledge generation***

#### *Research and scholarship*

- Undertaking research
- Working with PIs to draft grant proposals and/or leading writing of small grants, work packages or sections of larger proposals or personal fellowship applications
- Contributing to peer-reviewed and other research outputs, including as first author, as expected by the subject area/discipline in terms of types of output
- Poster/oral presentations at relevant conferences, translation of research findings into educational materials
- Social media contributions such as twitter, blogs, web-based media or webinars

#### *Reflective practice and critical enquiry (RPaCE)*

- Contributing to RPaCE activities
- Designing evaluation studies
- Disseminating learning and experiences through presentations, blogs etc
- Contributing to enhancing teaching practice of others: e.g. mentoring, teaching observation and feedback

#### *Doctoral degree supervision*

- For RFs with Doctorate, some contribution to doctoral degree supervision is encouraged (e.g. specialist skills training; ad hoc advice; advisory committees). RFs without a Doctorate may also advise in areas of specialist knowledge

#### *Research management, leadership and support*

- Effective management of own time and activities
- Management of small research grants or elements of larger grants, including management of data collection and relationships with research collaborators, supporting/mentoring colleagues, support to grants management

#### *Professional development*

- Courses and other professional development activities, referenced to RDF
- Where the length, nature and funding source of the position permit, to apply for and, if accepted, undertake a doctoral degree (if not already acquired)

<b>Education: Basic competence in teaching and assessment</b>
<p><i>Teaching and assessment</i></p> <ul style="list-style-type: none"> <li>• Research-informed teaching and assessment contributions (e.g. contributions to modules, MSc project supervision)</li> </ul> <p><i>Educational development and innovation</i></p> <ul style="list-style-type: none"> <li>• Contributing to the development of new educational materials, learning opportunities or assessments approaches</li> </ul> <p><i>Education leadership and management</i></p> <ul style="list-style-type: none"> <li>• None expected</li> </ul> <p><i>Professional development</i></p> <ul style="list-style-type: none"> <li>• Participation in professional development activities referenced to UKPSF (e.g. HEA, PGCILT, preparation for doctoral degree supervision, shadowing more experienced colleagues); acquiring Associate Fellow HEA</li> </ul>
<b>Internal contribution: Contributions to School functioning and development</b>
<p><i>Internal citizenship including contributing to supportive academic environment</i></p> <ul style="list-style-type: none"> <li>• Contributing to at least one Department, Faculty, School, or Centre event or special interest group in any one year, including EDI activities;</li> <li>• Taking on role as Digital Champion or Decolonising the Curriculum facilitator; Supporting external School collaborations/partnerships (beyond own research or education role) where relevant</li> <li>• Support to others' success (eg careers advice to students)</li> </ul> <p><i>School leadership and management roles</i></p> <ul style="list-style-type: none"> <li>• None expected</li> </ul>
<b>External contribution: Contribution beyond the School</b>
<p><i>External citizenship</i></p> <ul style="list-style-type: none"> <li>• Contributing to learned society/conference events, journal and grant reviews etc.</li> </ul> <p><i>Knowledge translation and enterprise: not expected but options include:</i></p> <ul style="list-style-type: none"> <li>• Collecting evidence of research impact for impact case studies (e.g. policy records, correspondence with policy makers, media highlights)</li> <li>• Engaging with policy/practice/industry/NGO communities and the general public</li> <li>• Supporting MOOCs/OERs or other (e.g. educational) outreach</li> </ul>