IMPERIAL

Research Associate in Mathematical and Computational Biology

Department/Division/Faculty:	Department of Life Sciences, Faculty of Natural Sciences
Campus/Location:	Silwood Park Campus
Job Family/Level:	Research Job Family, Research Associate* (Research salary scale)
Responsible to:	Dr Katie Willis
Line management for:	N/A
Key working Relationships (Internal):	Willis research group and colleagues at Imperial College London
Key Working Relationships (External):	MERGE project partners including the University of Reading, London School of Hygiene & Tropical Medicine and Topos Institute UK; ARIA and other members of the Accelerated Adaptation funded programme.
Contract type:	Full-time, fixed-term until October 2028.

Purpose of the Post

The post is funded by the Advanced Research and Invention Agency (ARIA), through its Accelerated Adaptation programme as part of the MERGE (Modelling Evolutionary Resilience: from Genes to Ecosystems) project. The postholder will develop and apply mathematical and computational population models to assess the potential benefits and risks of interventions intended to accelerate adaptation in wild populations. This will include investigating how relevant genetic, demographic and ecological processes influence intervention outcomes and population persistence.

The postholder will work with Technical Area 1 (TA1) experimental teams to identify modelling needs and develop models suited to different biological systems. They will connect experimental evidence with predictions for natural populations, helping teams compare intervention options, identify uncertainties and prioritise the evidence needed to assess their likely outcomes.

Alongside work with TA1 teams, there will be scope to explore new intervention approaches within the group's wider research programme. The postholder will help develop existing proposals and contribute ideas of their own, with research priorities agreed with the Principal Investigator (PI).

The post is available as soon as possible. The appointment is fixed-term until October 2028, with the possibility of a further two-year extension, subject to grant approval.

Key Responsibilities

Research Duties:

- To conduct and plan own scientific work with appropriate supervision, taking initiative in the development of research questions and approaches.
- To develop and apply mathematical and computational population models to assess interventions intended to accelerate adaptation in wild populations.
- To work with TA1 teams to identify modelling needs and data requirements, inform experimental design and interpret findings.
- To review relevant literature and use published and other empirical evidence to inform model development, parameterisation and validation.
- To conduct data analysis, simulation studies, sensitivity analyses and uncertainty quantification.
- To critically evaluate the assumptions, validity and reliability of models and analyses.
- To contribute to the development and assessment of intervention approaches within the group's wider research programme, in line with agreed project priorities.
- To work with MERGE partners to develop modelling approaches that can be applied across biological systems and connected with models at other biological scales, where appropriate.
- To maintain accurate research records and well-documented, reproducible code and analyses.
- To actively participate in the group's research programme, research meetings and internal seminars.
- To develop contacts and research collaborations within the College and the wider community.
- To attend relevant workshops and conferences as necessary.
- To write reports, including contributing to quarterly reporting to ARIA.
- To prepare and submit papers to high-quality journals and present research findings at national and international meetings.
- To provide guidance to staff and students.
- To assist in the supervision of undergraduate and postgraduate research students and research assistants as required.
- To comply with the College, Division and Unit safety practices and to attend courses on safety when appropriate.

Other Duties:

- To undertake any necessary training and/or development.
- To undertake appropriate administration tasks.
- To attend relevant meetings.

IMPERIAL

Person Specification

Requirements Candidates/post holders will be expected to demonstrate the following:	**Essential (E)/ Desirable (D)**
Education	
Hold (or close to completion) a PhD in a relevant biological, mathematical or computational discipline, such as ecology, evolutionary biology, mathematical biology, applied mathematics or computer science.* **Candidates who have not yet been officially awarded their PhD will be appointed as Research Assistant.*	E
Experience	
Experience of developing and analysing mathematical or computational models to address biological questions.	E
Demonstrated experience working effectively alone and with others	E
Experience of communicating research findings through publications, preprints, presentations or other research outputs.	E
Experience of using empirical data to parameterise or evaluate models.	D
Experience of sensitivity analysis, uncertainty quantification or statistical inference.	D
Experience of collaborating with experimental researchers or researchers from other disciplines.	D
Knowledge	
Knowledge of at least one area relevant to population modelling, such as population genetics, population ecology, evolutionary biology or mathematical biology.	E
Knowledge of mathematical, numerical or statistical methods relevant to developing and interpreting models.	E
Skills & Abilities	
Scientific programming experience in Python, C++, Mathematica, R, Julia or a comparable language.	E
Strong quantitative and analytical skills, including critical evaluation of model assumptions and results.	E
Ability to plan and prioritise research, meet agreed deadlines and work independently with appropriate supervision.	E
Ability to develop research ideas and solve problems creatively.	E
Ability to communicate research methods and findings clearly, both orally and in writing.	E

Willingness to contribute actively to the group's research activities and to work cooperatively with colleagues from different disciplines.	E
Regard for confidentiality and appropriate handling of research information and data.	E
Willingness to undertake any necessary training for the role	E
Experience of version control and reproducible computational research.	D

Further Information

Please note that job descriptions cannot be exhaustive, and the post-holder may be required to undertake other duties, which are broadly in line with the above key responsibilities.

Our values are at the root of everything we do and everyone in our community is expected to demonstrate Imperial:

- Respect
- Collaboration
- Excellence
- Integrity
- Innovation

Employees are also required to comply with all Imperial policies and regulations.

We are committed to equality of opportunity, to eliminating discrimination and to creating an inclusive working environment for all. We encourage candidates to apply irrespective of age, disability, marriage or civil partnership status, pregnancy or maternity, race, religion and belief, gender reassignment, sex, or sexual orientation. You can read more about our commitment on our webpages.

Imperial is a proud signatory to the San-Francisco Declaration on Research Assessment (DORA), which means that in hiring and promotion decisions, we evaluate applicants on the quality of their work, not the journal impact factor where it is published. For more information, see https://www.imperial.ac.uk/research-and-innovation/about-imperial-research/research-evaluation/

Imperial believes that the use of animals in research is vital to improve human and animal health and welfare. Animals may only be used in research programmes which are ultimately aimed towards finding new treatments and making scientific and medical advances, and where there are no satisfactory or reasonably practical alternatives to their use. Imperial is committed to ensuring that, in cases where this research is deemed essential, all animals in our care are treated with full respect, and that all staff involved with this work show due consideration at every level. Find out more about animal research at Imperial.

November 2026