

Candidate Information

Position:	Research Assistant
School/Department:	School of Chemistry and Chemical Engineering
Reference:	24/112309
Closing Date:	Monday 2 December 2024
Salary:	£33,785 - £38,765 per annum
Anticipated Interview Date:	Friday 3 January 2024
Duration:	Fixed Term - Full Time, available for 25 months

JOB PURPOSE:

The work is an exciting academia-industry collaboration. The research assistant will work on multidisciplinary high impact research projects, which involve close collaboration with experimentalists from academia and industry. It also offers exceptional opportunities to meet industrial collaborators and expedient knowledge transfer.

MAJOR DUTIES:

1. Undertake basic research activities under supervision within a specific research project or as a member of a research team. This includes developing machine learning models for the design/discovery of new enzyme biocatalysts, modelling and simulations and reaction profile calculations, calculating binding free energies and reaction profiles, in consultation with the supervisor.
2. Present regular progress reports on research to members of the research group or to external audiences to disseminate and publicise research findings.
3. The individual will be expected to work as part of a multidisciplinary team of researchers composed of biologists and chemists at all stages of the program.
4. Make periodic presentations and contribute actively to the overall discussion on the directions of the projects as his/her input will be critical to the projects' success.
5. Write up results of own work and contribute to the production of research reports, publications and proposals.
6. May contribute to introductory courses, for example, on the use of research methods and equipment.
7. Carry out occasional educational supervision e.g. undergraduate supervision/ demonstrating/ teaching duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.
8. Carry out routine administrative duties as requested, e.g. arranging research group meetings, maintaining research group website.
9. In consultation with the supervisor, assist with preparation of materials for publication in high quality peer-reviewed journals.

ESSENTIAL CRITERIA:

1. An Honours degree or equivalent in Chemistry, Biochemistry, Biotechnology, Bioengineering, Pharmaceutical Engineering or a closely related area.
2. Recent relevant experience in MD simulations and QM calculations of proteins, and applications of machine learning in one or more of the following areas:
 - Enzymatic reactivities
 - Enzyme function prediction
3. Evidence of HPC experience/application.
4. Demonstrable evidence of programming skills (C++/R/Python).
5. Sufficient breadth or depth of specialist knowledge in the discipline and of research methods and techniques to work within own area.
6. Demonstrates a significant interest in algorithm development, enzymatic chemical reactions, protein structure-function relationship, biocatalyst design.
7. Must display clarity of thinking and ability to address a variety of research topics.

8. Organised and attentive to detail and ability to meet deadlines.
9. Excellent communication skills.
10. Must demonstrate good team working skills.
11. Must demonstrate a true commitment to and interest in research.
12. Must be willing to work irregular hours when necessary for the progress of the research project.
13. Must be willing to work closely with industrial partners as required.
14. Must be willing and able to travel to national and international meetings.

DESIRABLE CRITERIA:

1. Have or about to obtain a Postgraduate qualification and/or PhD Degree in the field of Computational Chemistry, Computational Biology, Biotechnology, Computational Biochemistry or Computational Biophysics.
2. Experience, evidenced by relevant output as the leading author in peer-reviewed journals commensurate with career stage.
3. Proven experience in one or more of the following:
 - Experience in using biological molecular modelling software.
 - Experience in database and data mining.
 - Extensive expertise in molecular dynamics.
 - Experience in alchemical free energy calculations.
 - Experience in QM/MM calculations.
 - Experience in machine learning and deep learning.
4. Demonstrable experience in using and maintaining Linux supercomputer operation environment.
5. Knowledge of various enzymatic reactions and enzyme engineering.
6. Demonstrable successful experience in rational enzyme design in a multidisciplinary team.
7. Experience in developing course assessments.
8. Experience in developing novel course materials.
9. Experience in developing non-credit bearing course materials.
10. Undergraduate and/or postgraduate teaching experience.
11. Evidence of project completion.
12. Ability to prioritise research/experiments in order to meet deadlines and targets.
13. Excellent communication/verbal skills with an ability to clearly explain research results to a non-subject specialist audience.