



Job Title: Research Associate

Grade: 7

Salary: £39,906 to £46,049 per annum

Department: Public Health and Epidemiology

Hours/Contract: Full time fixed term contract until 1 August 2029

Job Family: Teaching and Research

Reference: 13266

Role Purpose

We are seeking an experienced scientist or engineer to help us develop and employ numerical models describing the transport and behaviour of chemical contaminants in the natural environment and how these influence human exposure via air, water, soil and food. The successful candidate will join the NIHR Health Protection Research Unit (HPRU) in Chemical Threats and Hazards at the University of Leicester and work closely with colleagues at the UK Health Security Agency (UKHSA) and the Health and Safety Executive (HSE). Specifically, they will contribute to three areas of the HPRU theme in Emergency Response: (i) Developing a framework for modelling chemical exposures to humans from everyday pollution (e.g. via air and drinking water) and as a consequence of major emergencies, such as large fires or the accidental release of chemicals to the environment; (ii) Employing machine learning methods to aid understanding and prediction of chemical emission and dispersion at contaminated sites, such as landfills and (iii) Exploring the value of machine learning methods to explain the profile of chemical components in the breath of human subjects.

Main Duties and Responsibilities

Research

- To develop a framework for modelling chemical exposures to human populations from everyday pollution (e.g. via air and drinking water) and as a consequence of a major unplanned chemical release, such as a large fire or transport incident causing the release of chemicals to the environment. This will involve employing existing mass balance and dispersion models and, where needed, developing new models.
- To employ machine learning methods to aid understanding and prediction of chemical emission and dispersion at contaminated sites, such as landfills.
- To apply machine learning methods to existing data on the profiles of metabolites in the breath of human subjects to explain the relation to potential exposures to environmental contaminants.
- To lead in the evaluation and interpretation of existing data from field and laboratory investigations on chemical concentrations in environmental media and in humans, and work autonomously to attain project milestones.
- To contribute to technical decisions about the choice of approaches and models which are used.
- In agreement with the line manager, to liaise with project collaborators to progress the research objectives and introduce new ones.
- To lead in writing up research findings for dissemination to the research team, the HPRU, the broader research community and to stakeholders (e.g. at national and international conferences and via research papers in international journals).
- To contribute to the development of a broader programme of research via the development of ideas for future grants and or fellowships.





Professional Development

- To engage in activities which support personal professional development, including courses to develop transferable skills such as leadership and team building.

Impact and Knowledge Exchange

- To engage in Knowledge Exchange (KE), Research Inclusion (RI) and Public and Community Engagement and Participation (PCIEP) initiatives to share research impacts and implications with stakeholders (e.g. policy makers, regulators and industry) and the general public.

Leadership and Citizenship

- To provide guidance and mentoring to PhD students and other Early Career Researchers involved in the research programme.
- To pro-actively build scientific and professional networks and collaborations (e.g. with HPRU partners and other stakeholders).

Internal and External Relationships

To attend and arrange regular meetings with the research team at Leicester and with members of the wider HPRU research team, as appropriate.

To engage in critical discussion of the research and exchange of new ideas and approaches with local, national and international research communities.

Planning and Organising

You will be required to effectively manage your time to plan your research activity and to deliver on the priorities of the project:

- Prioritise tasks within agreed work schedules;
- Plan for specific aspects of research incorporating issues such as deadlines, project milestones and overall research aims;
- Adapt daily and weekly plans to accommodate new developments and be flexible to the changing priorities of the research project;

Qualifications, Knowledge and Experience

Essential

- PhD or equivalent involving a substantial component of numerical modelling (ideally involving the development of code and some experience of employing AI/ML) or the equivalent professional qualification and experience *
- Expertise in computer programming / code development and in the application of computer models to understand and predict system behaviour (this would ideally be focused on environmental systems but experience with other systems would also be acceptable) *





- Evidence of a contribution to peer-reviewed journal papers or equivalent e.g., technical report/writing or software development *
- Evidence of proven analytical problem-solving capability *

Skills, Abilities and Competencies

Essential

- Willingness and ability to work with internal and external stakeholders*
- Evidence of continued development of subject expertise*
- Excellent communication skills – written and verbal evidenced by the ability to communicate complex information *
- Evidence of working effectively as part of a team and the ability to work independently *
- Working towards independence and ability to be involved in collaborative research

Desirable

- Evidence and commitment to Continuous Professional Development (CPD) for yourself, and encourage commitment to learn and develop in others

****Criteria to be used in shortlisting candidates for interview***

Reason for Fixed Term Contract (DELETE IF NOT REQUIRED)

The reason for the fixed term contract is stated in section 1.9 in the summary of contractual terms in your contract of employment.

Criminal Declaration

If you become an employee, you must inform your manager immediately, in writing, if you are the subject of any current or future police investigations/legal proceedings, which could result in a criminal offence, conviction, caution, bind-over or charges, or warnings.

Supporting University Activities

As a University of Leicester citizen, you are encouraged to support key university activities such as clearing, graduation ceremonies, student registration and recruitment open days. We encourage all staff as citizens to work flexibly across the University if required. If supporting these activities is likely to affect your workload, please speak to your line manager in the first instance

University Values





Inclusive - We are diverse in our makeup and united in ambition. Our diversity is our strength and makes our community stronger.

Inspiring - We are passionate about inspiring individuals to succeed and realise their ambitions. We challenge our community to think differently, to get involved, and to constantly embrace new ideas.

Impactful - As Citizens of Change we will generate new ideas which deliver impact and empower our community

Freedom of Speech

The University is committed to upholding freedom of speech and academic freedom within the law throughout our recruitment processes. We ensure that all candidates are considered based on merit and suitability for the role, without regard to their lawful viewpoints or the expression of challenging or controversial ideas. Our recruitment policies and practices are designed to protect applicants from discrimination or adverse treatment on the basis of their opinions, and to foster an environment where open debate and diverse perspectives are valued as essential to our academic mission.

Equity and Diversity

We believe that equity, diversity and inclusion is integral to a successful modern workplace. By developing and implementing policies and systems that challenge stereotypes across all aspects of our work, we have a culture that recognises and values the diverse contributions of our staff which benefits everyone. Our strong values of inclusivity and equality support our efforts to attract a diverse range of high quality staff and students, and identify our University as a progressive and innovative workplace that mainstreams equality, diversity and inclusion.

