



Job Title:	Post-Doctoral Research Associate
Grade:	7
Salary:	£38,205 to £44,263 per annum (pro rata if part-time) due to funding restrictions
Department:	School of Psychology and Vision Sciences
Hours/Contract:	Full-time, or job share considered, fixed term contract until 28 February 2027
Job Family:	Teaching and Research
Reference:	9923

Role Purpose

You will take a key role in the generation and integration of data from genomic epidemiology, machine learning and bioinformatic projects, working together with collaborating scientists in other disciplines, to drive mechanistic and applied health research in a range of ocular and systemic diseases. Research will include genome-wide and phenome-wide association studies, as well as carrying out a wide range of computational techniques including application of deep learning to imaging datasets. Based on candidates' interest, there are opportunities to also be involved in wet-lab experiments including CRISPR-Cas9 mutagenesis and retinal disease modelling.

You will be expected to attend both virtual and in-person meetings with local team members on a weekly basis and will usually be expected to be present on campus.

You will join an internationally-renowned research group (Ulverscroft Eye Unit), with a strong track record of funding from MRC, NIHR, charities and industry collaboration, and which has a major focus on training and capacity building.

Resources Managed

Large scale genotype and phenotype datasets

Supervision of clinical studies

Supervision of research staff and PhD/iMSc/project students

Main Duties and Responsibilities

Research

The Research Associate will be expected to take a leading role in study design and determining the direction of the research programme to investigate the role of image derived phenotypes in disease prediction and modelling. Specifically, the Research Associate will be expected to:

- To integrate genetic epidemiology and bioinformatic data from multiple sources to prioritise genes for functional characterisation. This will be undertaken within the existing inter-disciplinary collaboration and will involve regular interaction with the wider team which includes, clinicians, computational scientists and molecular/cellular biologists.
- To lead genetic epidemiology analyses to discover or refine genetic associations with retinal traits.





- To contribute to the overall interdisciplinary research programme by applying innovative research methods, novel approaches and techniques.
- To lead in the collection, evaluation and interpretation of the research data in experimental design and performance, and work autonomously to attain project milestones, including consenting families with children as required
- To contribute to the development of the choice of techniques, critiques, approaches, models and methods
- In agreement with the line manager, liaise with project collaborators to progress the research
- To lead in writing up research findings for dissemination amongst the research team and broader international community, and develop ideas and contributions for future grants, technical outputs.
- To represent the research group by disseminating results/findings at national and international conferences and broader community. To engage with outreach or teaching activities led by the research group.
- To contribute to research outputs as a co-author to journal articles.
- To develop and carry out a plan to extend an area of personal research, or contribute as a team member to the development of a broader programme, this may include contributing to the writing of research bids/grants.
- With the support of colleagues, identify opportunities to apply for fellowships and/or further project grants
- To provide guidance to other staff and students (involved in the research programme).
- To actively seek opportunities to carry out multi-disciplinary research with other research groups at the University or stakeholders external to the University, with the approval of the Principal Investigator (PI).

Professional Development

- Duties and opportunities to engage in work that support your own professional development.

Impact and Knowledge Exchange

- Network and contribute to the maintaining and furthering of the wider research programme and research area
- To contribute to industry collaborations
- To consult effectively on own specialism directly with people external to the University
- To engage positively and pro-actively in research impact

Leadership and Citizenship

- Guidance to other team members both research staff and students
- Pro-actively build networks and collaborations.





- Providing mentoring and coaching to Early Career Researchers and research students.

Internal and External Relationships

- Collaboration with research and healthcare professionals within the University of Leicester, University Hospitals of Leicester and external collaborating sites, NHS patients
- Initiate and maintain collaborations with other researchers, scientists and clinicians, both nationally and internationally to support research students, members of the clinical team and other staff members to provide advice and guidance on projects and to enhance the groups' profile.
- To liaise with ethics committees and regulatory bodies such as the Medicines and Healthcare products Regulatory Agency (MHRA) and University Hospitals of Leicester NHS Trust (UHL) Research & Development (R&D) Directorate to ensure research is of high quality, ethically sound and of benefit to patients and to provide advice on this to the wider research team
- Regular meetings members of the research group.
- Day to day supervision of under-graduate and post-graduate research students.
- Liaise on a daily basis with academics, post docs, post grads, and technicians within the laboratory regarding availability of equipment and materials, exchange of information and discussion of research and ideas.
- Interact with other members of the department for critical discussion of the research and exchange of new ideas and approaches that might benefit the research.
- Take part in and present findings at regular group meetings
- Attendance and presentation of work in progress at national and international meetings of relevance to the research program.
- Regular contact with external collaborators to discuss research progress and dissemination of findings
- NHS patients, including children, and their families

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 up to 4 months ahead 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 in appropriate discipline or the equivalent professional qualification and experience (already-awarded or thesis completion expected by the time of taking up the post)*





- Demonstrated experience in bioinformatics, computational biology, or a related field, with a strong focus on genetic data analysis and statistical genetics methodologies such as GWAS (Genome-Wide Association Studies) and PheWAS (Phenome-Wide Association Studies).*
- Proficient in the use of statistical programming languages (e.g., R, Python) for complex data analysis and familiarity with bioinformatics tools and databases.*
- Knowledge of human genetics*
- Evidence of research productivity (including contributing to high-quality research publications and presentations) *
- Evidence of proven analytical problem-solving capability *
- Consent training or willingness to obtain

Desirable

- Practical experience in conducting lab-based genetic experiments, such as CRISPR-Cas9 mutagenesis and expression assays, demonstrating a blend of computational and experimental skills.
- Familiarity with artificial intelligence (AI) and machine learning (ML) techniques, especially as applied to biological datasets and imaging data, including the use of deep learning frameworks (e.g., TensorFlow, PyTorch) for predictive modelling and analysis.
- Proven track record in interdisciplinary research, bridging the gap between computational biology, genetics, and laboratory experimentation

Skills, Abilities and Competencies

Essential

- Excellent communication skills – written and verbal evidenced by the ability to communicate complex information *
- Willingness and ability to work with internal and external stakeholders*
- Evidence of continued development of subject expertise*
- Strong computational and analytical skills, with the ability to develop and apply novel computational approaches to genetic data for disease prediction and modelling.
- Proficient in managing and analysing large-scale datasets, including genotypic and phenotypic data, as well as electronic health records, using advanced statistical and computational methods.
- Demonstrated ability to conduct high-quality research, as evidenced by peer-reviewed publications or contributions to major projects in the field of computational biology or genetic research.
- Evidence of working effectively as part of a team and the ability to work independently *
- Effective planning and organisational skills
- To demonstrate research potential and enthusiasm of the subject area and deliver high quality research (shown by appropriate publications)
- Working towards independence and ability to be involved in collaborative research
- Evidence and commitment to Continuous Professional Development (CPD) for yourself, and encourage commitment to learn and develop in others





- Ability to supervise research students and junior staff as required

Desirable

- Knowledge of AI and ML applications in biology, with the ability to use these technologies for the enhancement of research in genomics and phenotyping studies.
- Practical skills in laboratory techniques related to genetics and molecular biology, with an eagerness to apply these skills in conjunction with computational methods for comprehensive research outcomes.
- Excellent problem-solving skills, with a creative and innovative approach to tackling scientific questions and the ability to adapt to new technologies and methodologies.

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

Reason for Fixed Term Contract

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 and Disclosure and Barring Service (DBS)

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.

This post is exempt from the Rehabilitation of Offenders Act 1974 because the appointee will have substantial access to young people and/or vulnerable adults. Therefore, an appointment to this post will be subject to checking through the Disclosure and Barring Service (DBS). The successful applicant for this post will, therefore, be required to give consent for the University to check and obtain appropriate clearance with the DBS for the existence and content of any criminal record in the form of an Enhanced DBS with Child Workforce.

Information received from the DBS and the police will be kept in strict confidence and will be destroyed once the University is satisfied in this regard.

NHS Research Governance Requirements

Where it is determined that the duties of this post for the purposes of research involve work with the NHS, it is necessary to ensure that the performance of the duties attached to the post are covered by NHS research governance arrangements and the appointee must comply with all such arrangements, which may include occupational health clearance and DBS clearance.

Supporting University Activities

As a University of Leicester citizen, you are expected to support key university activities such as clearing, graduation ceremonies, student registration and recruitment open days. We expect all staff as citizens to work flexibly across the University if required





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

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 equity 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 equity, diversity and inclusion.

