



MRC
Biostatistics
Unit



UNIVERSITY OF
CAMBRIDGE

Research Associate

MRC Biostatistics Unit

CLOSING DATE 22nd September 2024

Job Reference: SL43016



Research Associate

Salary:

£36,024 - £44,263

Contract:

Fixed Term - 3 years

Location:

Cambridge

Faculty / Department:

MRC Biostatistics Unit

Responsible to:

Dr. Paul Kirk

Working Pattern:

Full Time / Part Time

Purpose of the role

- The post-holder will develop probabilistic machine learning and/or computational statistics approaches for the analysis of biomedical data
- Specifically, the successful applicant will contribute to projects related to either:
 - probabilistic machine learning approaches for integrative analyses of biomolecular datasets,
 - large-scale Bayesian inference, particularly for models used in the analysis of electronic health record (EHR) data, or
 - Gaussian process regression models to predict dose-response surfaces in combination drug screens.
- The post-holder will be a member of Dr Paul Kirk's research group, as well as the broader *Biostatistical Machine Learning* (BML) research theme at the MRC Biostatistics Unit and will contribute to the local research community by attending and contributing to group, theme and departmental meetings.
- The above will contribute to the core research mission of the MRC Biostatistics Unit

Working Relationships

The post holder will report to Paul Kirk and will interact and collaborate with other postdoctoral scientists, research support staff and students in the group and across the Unit, and with external groups as necessary.

The Biostatistics Unit is committed to supporting hybrid working for all staff, but we do expect that staff will work from the office on a regular basis to help integration and to build our fantastic scientific community. Working entirely from the office is possible.

We welcome applications from those wishing to work part-time.



Main Duties

- Under the general leadership of the Programme Leader, to be responsible for all aspects of the research projects, including defining the direction of the work, conducting the research, analysing the data, preparing the work for publication and disseminating the results at meetings.
- To present their work at seminars within the Unit and at external meetings.
- To contribute to unit-wide discussions on developments within the Unit, particularly in the use of new techniques.
- To identify, develop and apply a broad range of techniques to pursue the research objectives.
- To keep up to date with developments in the field, proposing or implementing changes of direction as necessary.
- To prepare the research for publication.
- To work in collaboration with others to achieve joint research projects.
- To train students, post docs and others, and line management of group members where appropriate. Including teaching on short courses run by the Unit as required.

To contribute to the MRC's engagement with the public and in the translation of research findings into improvements in health care.

Key Responsibilities

- To make a significant input into determining the direction of the project, within the overall direction of the programme of the group and the remit of the project, and in discussion with the supervisor.
- To plan their own work and objectives on a 12-month basis and to manage their experimental work within the project along with their supervisor.
- To work with limited supervision to identify, develop, modify and apply the necessary techniques to achieve the goals of the project.
- To identify, develop and apply a broad range of techniques to pursue the research objectives.
- To ensure the research is carried out in accordance with good practice and in compliance with local policies and legal requirements.
- To interact effectively with a wide range of staff, students and others to ensure the smooth running of the research group.
- To enhance their research and generic skills through a tailored development programme.

Person Specification

Criteria	Essential	Desirable
Education		
PhD in Probabilistic Machine Learning, Computational Statistics or a relevant subject or to be in the final stages of obtaining their PhD	✓	
Appointment at Research Associate is dependent on having a PhD, (or equivalent experience is recognised), including those who have submitted but not yet received their PhD. Where a PhD has yet to be awarded or submitted appointment will initially be made at Research Assistant and amended to Research Associate when the PhD is awarded.		
Relevant Experience		
Probabilistic machine learning, Bayesian approaches, and/or the development of computational statistical methods	✓	
Experience in the application of methods for biomedical data analysis		✓
Experience with biomolecular or electronic health record (EHR) datasets		✓
Strongly motivated by a desire to make substantive contributions to biomedical research	✓	
Specialist Knowledge		
Extensive experience with Python, R, or relevant general-purpose programming languages.	✓	
Good knowledge of statistical and/or machine learning software, such as experience in creating packages.		✓
Additional requirements		
Experience in presenting scientific work, both written and orally.	✓	
Has made contributions to scientific papers.		✓
Has presented work at conferences		✓
Ability to communicate to scientists in other fields.		✓

Behavioural Attributes

This section summarises the behavioural attributes (or competencies) that we expect the role holder to be able to demonstrate, at what level and whether this is an essential or desirable requirement.

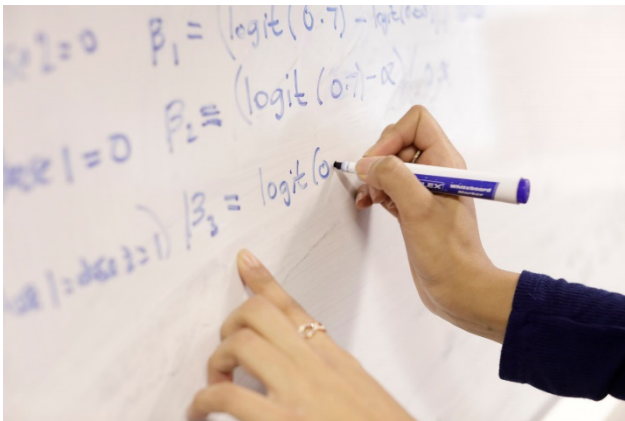
Full definitions are at: <https://www.hr.admin.cam.ac.uk/policies-procedures/behavioural-attributes>

Please review these and provide specific examples in your application of how you have demonstrated these attributes in your work, education or other experience. It will assist your application if you explain the situation, what you did and what the outcomes were.

Attribute	Level
Valuing Diversity	A
Achieving Results	B
Communication	C
Innovation and Change	C
Negotiating and Influencing	C
People Development	C
Relationship Building	B
Strategic Focus	C

MRC Biostatistics Unit

The MRC Biostatistics Unit (BSU) is one of the largest groups of biostatisticians in Europe, and a major centre for research, training and knowledge transfer. The Unit was founded in 1913 at the same time as the Medical Research Council. The BSU is internationally renowned for the strength of its research and its successful strategy of maintaining a unique balance between statistical innovation, dissemination and engagement with biomedical and public health issues. The focus of the work of the Unit is to promote the development and application of innovative statistical methods in the health sciences for the improvement of health.



BSU researchers have worked extensively to make inference for complex data accessible to the scientific community and to produce innovative methodology related to trial designs, longitudinal and event history data, meta-analysis of clinical trials, missing data, evidence synthesis in public health and statistical genetics and genomics. The BSU current research portfolio is organised into five main Themes:

- **Biostatistical Machine Learning (BML)**, focuses on machine learning (ML), artificial intelligence (AI) and computational statistics methodology for the biomedical and health sciences. The vision is to pursue a novel synthesis of AI/ML approaches with biostatistical and scientific thinking to address questions relating to robustness, interpretability, bias and causality critical to realizing the full potential of ML in the biomedical domain.
- **Causal Mechanisms (CM)** aims to develop appropriate methodology for delineating disease mechanisms from observational, generally high-dimensional, data types and data sets, to apply these methods in collaboration with clinicians and bench scientists, and to support developing or targeting of therapy.

- **Efficient Study Design (ESD)** develops state-of-the-art statistical methods to increase the efficiency of design across all stages of treatment development and evaluation to address the emerging needs of the clinical development of therapies, devices and algorithms with the aim to deliver better treatments, faster and to the right patient populations.
- **Precision Medicine (PM)** focuses on the methodological issues arising from the development of precision medicine, the need to stratify complex disease phenotypes and to perform integrative clustering based on multiple data types, to tailor risk prediction and to analyse complex longitudinal data.
- **Population Health (PH)** aims to tackle the challenges posed by population-level observational data, and, particularly, the integration of multiple data streams when addressing key national and international challenges in hospital care, disease prevention and elimination; and to capitalise on the lessons learnt through the pandemic to lead on pandemic preparedness.

Each of the themes is anchored in important scientific questions arising from our key partners, questions which both motivate methodological developments and ensure their impact. We are contributing to progress in tackling many common and rare diseases with active projects in dementia, and Alzheimer's disease, cardiovascular and metabolic diseases, , auto immune diseases, oncology, blood-borne viruses, respiratory infections and antibiotic resistance.



Director of the MRC Biostatistics Unit and Professor of Biostatistics at the University of Cambridge.

School of Clinical Medicine

Doing great work in a great place to work

About the School

The School of Clinical Medicine currently employs nearly 3,000 people, spanning all varieties of staff type from Academic Professors to administrative support.

In 1976 in response to the recommendation of the Royal Commission on Medical Education in the late 1960's, a complete medical course was re-established in Cambridge with the opening of the School of Clinical Medicine at the new Addenbrooke's Hospital site.

On 21st November 1980, HRH The Duke of Edinburgh, the Chancellor of the University of Cambridge, officially opened the Clinical School Building which presently accommodates the medical library, lecture theatres and seminar rooms.

The University of Cambridge School of Clinical Medicine aspires to change the practice of medicine and improve biological understanding in a wide range of clinical specialties and scientific disciplines. Collaborative research, both within biomedicine and crossing the boundaries to the mathematical, physical and social sciences, is key to our approach. The School also supports key enabling technologies and facilities in imaging, bioinformatics and biological systems. The main areas of research interest are:

- Cancer research
- Cardio-Respiratory Medicine
- Cellular mechanisms of disease
- Diabetes, Endocrinology and Metabolism
Epidemiology, Public Health and Primary Care Genetics and Genetic Medicine
Haematological and Transplantation Medicine
- Infection and Immunity
- Neurosciences and Mental Health
- Stems Cells and Regenerative Medicine.



Professor Patrick Maxwell, Regius Professor of Physic and Head of the School of Clinical Medicine

The School aims to provide leadership in education, discovery and healthcare. It will achieve this through; inspirational teaching and training, outstanding basic and clinical research and integration of these to improve medical practice for both individual patients and the population.

The School will:

Through inspirational teaching and training, educate individuals who:

- will become exceptional doctors or biomedical scientists
- combine a depth of scientific understanding with outstanding clinical and communication skills demonstrate a caring, compassionate and professional approach to patients and the public and
- are equipped to become future international leaders of their profession.

Through its commitment to the pursuit of excellence, support scientists of international standing in basic and clinical research aiming to:

- understand fundamental biology and thereby the mechanisms underlying disease integrate basic and clinical research
- apply a rigorous mechanism-based approach to clinical problems and
- innovate to solve the health challenges of our society.

Terms of Appointment

Tenure and probation

Appointments will be made on a fixed-term basis for a period of 3 years due to a Specific project with defined timeframe. Appointments will be subject to satisfactory completion of a six-month probationary period.

Hours of Work^[SEP] and Working Pattern^[SEP]

This post may be held on a full or part time basis.

Pension

You will automatically be enrolled to become a member of USS (Universities Superannuation Scheme) – a defined benefits pension scheme. For further information please visit:

www.pensions.admin.cam.ac.uk .

Annual leave

Full time employees are entitled to annual paid leave of 41 days inclusive of public holidays. For new part-time employees, annual leave will be pro rata'd based on days worked.

General information

Pre-employment checks

Right to work in the UK

We have a legal responsibility to ensure that you have the right to work in the UK before you can start working for us.

If you do not have the right to work in the UK already, any offer of employment we make to you will be conditional upon you gaining it.

Health declaration^[SEP] Once an offer of employment has been made the successful candidate will be required to complete a work health declaration form.

Qualifications The person specification for this position lists qualifications that are essential and/or desirable. Please

note that if you are offered the post you will be asked to provide your relevant original certificates of these qualifications.

References: Offers of appointment will be subject to the receipt of satisfactory references.

Equality and Diversity

We particularly encourage women and /or candidates from a Black, Asian and Minority Ethnic background to apply for this vacancy as they are currently under-represented at this level within our University.

Information if you have a disability

The University welcomes applications from individuals with disabilities. We are committed to ensuring fair treatment throughout the recruitment process. We will make adjustments to enable applicants to compete to the best of their ability wherever it is reasonable to do so and, if successful, to assist them during their employment.

Information for disabled applicants is available at <http://www.admin.cam.ac.uk/offices/hr/staff/disabled/>

We encourage you to declare any disability that you may have, and any reasonable adjustments that you may require, in the section provided for this purpose in the application form. This will enable us to accommodate your needs throughout the process as required. However, applicants and employees may declare a disability at any time.

If you prefer to discuss any special arrangements connected with a

disability, please contact, the Department Administrator who is responsible for recruitment to this position. Alternatively, you may contact the Clinical School Recruitment Team who are responsible for recruitment to this position via:

csrecruitment@medschl.cam.ac.uk

The University

The University of Cambridge is one of the world's oldest and most successful universities. We are a renowned centre for research, education, and scholarship that makes a significant contribution to society. The University is consistently ranked amongst the top universities in the world. Our affiliates have won more Nobel Prizes than any other University.

Our sustained pursuit of academic excellence is built on a long history of first-class teaching and research within a distinctive collegiate system. For eight centuries our ideas and innovations have shaped the world. Our principal goal is to remain one of the world's leading universities in an increasingly competitive global higher education sector. Today the University of Cambridge is at the centre of a cluster of over 4,300 businesses employing 58,000 people.

Our capital investment projects include the West Cambridge site, the North West Cambridge development and the growth of the Biomedical Campus in the south of the city. The North West Cambridge development includes the opening of a primary school – the first in the UK to be managed by a University. So we are deeply embedded in, and committed to serving, our local community. These are all conspicuous signs of a University that is not only adapting to new needs, but also anticipating the future.

Our mission is to contribute to society through the pursuit of education, learning, and research at the highest international levels of excellence. Our core values are:

- ☑ freedom of thought and expression; and
- ☑ freedom from discrimination.



About Us

The University is one of the world's leading academic centres. It comprises 150 faculties and departments, together with a central administration and other institutions. Our institutions, museums and collections are a world-class resource for researchers, students and members of the public representing one of the country's highest concentrations of internationally important collections.

The University has an annual income of £2 billion. Research income, won competitively from the UK Research Councils, the European Union (EU), major charities and industry, exceeds £500 million per annum and continues to grow.

The Colleges and the University remain committed to admitting the best students regardless of their background and to investing considerable resources both in widening access and financial support. The 31 Colleges are self-governing, separate legal entities which appoint their own staff. Many academic staff are invited to join a College as a Teaching Fellow, which provides a further social and intellectual dimension. The Colleges admit students, provide student accommodation and deliver small group teaching.

The University awards degrees and its

faculties and departments provide lectures and seminars for students and determine the syllabi for teaching and conducting research.

Our instinct for seeking out excellence and setting up enduring and mutually beneficial collaborations has led us to establish strategic partnerships across the globe. Whether it is the successful Cambridge-Africa Programme involving universities in Ghana, Uganda and elsewhere on the African continent; or the close association with the government of India to pursue new research in crop science; or the creation, with Germany's Max Planck Institutes, of a Cambridge-based centre for the study of ethics, human economy and social change – international partnerships are now an inextricable part of the University's make-up.

“Through its outstanding education, research and innovation, the University of Cambridge has made – and continues to make – a lasting contribution to human knowledge and is flourishing. By working at the University of Cambridge, you will be joining a vibrant community of students, scholars and professional services staff committed to supporting and enhancing the University's mission to contribute to

society.”

Prof Deborah Prentice,

Vice Chancellor 2023



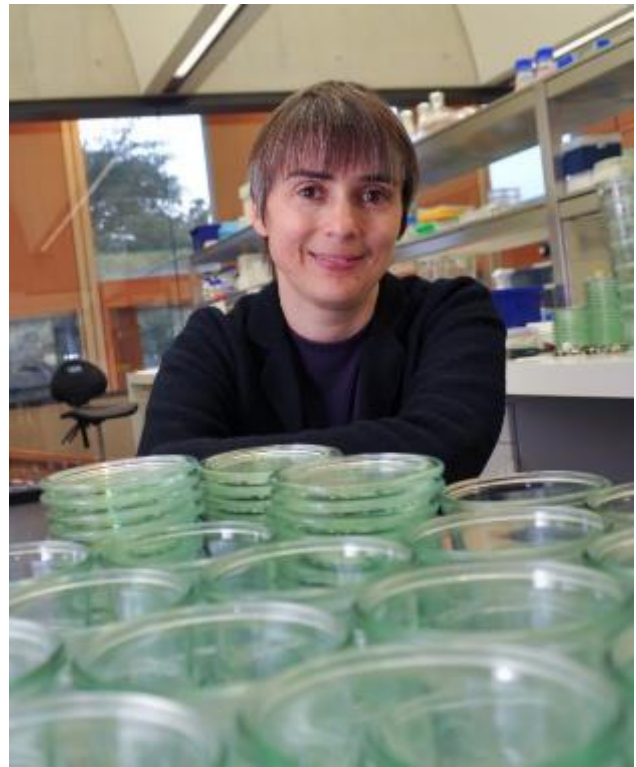
Working at the University

Working at Cambridge you will join a diverse, talented and innovative community, with more than 18,000 students and over 16,000 staff from all walks of life and corners of the world.

The University continually explores strategies to attract and retain the best people. It is committed to supporting its staff to achieve their best. We are a fair, diverse and inclusive society and we believe our staff are our greatest asset. There is strong commitment to developing institutional leadership and supporting and encouraging staff development at all levels.

We offer a variety of roles including academic, research, professional, managerial and support roles. We also offer extensive benefits and excellent learning opportunities within a stimulating working environment.

The University's estate is undergoing the most significant transformation in its history. Cambridge has been able to create a new science and technology campus to the west of the city centre, and is now expanding further to the north west of Cambridge including investing in affordable homes for University key workers and community facilities. Even with our continued development, the University remains within walking or cycling distance across the campus. The University is a major partner on the Cambridge Biomedical Campus and we continue to redevelop our historic city centre sites demonstrating our determination to ensure that we can offer the best facilities and opportunities for our staff and students. **Equality & diversity**
The University has built its excellence on the



diversity of its staff and student community. We aim to be a leader in fostering equality and inclusion, and in promoting respect and a sense of belonging for all. We encourage applications from all sections of society. All appointments are made on the basis of merit. We have an Equal Opportunities Policy, along with a range of diversity networks for women, black and minority ethnic and lesbian, gay, bisexual and transgender staff. More details are available here: <http://www.equality.admin.cam.ac.uk/>

The University has a bronze Race Equality Charter award, with framework for improving the representation, progression and success of minority ethnic staff and students within higher education. Furthermore, the University's Athena SWAN award recognises and celebrates good practice in recruiting, retaining and promoting women.

Living in Cambridge

Cambridge is rich in cultural diversity. From beautiful University and College buildings, museums and art galleries, quaint gardens and punts on the River Cam, to a vibrant restaurant and café scene, our employees are surrounded by the wonderful features of this unique city.

You can find a wide-range of high street shops and 3 shopping centres, with independent alternatives at the historic market and nestled within the passageways in the city centre. You will find a cinema, bowling alley, a nightclub and various live performances At the Cambridge Leisure Park, with further entertainment options at the Corn Exchange, Arts Theatre and the ADC Theatre. Further information can be found on the [Visit Cambridge](#) website.

If you prefer the faster pace of life, London is a 45 minute train journey away. For those travelling from overseas, Stansted Airport is just 45 minutes away and Heathrow Airport under 2 hours away. The University is a short distance from a host of other attractions such as Ely Cathedral, Newmarket Races and various wildlife parks and stately homes. Cambridge is also within easy reach of the beautiful Broads and coastlines of Norfolk and Suffolk.

Relocation Support

The University recognises the importance of helping individuals to move and settle into a new area. We provide support and guidance to those relocating internationally or domestically to take up a post at the University of Cambridge, liaising with other University offices and selected partners to ensure comprehensive relocation support is available. This includes: accommodation, childcare, schools, banking, immigration and transport. If you would like further information, please visit <https://www.accommodation.cam.ac.uk/>. The Shared Equity Scheme and the Reimbursement of Relocation Expenses Scheme provide financial assistance to qualifying new members of staff with the costs of relocating to Cambridge.

Accommodation Service

The University Accommodation Service helps staff, students and visiting scholars who are affiliated to the University in their search for suitable accommodation in Cambridge. The dedicated accommodation team can provide access to a wide range of University-owned furnished and unfurnished properties, and has a database of private sector accommodation available for short and long-term lets. For further information and to register with this free service please visit

<https://www.accommodation.cam.ac.uk/>



What Cambridge can offer

We offer a comprehensive reward package to attract, motivate and retain high performing staff at all levels and in all areas of work.

The University offers a wide range of competitive benefits, from family leave entitlement, to shopping and travel discount schemes. Our generous annual leave package contributes to the positive wellbeing of our University employees. Sabbatical leave enables academics to focus on research and scholarship, whilst still maintaining their full salary. The University also has a career break scheme for academic and academic-related staff, with additional flexible working policies for all other staff.

Pay and benefits

The University salary structure includes automatic service-related pay progression in many of its grades and an annual cost of living increase. In addition to this, employees are rewarded for outstanding contribution through a number of regular pay progression schemes. The University offers attractive pensions schemes for employees, with an additional benefit of a salary exchange arrangement providing tax and national insurance savings. Payroll giving is also a simple, tax-efficient way for employees to make monthly donations to charity.



CAMBens employee benefits

We offer a CAMbens scheme for University employees, providing access to online and in-store shopping discounts and cashback. With more than 2,000 participating retailers, employees can save money on a wide range of household expenses, from groceries and clothes, to holidays and insurance and much more. A range of local discounts are also available, helping employees to save money whilst also supporting local Cambridge businesses and a CAMbens Cycle to Work salary sacrifice scheme is also available, which enables employees to save money on transport costs. A 10% discount rate on the purchase of train season tickets, bulk buy tickets and an interest free travel to work loan are also available for staff of the University.



What Cambridge can offer

Family-friendly policies

The University recognises the importance of supporting its staff. We have a range of family-friendly policies to aid employees' work-life balance including a generous maternity, adoption and shared parental leave entitlement of 18 weeks full pay and emergency family care support via My Family Care.

Other family-friendly support includes:

Our highly regarded workplace nurseries, a childcare salary exchange scheme and a high quality holiday Playscheme may be available to help support University employees with caring responsibilities (subject to demand and qualifying criteria). Further childcare information can be found here: <https://www.childcare.admin.cam.ac.uk/>

The [Newcomers and Visiting Scholars Group](#) is an organisation within the University run by volunteers whose aim is to help newly arrived wives, husbands, partners and families of Visiting Scholars and members of the University to settle in Cambridge and give them an opportunity to meet local people. The Office of Postdoctoral Affairs supports the postdoctoral community within Cambridge. Further details are available here:

<https://www.opda.cam.ac.uk/>

Your wellbeing

The University's Sport Centre, Counselling Services and Occupational Health are just some of the support services available to University employees to promote their physical and mental wellbeing. There are many societies in Cambridge catering for almost every taste and interest. Whether you want to take part in a sport, participate in music or drama, pursue a hobby, or join a political group, you will almost certainly find that a society exists for this purpose. The University also hosts the [Cambridge Science Festival](#) and [Cambridge Festival of Ideas](#), as well as [Open Cambridge](#) weekend, which together attract over 50,000 visitors per year. The festivals are a great opportunity to get your first taste of public engagement, through volunteering, supporting hands-on activities or proposing a talk.

Development opportunities

We support new employees to settle in through various activities. The encouragement of career development for all staff is one of the University's values and we put this into practice through various services and initiatives. Our Personal and Professional Development Department provides development opportunities and courses for all University employees. These include face-to-face sessions, online learning modules and webinars. Employees may also apply for financial support to undertake training that will lead to a qualification. We offer reduced staff fees for University of Cambridge graduate courses and the opportunity to attend lectures and seminars held by University departments and institutions. Apprenticeship programmes are also available to support employees to develop their skills, experience and qualifications.



Clinical School Benefits



Clinical School Wellbeing Programme
connect • be active • keep learning • give • take notice

Cambridge Biomedical Campus

Being based on Cambridge Biomedical Campus gives the University of Cambridge School of Clinical Medicine employees an unrivalled range of on-site amenities.

These include:

Core amenities

- Marks & Spencer Simply Food
- Clothes & Gift shops
- The Body Shop
- Newsagent
- Barclays Bank
- Hairdressers
- Costa Coffee/Starbucks
- Various food outlets

Sports and Leisure

The Frank Lee Sports and Leisure Centre on the Campus is open to everyone who works on the Campus including employees of companies. The Centre offers a comprehensive range of activities for both adults and children (during the school holidays). Facilities include a 25m heated indoor pool, tennis and squash courts, cardio gym and fitness rooms. There is also a licensed bar, restaurant and function rooms.

Childcare

Bright Horizons Long Road nursery is located on the Campus making it an ideal location for parents who work at the site. The nursery is purpose built and houses five home bases, each designed specifically for babies, toddlers and pre-school children, as well as a spacious and secure external area in which children can play and explore the outdoors.

Apprenticeship opportunities

These are available for new and current members of staff to earn while they learn. The University is committed to nurturing talent and developing expertise through providing relevant vocational and professional apprenticeships across all of its departments and institutions.

Clinical School Wellbeing Programme

Following the launch of the Clinical School Wellbeing Programme in April 2014 it has continued to develop and grow each year. The School holds regular wellbeing talks and events in addition to hosting two dedicated Wellbeing Weeks packed with activities for staff each year. Activities include staff massages, smoothie bikes, step challenges, arts and crafts sessions and many more.

The School also has a team of Mental Health First Aiders recruited and trained from our own pool of staff. The School is always looking for new ways to engage staff and encourage them to look after their physical and mental wellbeing.



Equality, Diversity and Inclusion

The School of Clinical Medicine has a dedicated governance group overseeing equality, diversity and inclusion related activities. Regular talks are held throughout the year and all staff members are expected to undertake Equality and Diversity training.

The School has a number of networks for different staff groups encouraging communication and sharing of practices. There is also a growing network of 100+ Equality Champions who meet termly and help raise awareness of equality, diversity and inclusion within their departments. The School currently holds a silver Athena SWAN award utilising the process to critically analyse all areas of equality and diversity within the school.

How to apply

Applications should be submitted online via the University of Cambridge jobs page www.jobs.cam.ac.uk by clicking “Apply online” in the job advert. You will need an email address to register for our online system.

Conversations about flexible working are encouraged at the University of Cambridge. Please feel free to discuss flexibility prior to applying (using the contact information below) or at interview if your application is successful.

Informal enquiries are welcomed and should be directed to:

Dr. Paul Kirk

Email: paul.kirk@mrc-bsu.cam.ac.uk

If you have any queries regarding the application process please contact Andrea Wadeson at andrea.wadeson@mrc-bsu.cam.ac.uk

The closing date for applications is: 22nd September 2024

The interview date for the role is: To be confirmed