



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

**Research Fellow in Infection Transmission Modelling (2 roles available),
Faculty of Engineering and Physical Sciences**



Salary: Grade 7 (£33,797 – £40,322 p.a.)

Reference: EPSCV1024

Closing date: Monday 21 December 2020

Fixed-term for 12 months

We will consider flexible working arrangements

Research Fellow in Infection Transmission Modelling (2 roles available), School of Civil Engineering & School of Mathematics.

Are you an enthusiastic and motivated researcher with an interest in developing models to understand environmental transmission of COVID-19? Would you like to use your mathematical skills to understand risks and mitigations in workplaces or public transport? Are you interested in the opportunity to gain experience working in a cross-disciplinary team in collaboration with a range of partners?

We are currently recruiting mathematical modellers to work on simulating infection transmission on two projects:

TRACK project: You will develop and use computational models of infection transmission in public transport settings as part of the EPSRC funded TRACK project. This recently funded project across several universities and in collaboration with Defence Science and Technology Laboratory, Public Health England and Department for Transport aims to build robust models to evaluate COVID-19 transmission risks on public transport and determine the best mitigation strategies. You will interact with people across the other work packages to incorporate data on virus survival, human behaviour and transport usage to develop risk planning tools that can be used by transport operators to plan mitigation strategies for bus and train networks in Leeds, Newcastle and London.

National Transmission project: You will develop and apply computational models of infection transmission to a range of workplace and public settings as part of a UK government funded National Core Study to understand COVID-19 transmission. You will be part of a core modelling team that includes researchers at Defence Science and Technology Laboratory, Health and Safety Executive and several universities, and will interact with research and stakeholder partners across a large multi-partner research programme including modelling, virology, epidemiology and outbreak investigation teams.

Both projects will involve developing Quantitative Microbial Risk Assessment (QMRA) based models that consider multiple transmission routes and the interaction of people.



These will be applied to a range of scenarios to understand the risk factors for transmission and the potential for mitigation measures.

You will hold a PhD (or be close to completion) or have equivalent experience in a relevant engineering or science discipline, with strong experience of developing and applying computational simulations.

What does the role entail?

As Research Fellow your main duties will include:

- Developing QMRA based transmission risk models that incorporate droplet, aerosol and surface touch contact routes;
- Working in collaboration with the project team and stakeholder partners to ensure models appropriately capture the key features and conditions of transport, workplace or public settings as appropriate;
- Ensuring core transmission models are robust and verified, and have appropriate model documentation;
- Working with other researchers in the project team to incorporate a range of data on virus survival, human behaviour and transport usage into the models, including engaging with design of experiments and surveys to ensure the right data is available for models;
- Regularly analysing outputs from the QMRA models to determine the relative importance of different transmission routes, impacts of mitigation measures and priorities for ongoing modelling;
- Engaging with non-academic stakeholders to determine their priority questions and to share outcomes from the risk modelling including incorporating into a risk planning tool;
- Engaging with the project team, providing regular updates on progress and sharing data with other researchers;
- Communicating research results through presentations, journal publications and project reports;
- Committing to ensuring the highest standards of integrity in research to ensure policy makers have confidence in the outcomes.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.



What will you bring to the role?

As a Research Fellow you will have:

- A PhD (or be close to completion) or equivalent experience in a relevant mathematical, engineering or science discipline;
- Strong quantitative skills including experience with stochastic modelling, Markov processes and computational simulations;
- Strong programming experience using Python and/or R applied to developing computational simulations;
- Experience of linking models with data, including statistical approaches for considering uncertainty and variability in the data;
- The ability to produce good visual outputs from simulations for different stakeholder audiences;
- Experience in communicating with technical specialists and external stakeholders including clearly presenting complex research results to non-specialist audiences;
- Good written communication skills with experience of writing reports, conference papers or journal papers;
- Good time management and planning skills, with the ability to meet tight deadlines, and work effectively;
- The ability to work independently and take the initiative, and also engage effectively with others in a team;
- The ability to work flexibly and adapt a work programme depending on priorities within the project;
- The ability to work with sensitive data, maintain appropriate documentation and to commit to maintaining confidentiality where necessary within the project.

You may also have:

- Experience with infection risk modelling, parametrization with data and dose-response approaches;
- Experience with agent-based modelling;
- Experience with R shiny app development;
- Knowledge of airborne or hand-surface pathogen transmission mechanisms;
- Data visualization experience;
- Some experience in working with non-academic partners.



How to apply

You can apply for this role online; more guidance can be found on our [How to Apply](#) information page. Applications should be submitted by **23.59** (UK time) on the advertised [closing date](#).

Contact information

To explore the post further or for any queries you may have, please contact:

[Dr Martin Lopez-Garcia](#), Lecturer, School of Mathematics.

Email: M.LopezGarcia@leeds.ac.uk

[Professor Cath Noakes](#), Professor of Environmental Engineering for Buildings, School of Civil Engineering.

Email: C.J.Noakes@leeds.ac.uk

Additional information

Faculty and School Information

Further information is available on the research and teaching activities of the [Faculty of Engineering and Physical Sciences](#) and the [School of Civil Engineering](#).

A diverse workforce

The Schools in the Faculty of Engineering & Physical Sciences are proud to have been awarded the Athena SWAN [Bronze or Silver](#) Award from the Equality Challenge Unit, the national body that promotes equality in the higher education sector. Our [equality and inclusion webpage](#) provides more information.

Working at Leeds

Find out more about the benefits of working at the University and what it is like to live and work in the Leeds area on our [Working at Leeds](#) information page.

Candidates with disabilities

Information for candidates with disabilities, impairments or health conditions, including requesting alternative formats, can be found on our [Accessibility](#) information page or by getting in touch with us at disclosure@leeds.ac.uk.



Criminal record information

Rehabilitation of Offenders Act 1974

A criminal record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our [Criminal Records](#) information page.

