



Job title	Research Associate/Fellow	Job family and level	Research & Teaching Level 4 (Appointment will be Level 4 Career training grade where an appointment is made before PhD has been completed)
School/ Department	Mathematical Sciences	Location	University Park Campus

Purpose of role

The purpose of this role will be to have specific responsibility for the delivery of research objectives and proposals associated with the UKRI Cross Research Council funded Project - *Advanced Interdisciplinary Models of dEstructive lung Disease: AIMED*.

The main aim of this programme of work is to use a multidisciplinary approach to advance our mechanistic understanding of destructive lung diseases such as chronic obstructive pulmonary disease (COPD) and lymphangioliomyomatosis (LAM). The programme will use quantitative imaging, biological and clinical data of tissue injury and repair from LAM and COPD patient lungs alongside the development of mathematical and computational models to predict changes in lung structure and function. This is a collaboration between the Universities of Nottingham, Leicester and Birmingham.

The researcher will join a team, led by Professor Bindi Brook and Dr Reuben O’Dea, who develop mathematical and computational models linking cellular mechanisms with tissue level biomechanics. The team includes Professors Simon Johnson and Ian Sayers whose main areas of research include understanding the molecular and cellular basis of respiratory disease, Dr Gowsh Poologundarampillai (U. Birmingham) who has expertise in high-resolution tissue imaging and Dr Himanshu Kaul (U. Leicester) whose expertise is in linking genetics with cellular behaviour via agent-based computational models.

- Have specific responsibility for research, for fulfilling research objectives and developing proposals with Bindi Brook and Reuben O’Dea on the UKRI CRCRM funded project "Advanced Interdisciplinary Models of dEstructive lung Disease (AIMED)"
- Plan and conduct work using approaches or methodologies and techniques appropriate to the type of research.
- Be responsible for writing up their work for publication and have the opportunity to use their initiative and creativity to identify areas for research, develop research methods and extend their research portfolio.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time per year
1	Research <ul style="list-style-type: none"> ▪ Undertake original research of international excellence. ▪ Develop research objectives and proposals for own and/or collaborative research area. ▪ Plan and conduct research using recognised approaches, methodologies and techniques within the research area. 	70%

	<ul style="list-style-type: none"> ▪ Collaborate with academic colleagues on areas of shared interest for example, collaborative or joint research projects. ▪ Plan and manage own research activity and resolve problems, if required, in meeting own/team research objectives and deadlines in collaboration with others. ▪ Identify opportunities and assist in writing bids for research grant applications. 	
2	<p>Engagement, Communication and Dissemination</p> <ul style="list-style-type: none"> ▪ Analyse and illuminate data, interpret reports, evaluate and criticise texts and bring new insights to research area. ▪ Prepare papers for publication in leading journals and/or contribute to the dissemination at national/international conferences, workshops and meetings resulting in successful research outputs. ▪ Provide support, guidance and supervision to other staff, where appropriate in own area of expertise. 	20%
3	<p>Project Administration</p> <ul style="list-style-type: none"> ▪ Prepare proposals and applications to both external and/or internal bodies for funding, contractual or accreditation purposes.. ▪ Co-ordinate the operational aspect of research networks, for example, arranging meetings and updating web sites etc and contribute to collaborative decision making with colleagues in area of research. ▪ Utilise and contribute to organising research resources and facilities and workshops as appropriate. 	10%

Person specification

	Essential	Desirable
Skills	<ul style="list-style-type: none"> ▪ Excellent oral and written communication skills, including the ability to communicate with clarity on complex information. ▪ Excellent organisational skills ▪ High analytical ability to analyse and illuminate data, interpret reports, evaluate and criticise texts and bring new insights. ▪ Ability to creatively apply relevant research approaches, models, techniques and methods. ▪ Ability to assess and organise resource requirements and deploy effectively. ▪ Ability to build relationships and collaborate with others, both internally and externally. ▪ Ability to work independently and as part of a multidisciplinary and multicultural team 	<ul style="list-style-type: none"> ▪ Ability to foster a research culture and commitment to learn in others.
Knowledge and experience	<ul style="list-style-type: none"> ▪ Expert knowledge of multiscale mathematical and computational modelling in applied mathematics and/or mathematical biology and/or soft tissue mechanics (biomechanics). ▪ Proven ability to produce research of high quality in mathematical biology/biomechanics or closely related discipline. ▪ Some practical experience of applying the specialist skills and approaches and techniques required for the role. ▪ Networking, actively engaging with and valuing other areas and diverse groups 	<ul style="list-style-type: none"> ▪ Background knowledge in one or more of the following <ul style="list-style-type: none"> - respiratory disease - lung mechanics - tissue remodelling - poroelasticity - Bayesian approaches for parameter inference - data-driven modelling ▪ Published papers in relevant academic journals. ▪ Previous success in gaining support for externally funded research projects. ▪ Experience of developing new approaches, models, techniques or methods in research area.
Qualifications, certification and training (relevant to role)	<ul style="list-style-type: none"> ▪ PhD or equivalent, in a relevant branch of mathematics or a closely related discipline OR near to completion of a PhD. 	



The University strongly endorses Athena SWAN principles, with commitment from all levels of the organisation in furthering women's careers. It is our mission to ensure equal opportunity, best working practices and fair policies for all.

Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University's strategy, vision and values. The following are essential to the role:

- Valuing people** Is always equitable and fair and works with integrity. Proactively looks for ways to develop the team and is comfortable providing clarity by explaining the rationale behind decisions.
- Taking ownership** Is highly self-aware, looking for ways to improve, both taking on board and offering constructive feedback. Inspires others to take accountability for their own areas.
- Forward thinking** Driven to question the status quo and explore new ideas, supporting the team to "lead the way" in terms of know-how and learning.
- Professional pride** Sets the bar high with quality systems and control measures in place. Demands high standards of others identifying and addressing any gaps to enhance the overall performance.
- Always inclusive** Ensures accessibility to the wider community, actively encouraging inclusion and seeking to involve others. Ensures others always consider the wider context when sharing information making full use of networks and connections.

Key relationships with others

