



**Postdoctoral Researcher  
in Protein Interaction  
Engineering,  
Department of Biological  
Sciences**

**LONDON'S EVENING UNIVERSITY**

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# WELCOME

Thank you for expressing an interest in the role of **Postdoctoral Researcher in Protein Interaction Engineering** at Birkbeck, University of London. This opportunity comes at an exciting point in Birkbeck's history, as we approach our 200th anniversary in 2023.

Birkbeck has always occupied a unique niche in the UK Higher Education landscape and we remain different to other institutions to this day: we are a world-class research and teaching institution with a tradition of providing higher education to people in work. Our classes are almost all held in the evening, so our 13,500 students are free to study, work, volunteer or just do their own thing during the day.

Most of Birkbeck's staff have been working remotely since late March 2020 to maintain the health and safety of staff and students during the COVID-19 pandemic.

We are aiming to return to our campus in Bloomsbury as soon as it is safe to do so but in the meantime, we recreated Birkbeck online, so that students can continue to benefit from our unique learning model of research-led evening teaching and flexible progression routes and study at a world-class, research-intensive university. Students can choose to study at a speed which suits them: completing an undergraduate degree in the evenings over three years full-time or four years part-time; or a Masters' degree in either one or two years.

With a global reputation for high quality research and teaching, Birkbeck is part of the prestigious University of London. Founded in

1823 to give working Londoners and learners from non-traditional backgrounds the chance of a university education, our mission remains unchanged as we approach our third century.

Historically, our unique teaching model has attracted an extremely diverse student population: 65% of our students are part-time and 35% full-time; 42% are postgraduates and 58% undergraduates; the majority are mature and 41% are from Black and Minority Ethnic backgrounds.

In recent years, Birkbeck's full-time, three-year undergraduate evening degrees have gained popularity with school leavers. So, although we are known for educating mature learners, we are now more about attitude than age. Our students tend to be hard-working, independent and highly motivated. They are recognised and highly valued by employers for their maturity, independent mindedness, focus and determination. 95% of Birkbeck's students are in work or further study six months after graduating.

Birkbeck has five academic schools (Law; Arts; Social Sciences, History and Philosophy; Business, Economics and Informatics; and Science), over 40 research centres and a series of professional service departments.

Our campus is in Bloomsbury, the academic heart of London.

No other university represents London as Birkbeck does. Our students are Tube drivers, fund managers, librarians and care workers. They are doctors, lawyers, taxi drivers, full-

time parents and even grandparents. Without Birkbeck many of them simply wouldn't have access to study.

Birkbeck is at the same time a highly international institution, as over 100 different countries are represented within our learning community. Indeed, the latest Times Higher Education (THE) World University rankings place Birkbeck in the top 10% of universities, based on overseas staff, students and research collaborations.

Our research is known for being cross-disciplinary, innovative and socially and politically engaged. Our findings inform public policy; push scientific, medical and technological advances; support and grow the economy; promote culture and the arts; and make a positive difference to society.

Both our alumni and staff tend to be passionate about the role Birkbeck plays in their lives. Many of our students go on to make an impact on business, the economy and society more broadly and our academic community includes important and eminent figures working alongside early career academics.

Birkbeck is a unique, complex institution.

If you choose to join us and your application is successful, I look forward to welcoming you to Birkbeck in due course.

Best of luck with your application.

**Professor David Latchman, CBE**  
**Vice-Chancellor of Birkbeck**

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# ABOUT BIRKBECK



In 1823 George Birkbeck founded the London Mechanics' Institute, an avowedly radical institution with a vision to open up university education to working Londoners. Just under a hundred years later, in 1920, Birkbeck College was incorporated in to the University of London. Today, almost 200 years since it was founded, Birkbeck remains true to George's mission, 'to ensure the universal dissemination of the blessings of knowledge'.

Birkbeck, University of London, is a world-class research and teaching institution, a vibrant centre of academic engagement and excellence and London's only specialist provider of evening higher education. Where once we were known solely for our part-time courses and mature students, today we have a wider mix. Of our current cohort of new undergraduates, just under half are from Black and Minority Ethnic backgrounds and over a third qualify for the College's generous package of financial support for students from lower income backgrounds; students range from school leavers to retired learners, but the largest group consists of working Londoners in their 20s and 30s.

Undergraduates study in the evening for a degree at a pace that suits them, across three, four or six years, with major recent growth coming via the three-year UCAS entry route, which has grown from zero to over 3000 students in the past six years. We are also a major provider of academic and professional postgraduate education, with the sixth largest cohort of home and European postgraduate students in the UK. Like our undergraduate degrees, our Master's courses are also taught predominantly in the evenings, with one, two and in some areas, three-year pathways, and flexible payment options. We have 13,500 students studying for Certificates of Higher Education, Degrees with Foundation Years, BA/BSc/ and LLB degrees and Master's degrees across our five schools. We also have hundreds of researchers studying with us and deliver a range of over 180 short courses every year.

But while Birkbeck has its roots firmly in London, we are recognised on a global stage. The Times

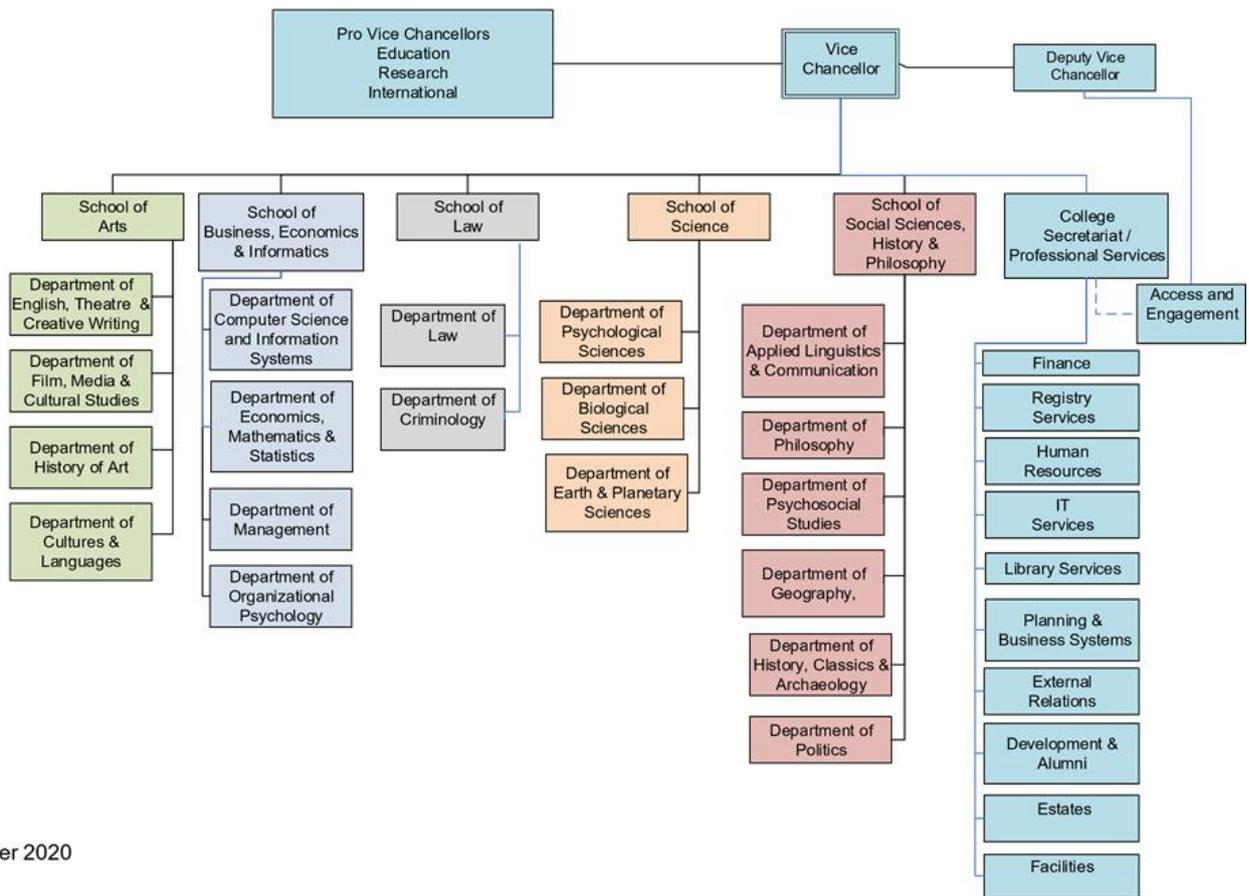
Higher Education World University rankings 2019 placed Birkbeck among the world's top 400 universities overall and we are in the top 350 universities in the QS University world rankings. Philosophy and English at Birkbeck are ranked in the world's top 100 according to QS, whilst History, Psychology and Law are all ranked in the world's top 150.

Birkbeck's reputation as a world-class research-intensive institution was cemented by the Research Assessment Framework in 2014. Birkbeck was 30th in the UK for research, with 73% of our research rated 'world leading' or 'internationally excellent'. We are home to over 40 research and specialist institutes and among the awards our research has won in recent years are the Queen's Anniversary Prize for excellence in higher education at the Centre for Brain Function and Development.

This unique combination of ground-breaking research and innovative teaching provides an inspirational learning experience for our students; we have consistently ranked in the top five in London for teaching and student satisfaction in the National Student Survey.

Birkbeck's main Bloomsbury campus is in the heart of academic London, home to a number of other universities and colleges of the University of London, including University College London and the School of Oriental and African Studies. We are situated among beautiful, leafy squares in one of the world's greatest concentrations of libraries, including the British Library and Senate House Library.

# BIRKBECK ORGANISATIONAL STRUCTURE



October 2020

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# ABOUT THE BIOLOGICAL SCIENCES DEPARTMENT

The Biological Sciences Department was created in 2009 from the merger of the School of Crystallography and the School of Biological and Chemical Sciences (<http://www.bbk.ac.uk/biology/>). The department and its forebears have a long history of pioneering work in applying physical methods to the study of biological systems, since the founding of the Biomolecular Research Laboratory at Birkbeck in 1948 by J. Desmond Bernal and counts among its former members Rosalind Franklin, Aaron Klug, Vernon Ingram, Tom Blundell and Janet Thornton. The department of Biological Sciences, which is one of the core departments of the joint Institute for Structural and Molecular Biology (ISMB) <http://www.ismb.lon.ac.uk/> with University College London (UCL) -Birkbeck's immediate neighbour in central London, continues this tradition. The ISMB has more than 70 research groups and the complimentary strength of the staff and facilities at the two universities means that it is a world leading institute for the investigation of biological molecular mechanism. The ISMB houses several research infrastructures providing shared access to biophysics, crystallography, cryo-electron microscopy (located at Birkbeck) and advanced light microscopy and NMR spectroscopy (at UCL).

The ISMB BiophysX Centre based in the Biological Science department provides coherent and supported access to a range of methodologies for the quantitative analysis of proteins and protein complexes in solution and for crystallization. BiophysX provides access to training and use of a wide range of techniques, including Robotic screening, Dynamic and Multi-Angle Light

Scattering (DLS/MALS), Biolayer Interferometry, Microcalorimetry (ITC and DSC), Stopped-Flow Rapid Kinetics, Thermal Shift Screening and UV, Visible and Fluorescence Spectroscopies, to both ISMB members and external users.

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# JOB DESCRIPTION

**Job title:**

Postdoctoral Researcher in Protein Interaction Engineering

**Department:**

Department of Biological Sciences, School of Science

**Reports to:**

Dr Mark Williams

**Responsible for:**

Not applicable

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## PURPOSE OF THE JOB

To carry out research in the field of the molecular biophysics of protein-protein interactions in order to create new reference standards for biophysical measurements. This research is a key aim of the new European Molecular-Scale Biophysics Research Infrastructure (MOSBRI – <https://www.mosbri.eu/>).

The post-holder will design, make and evaluate a variety of single and multi-domain proteins; characterising their interactions using a wide-range of biophysical methods (including spectroscopy, calorimetry and light scattering). A number of systems will be studied, but the focus will be on engineering the protein-protein interactions of TPR (tetratricopeptide repeat) domains. The primary aim is to engineer interacting partner proteins that have close to ideal behaviour in terms their affinity, solubility, stability and suitability for study by multiple biophysical methods. The secondary aim is to create well-behaved experimental model systems to assist the development of new methods of analysis of complex equilibria, such as occur in coupled folding-binding reactions and in systems with multiple cooperative binding sites.

The post is based in the ISMB Protein Crystallography and Biophysics Centre at Birkbeck (BiophysX - <https://biophysics.ismb.lon.ac.uk/>). The work is funded by the EU Horizon 2020 program and will contribute to MOSBRI's goals of developing international standards for biophysical experiments, data analysis and sharing. The post-holder will work with colleagues at other MOSBRI partners, particularly those at the Institute Pasteur (Paris) and the scientific data analysis company Affinimeter (Santiago de Compostela) <https://www.affinimeter.com>, and with collaborators at the University of Manchester in order to achieve these goals.

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## MAIN DUTIES

Research and Scholarship

- To create recombinant gene constructs (and mutants thereof) for over-expression of proteins in E. coli.
- To express and purify protein domains and multi-domain proteins.
- To use a range of biophysical methods (including but not limited to ITC, DSC, DSF, BLI, DLS, MALS and NMR, UV-Vis, CD and Fluorescence spectroscopies) to characterise the purified proteins and their interactions.
- To contribute to the structural interpretation of biophysical results as part of the design-build-test protein engineering cycle.
- To contribute the development of new methods of biophysical analysis.
- For experiment design and interpretation of results extensive interactions with lab members and collaborators will be essential.
- To update knowledge and understanding in the fields of protein engineering and the biophysics of protein stability and binding.
- To translate knowledge of advances in the subject area into research activity.
- To write up research for publication.
- To ensure that research content and the methods used are in accordance with equal opportunities.

## Teaching & Learning

- To contribute to the training of Masters and PhD students and supervision of their projects.

## Communication

- To deal with routine communication using a range of media.
- To communicate complex information, and material of a specialist or highly technical nature orally, in writing, and electronically.
- To help prepare proposals and applications to external bodies, for example, for funding and contractual purposes.

The above list of duties is not exhaustive and is subject to change. The post holder may be required to undertake other duties within the scope and grading of this post

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## WORKING RELATIONSHIPS & CONTACTS

### People Management and Teamwork

- To manage own research and administrative activities, with guidance if required.
- To work with colleagues on joint projects, as required
- To collaborate with academic colleagues on areas of shared research interest.
- To attend and contribute to relevant meetings.
- Liaison and Networking
- To liaise with colleagues and students.
- To build internal contacts, and participate in internal networks for the exchange of information and to form relationships for future collaboration.
- To join external networks to share information and identify potential sources of funds.

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## DIMENSIONS

### Problem Solving and Impact

- To use creativity to analyse and interpret research data and draw conclusions on the outcomes.
- To contribute to collaborative decision making with colleagues in areas of research.
- To use new research techniques and methods.
- To use own initiative and creativity to identify areas for research, develop new research methods, and extend the research portfolio.
- To understand equal opportunity issues as they may impact on areas of research content and methods.

### Resource Management

- Plan and manage own research activity in collaboration with others.
- To use research resources, laboratories and workshops as appropriate.

### Working Environment

- To balance, with help, the competing pressures of research and administrative demands and deadlines.
- To carry out tasks that require the learning of certain skills.
- To engage in continuous professional development.
- To be aware of the risks in the work environment and their potential impact on their own work and that of others.

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## GENERAL RESPONSIBILITIES

**(These are universal to all Birkbeck roles)**

- These are standard to all Birkbeck Job Descriptions
- To adhere to the College's Equal Opportunities policy in all activities, and to actively promote equality of opportunity wherever possible.
- To be responsible for your own health and safety and that of your colleagues, in accordance with the Health and Safety at Work Act (1974) and relevant EC directives.

- To work in accordance with the Data Protection Act and to ensure that all new systems are reported to your Data Protection Controller.
- To undertake such other duties as may be reasonably expected.
- To provide a healthy and comfortable working environment, smoking is prohibited throughout the College, except in specially designated areas.

# PERSON SPECIFICATION

ATTRIBUTES	ESSENTIAL CRITERIA	DESIRABLE CRITERIA	METHOD OF ASSESSMENT
Knowledge	Possess sufficient breadth or depth of specialist knowledge of research methods and techniques to work within a protein engineering and molecular biophysics research programme	Detailed knowledge of the physical basis of protein-protein interactions  Detailed knowledge of methods of analysis of binding equilibria or of binding or enzyme kinetics	Application Presentation Interview
Technical and/or work based skills	A background in biochemistry or molecular biophysics Experience of expression and purification of recombinant proteins from E. coli. Experience of cloning and/or mutagenesis Familiarity with protein structure and the structural basis of biomolecular interactions Effective oral and written communication skills, to write up complex research findings and to convey specialist/technical material.	Experience of using biophysical methods to determine protein oligomeric state and/or protein ligand interactions, e.g., using calorimetry, NMR or light spectroscopies, or light scattering methods.  Strong mathematical or computing skills	Application Presentation Interview
General skills and attributes	Initiative and creativity to ensure research is effective Effective presentation skills. Effective organisation and administration skills Ability to work independently but also cooperate and interact with other lab members and external collaborators Willingness to travel for research, meetings and workshops Commitment to working with diversity	Experience of writing research articles	Application Presentation Interview
Experience	Experience of utilising research methods and techniques	Experience in biophysical method development	Application Presentation Interview

Experience of troubleshooting  
protein expression and  
purification procedures  
Previous experience of  
contributing to research

Qualifications

PhD (or equivalent) in a relevant  
subject area.

Application

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# FURTHER PARTICULARS

**Salary:**

£39,173 rising to £44,775 per annum (Grade 7)

The salary quoted will be pro-rata for a part time post and is on the College's London Pay Scale which includes a consolidated Weighting / Allowance which applies only to staff whose normal contractual place of work is in the Greater London area.

**Hours:**

35 hours per week (full-time / 1.0 FTE)

21 hours per week (part-time / 0.6 FTE)

**Working pattern:**

TBC

**Probation period:**

12 months

**Duration of post:**

Up to Two years (full-time) or three years (part-time)

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## BENEFITS

Birkbeck has a number of benefits which includes, but is not limited to:

- 25 days annual leave per annum, plus an additional six days when the College is closed during the spring and winter breaks. This is in addition to the eight bank holidays.
- Defined benefit pension scheme
- Flexible working
- Season ticket loan
- Lifelong Learning Contribution for staff scheme

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## ASYLUM AND IMMIGRATION STATEMENTS

Applications from candidates who require sponsorship to work in the UK will be considered alongside other applications. Applicants who do not currently have the right to work in the UK will have to satisfy UK Visa & Immigration regulations before they can be appointed.

Further information about Sponsorship and eligibility to work in the UK, can be found at: <https://www.gov.uk/guidance/immigration-rules/immigration-rules-appendix-skilled-worker>.

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## HOW TO APPLY

**Closing date for applications:**

Midnight on 3<sup>rd</sup> October 2021

**Interview date:**

Anticipated mid October

**Start date:**

Date or to be confirmed following interview.

Post available from 1<sup>st</sup> October 2021.

To apply for this position please go to our online [recruitment portal](#) and search for reference 953.

Please ensure your application includes full details of your employment history, education and qualifications, and recent development. For some roles, this will be collected in the application form, for others you will be asked to include this in a professional CV which can be uploaded.

All applicants are asked to provide a statement on their suitability for the role. This is a key piece of information which will help us determine your suitability for the role, so please:

- Align your skills and experience with both the job description and person specification.
- Be specific about projects you've worked on or managed. What was the outcome? How did you measure success?
- If you've had a leadership role, tell us about it. How big was the team? What was the scope of your work?

- If you're a recent graduate or have limited work experience, reference projects or coursework that demonstrate relevant skills and knowledge.
- Keep it short; the application form or the CV should contain all the additional information that we need during the selection process.

In addition to your application statement you may be asked to answer specific questions in areas that we consider essential to the role.

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### INFORMAL ENQUIRIES

Informal enquiries can be made to:

BiophysX Centre Director - Dr Mark A. Williams  
[ma.williams@bbk.ac.uk](mailto:ma.williams@bbk.ac.uk)

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### HELP & ASSISTANCE

If you are having difficulties accessing this site please email [jobs@bbk.ac.uk](mailto:jobs@bbk.ac.uk)

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# OUR COMMITMENT TO EQUALITY & DIVERSITY

The College is committed to providing the highest quality academic and working environment where all staff, students, visitors and contractors are welcomed respected and treated in a fair, consistent and non-discriminatory manner. The College is proud of its diversity and welcomes applications from all sections of the community. No one will be treated unfairly because of their sex, race, disability, sexual orientation, age, religion or belief, carer status, political belief, pregnancy/maternity, social class, gender identity or marital/civil partnership.

Birkbeck is a member of the 'positive about disability' Disability Confident scheme and will interview all candidates who both declare a disability within the meaning of the Equality Act 2010 and meet the minimum essential criteria for the post, subject to any limits on the overall number of interviews.

Birkbeck is a member of Advance HE, holds an institutional Bronze level Athena SWAN award, is a Mindful Employers Charter signatory and subscribes to Stonewall's Diversity Champions.