

## Summary

<b>Job title</b>	Summer Studentship in Planetary Health Informatics
<b>Division</b>	Medical Sciences Division
<b>Department</b>	Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences
<b>Location</b>	Botnar Research Centre, Windmill Road, Oxford, OX3 7LD
<b>Grade and salary</b>	Grade 3: £10.33 per hour This is short term casual engagement (for duration of up to 8 weeks in total).
<b>Hours</b>	Full time
<b>Reporting to</b>	Dr Sara Khalid

## The role

Understanding the determinants of childhood health inequity has never been more urgent, given its influence on life-long health and lifestyle. It is increasingly recognized that the environment plays an important role in health in/equity and that it provides important potential for community-level intervention. However there are important gaps in the knowledge about the impact of changing environment on childhood health e.g. moving from urban to rural environments and vice versa.

The overarching objective is to examine how changes in the environment (air pollution, green spaces, social environment, built environment, unhealthy food environment) influence childhood health equity by applying artificial intelligence methods to analyse a unique and complex electronic record database of 1.6 million children living in urban and rural environments.

This opportunity would suit someone with skills and interest in data science and health.

The successful candidate will work under supervision of an international and interdisciplinary team of experts.

## KEYWORDS

**Electronic medical records, Health Equity, Machine Learning, Real-world Data, Environment**



## **SUPERVISORS**

**Dr Sara Khalid** has internationally-recognised expertise in applied machine learning for health. She leads the [Planetary Health Informatics Lab](#) at the Centre for Statistics in Medicine, University of Oxford, UK.

**Professor Martine Vrijheid** has published extensively in the field of environmental epidemiology, and is considered an authority on childhood health and environment. She is the Head of the [Childhood and Environment Programme at IS Global](#), Spain.

**Dr Talita Duarte-Salles** is a Chief Scientist and Coordinator of the [SIDIAP](#), the flagship Catalonia health database hosted by Institut Universitari d'Investigació en Atenció Primària (IDIAPJGol; Primary Care Research Institute Jordi Gol), Barcelona, Spain.

## **Responsibilities**

1. *Your primary duties are to support the analysis of routinely collected anonymised patient records that have been linked with environmental data, with support from your supervisors.*
2. *You will be expected to contribute to an analysis plan based on the study protocol, and assist to execute the analysis by writing a code in R, Python, or Matlab.*
3. *Contribute to the statistical/machine learning methods appropriate for the analysis.*
4. *You will be expected to submit a written report by the end of the study.*

## **Selection criteria**

### **Essential selection criteria**

- *You will require a good background knowledge in: data science, biostatistics, or computer science;*
- *You will require a good background knowledge in : programming in R, Python, or Matlab;*

### **Desirable selection criteria**

- *Experience working with electronic medical records/routinely collected data;*
- *Experience of working within an academic environment.*

## **Pre-employment screening**

### **Standard checks**

If you are offered the post, the offer will be subject to standard pre-employment checks. You will be asked to provide: proof of your right-to-work in the UK; proof of your identity; and (if we haven't done so already) we will contact the referees you have nominated. You will also be asked to complete a health declaration so that you can tell us about any health conditions or disabilities for which you may need us to make appropriate adjustments.

Please read the candidate notes on the University's pre-employment screening procedures at: <https://www.jobs.ox.ac.uk/pre-employment-checks>

## About the University of Oxford

Welcome to the University of Oxford. We aim to lead the world in research and education for the benefit of society both in the UK and globally. Oxford's researchers engage with academic, commercial and cultural partners across the world to stimulate high-quality research and enable innovation through a broad range of social, policy and economic impacts.

We believe our strengths lie both in empowering individuals and teams to address fundamental questions of global significance, while providing all our staff with a welcoming and inclusive workplace that enables everyone to develop and do their best work. Recognising that diversity is our strength, vital for innovation and creativity, we aspire to build a truly diverse community which values and respects every individual's unique contribution.

While we have long traditions of scholarship, we are also forward-looking, creative and cutting-edge. Oxford is one of Europe's most entrepreneurial universities and we rank first in the UK for university spin-outs, and in recent years we have spun out 15-20 new companies every year. We are also recognised as leaders in support for social enterprise.

Join us and you will find a unique, democratic and international community, a great range of staff benefits and access to a vibrant array of cultural activities in the beautiful city of Oxford.

For more information, please visit [www.ox.ac.uk/about/organisation](http://www.ox.ac.uk/about/organisation).

### Medical Sciences Division

The Medical Sciences Division is an internationally recognised centre of excellence for biomedical and clinical research and teaching. We are the largest academic division in the University of Oxford.

World-leading programmes, housed in state-of-the-art facilities, cover the full range of scientific endeavour from the molecule to the population. With our NHS partners we also foster the highest possible standards in patient care.

For more information please visit: [www.medsci.ox.ac.uk](http://www.medsci.ox.ac.uk)

### Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences

The Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences (NDORMS) is part of the Medical Sciences Division and is the largest European academic department in its field, running a globally competitive programme of research and teaching.

Our mission is to discover the causes of musculoskeletal and inflammatory conditions to deliver excellent and innovative care that improves people's quality of life. Our highly skilled teams have expertise in a broad range of areas, including orthopaedic surgery, inflammation, immunology, rheumatology, medical statistics, epidemiology, and clinical trials.

We currently have 460 staff, 100 students and have a grants portfolio worth over £148 million, and an annual turnover in excess of £38 million.

## Centre for Statistics in Medicine

The Centre for Statistics in Medicine (CSM) (Director: Professor Sallie Lamb) in Oxford is committed to providing collaborative statistical support for the design, analysis and reporting of clinical research, carries out a methodological research programme and runs training courses.

One of several teams within CSM, the Statistical Support Team of 13 statisticians collaborates in clinical trials and other research within the University, with local and regional NHS trusts and with academic and charitable organisations throughout the UK. It also forms the statistical section of the cancer stream of Oxford Clinical Trials Research Unit (OCTRU), one of the UKCRC registered clinical trials units. In addition the team provides statistical support for the Research Design Service, South Central. Our current portfolio includes 50 local, national and international trials.

The CSM also has 5 statisticians working primarily on a programme of methodological research relating to studies of prognosis; a team of Biomedical Research Centre (BRC) funded statisticians; hosts the EQUATOR initiative; and carries out a programme of work aiming at improving the reporting of health research. Members of all groups within the CSM participate in occasional training activities.

Further details of the activities of the wider CSM can be found here: <https://www.csm.ox.ac.uk/>



The **Botnar Research Centre** enables and encourages research and education into the causes of musculoskeletal disease and their treatment.

The Centre provides world-class facilities for scientists in the field of musculoskeletal research. It takes a multidisciplinary approach, encompassing orthopaedic, rehabilitation and rheumatology clinical scientists, bone oncologists, laboratory scientists, epidemiologists, engineers and statisticians. The Botnar also hosts the Oxford Clinical Trials Research Unit (OCTRU) and the Centre of Statistics in Medicine (CSM), providing excellent statistical support to all aspects of clinical research.

The Botnar opened in 2002, with a large annex completed in 2013. The Botnar is now home to around 300 staff and postgraduate students enjoying the international and friendly atmosphere of this workplace and benefits from the vast knowledge of leading experts in the field of musculoskeletal



research.

To accommodate its rapid growth, the Centre will open another wing in 2021. This will provide research space for the new Professor of Biomaterials. The new space will include 1000m<sup>2</sup> of office and 1000m<sup>2</sup> of laboratory space. The laboratory space includes a GMP clean room facility suitable for the manufacturing of biomaterials for human implantation.



Sharing the site of the Nuffield Orthopaedic Centre, the largest specialist academic musculoskeletal hospital in the UK, puts the Botnar in a unique position to foster the collaboration between basic scientists and clinicians, which is essential to success in medical research.

The **Kennedy Institute of Rheumatology** is world famous for its discovery of anti-TNF therapy for the treatment of chronic inflammatory diseases like rheumatoid arthritis, which has established the current standard of care and heralded the wider use of biologic drugs to treat chronic disease.

Directed by Professor Fiona Powrie, the Institute carries out fundamental research in the areas of immunity and microbiome, inflammation biology and tissue remodelling and repair, with the long-term objective of 'translating' this research into clinical application. The major diseases of interest are rheumatoid arthritis, osteoarthritis, inflammatory bowel disease and cancer. Research is enabled by a suite of [core technologies platforms](#) encompassing advanced imaging and microscopy, flow and mass cytometry, germ-free and gnotobiotic facilities and single cell genomics and computational biology.

The Institute was extended with a new third floor in 2021 and now provides space to house up to 260 researchers and support staff. For more information please visit: <http://www.kennedy.ox.ac.uk>



## Athena Swan

The Athena SWAN Awards specifically recognise success in developing employment practices to further and support the careers of women in science, technology, engineering, maths and medicine (STEMM) departments in academia. In May 2015 the charter was expanded to recognise work undertaken in arts, humanities, social sciences, business and law (AHSSBL), and in professional and support roles. Within NDORMS, we feel that we have an established culture of equality but are using the process to spur on-going improvement that benefits everyone involved in the Department. Our on-going progress was rewarded in May 2014 with an Athena Swan Bronze Award and in October 2015 with a Silver Award. Our development in this area has resulted in a number of commitments to our staff, central to which are:

- establishing an open, supportive and family-friendly research environment
- supporting career progression through teaching programmes, personal development reviews and mentoring
- proactive communication of support policies such as

flexible working, provision of leave, promotion and career support schemes

NDORMS aims to actively promote the implementation of the University's family-friendly policies to help foster a family friendly working environment, including provision of family leave (such as policies for maternity, paternity, parental, carers and adoption leave), flexible/part-time working and scheduling inclusive meetings.

The University's childcare services support staff with a Childcare Voucher Scheme to help staff save tax and national insurance on childcare costs, offer information on nursery providers and a nursery fee Salary Sacrifice Scheme, work in partnership with playscheme providers to help support families during school holidays and signpost staff to parenting, local authority and other organisations that help support families and parents.

The Department is also committed to ensuring that staff undertaking part-time or flexible working receive the same access to benefits and entitlements as full-time staff, including the same opportunities for training and promotion, a pro-rata entitlement to leave including bank holidays and careful consideration of requests to work part-time (particularly for those by staff returning from maternity leave).

For more information please visit: <http://www.admin.ox.ac.uk/personnel/staffinfo/benefits/family/> and <http://www.admin.ox.ac.uk/personnel/during/flexible/>

We are also actively working to uphold the University's aim of providing an inclusive environment and equal career opportunities by promoting equality, valuing diversity and maintaining a working, learning and social environment in which the rights and dignity of all staff are respected. Separate University policies are also in place to ensure race, disability and gender equality.

For more information, please visit: <http://www.admin.ox.ac.uk/eop/>

## How to apply

Applications are made through our e-recruitment system and you will find all the information you need about how to apply on our Jobs website <https://www.jobs.ox.ac.uk/how-to-apply>.

Your application will be judged solely on the basis of how you demonstrate that you meet the selection criteria stated in the job description.

As part of your application you will be asked to provide details of **two** referees and indicate whether we can contact them now.

You will be asked to upload a CV and a supporting statement. The supporting statement must explain how you meet each of the selection criteria for the post using examples of your skills and experience. This may include experience gained in employment, education, or during career breaks (such as time out to care for dependants)

Please upload all documents **as PDF files** with your name and the document type in the filename. All applications must be received by **midday** UK time on the closing date stated in the online advertisement.

---

### Information for priority candidates

A priority candidate is a University employee who is seeking redeployment because they have been advised that they are at risk of redundancy, or on grounds of ill-health/disability. Priority candidates are issued with a redeployment letter by their employing department(s).

If you are a priority candidate, please ensure that you attach your redeployment letter to your application (or email it to the contact address on the advert if the application form used for the vacancy does not allow attachments).

---

### If you need help

Help and support is available from: <https://hrsystems.admin.ox.ac.uk/recruitment-support>  
If you require any further assistance please email [recruitment.support@admin.ox.ac.uk](mailto:recruitment.support@admin.ox.ac.uk).

To return to the online application at any stage, please go to: [www.recruit.ox.ac.uk](http://www.recruit.ox.ac.uk).

Please note that you will receive an automated email from our e-recruitment system to confirm receipt of your application. **Please check your spam/junk mail** if you do not receive this email.

## Important information for candidates

### Data Privacy

Please note that any personal data submitted to the University as part of the job application process will be processed in accordance with the GDPR and related UK data protection legislation. For further information, please see the University's Privacy Notice for Job Applicants at: <https://compliance.admin.ox.ac.uk/job-applicant-privacy-policy>. The University's Policy on Data Protection is available at: <https://compliance.admin.ox.ac.uk/data-protection-policy>.

### The University's policy on retirement

The University operates an Employer Justified Retirement Age (EJRA) for all academic posts and some academic-related posts. The University has adopted an EJRA of 30 September before the 69<sup>th</sup> birthday for all academic and academic-related staff in posts at **grade 8 and above**. The justification for this is explained at: <https://hr.admin.ox.ac.uk/the-ejra>

For **existing** employees, any employment beyond the retirement age is subject to approval through the procedures: <https://hr.admin.ox.ac.uk/the-ejra>

There is no normal or fixed age at which staff in posts at **grades 1–7** have to retire. Staff at these grades may elect to retire in accordance with the rules of the applicable pension scheme, as may be amended from time to time.

### Equality of opportunity

Entry into employment with the University and progression within employment will be determined only by personal merit and the application of criteria which are related to the duties of each particular post and the relevant salary structure. In all cases, ability to perform the job will be the primary consideration. No applicant or member of staff shall be discriminated against because of age, disability, gender reassignment, marriage or civil partnership, pregnancy or maternity, race, religion or belief, sex, or sexual orientation.



## Benefits of working at the University

### Employee benefits

University employees enjoy 38 days' paid holiday, generous pension schemes, travel discounts, and a variety of professional development opportunities. Our range of other employee benefits and discounts also includes free entry to the Botanic Gardens and University colleges, and discounts at University museums. See <https://hr.admin.ox.ac.uk/staff-benefits>

### University Club and sports facilities

Membership of the University Club is free for all University staff. The University Club offers social, sporting, and hospitality facilities. Staff can also use the University Sports Centre on Iffley Road at discounted rates, including a fitness centre, powerlifting room, and swimming pool. See [www.club.ox.ac.uk](http://www.club.ox.ac.uk) and <https://www.sport.ox.ac.uk/>.

### Information for staff new to Oxford

If you are relocating to Oxfordshire from overseas or elsewhere in the UK, the University's Welcome Service website includes practical information about settling in the area, including advice on relocation, accommodation, and local schools. See <https://welcome.ox.ac.uk/>

There is also a visa loan scheme to cover the costs of UK visa applications for staff and their dependents. See <https://staffimmigration.admin.ox.ac.uk/visa-loan-scheme>

### Family-friendly benefits

With one of the most generous family leave schemes in the Higher Education sector, and a range of flexible working options, Oxford aims to be a family-friendly employer. We also subscribe to My Family Care, a service that provides practical advice and support for employees who have caring responsibilities. The service offers a free telephone advice line, and the ability to book emergency back-up care for children, adult dependents and elderly relatives. See <https://hr.admin.ox.ac.uk/my-family-care> Childcare.

The University has excellent childcare services, including five University nurseries as well as University-supported places at many other private nurseries.

For full details, including how to apply and the costs, see <https://childcare.admin.ox.ac.uk/>

### Disabled staff

We are committed to supporting members of staff with disabilities or long-term health conditions. For further details, including information about how to make contact, in confidence, with the University's Staff Disability Advisor, see <https://edu.admin.ox.ac.uk/disability-support>

### Staff networks

The University has a number of staff networks including the Oxford Research Staff Society, BME staff network, LGBT+ staff network and a disabled staff network. You can find more information at <https://edu.admin.ox.ac.uk/networks>

### The University of Oxford Newcomers' Club

The University of Oxford Newcomers' Club is an organisation run by volunteers that aims to assist the partners of new staff settle into Oxford and provides them with an opportunity to meet people and make connections in the local area. See [www.newcomers.ox.ac.uk](http://www.newcomers.ox.ac.uk).