



**UNIVERSITY OF LINCOLN
JOB DESCRIPTION**

JOB TITLE	Postdoctoral Research Fellow (Microfluidics)				
DEPARTMENT	School of Life Sciences				
LOCATION	Joseph Banks Laboratories				
JOB NUMBER	COS476	GRADE	7	DATE	Nov 2017
REPORTS TO	Prof. Stuart Humphries				

CONTEXT

The successful applicant will be part of an interdisciplinary research group with the freedom to work on a defined problem as part of a wider theme. The position forms part of a larger project entitled '*Microscale Viscosity Gradients in the Oceans*' supported by the Gordon and Betty Moore Foundation (www.moore.org). This project aims to characterise both viscous heterogeneity at the microscale and its ecological effects, and ultimately to formulate a new conceptual framework for the microbial oceanic landscape that includes viscosity.

The physical ecology lab can offer a dynamic research environment where the successful applicant will be a member of a team working closely together and applying techniques from fields as diverse as phylogenetic analysis, microbiology, applied mathematics and biophysics.

JOB PURPOSE

The Research Fellow is responsible for conducting research on the project, as directed by the Principal Investigator, and is expected to operate with a significant degree of autonomy.

The post holder may be required to help supervise the work of more junior researchers.

KEY RESPONSIBILITIES

Literature surveys

Undertake literature surveys and other investigations of the state-of-the-art, and prepare reports as required.

Programme of Research

Design and undertake programme of research under the direction of the Principal Investigator, demonstrating a significant level of autonomy.

Lead in the production of high quality research outputs, including reports, papers and other publications of national/international standing.

Project Management

Perform project management activities, planning, scheduling, monitoring and reporting on progress of research projects.

Liaison and Networking

Identify and liaise with internal and external collaborators, and with colleagues in the Department, maintaining positive and effective working relationships.

Internal Research Activities

Participate in and help to organise internal research activities, including seminars, research meetings and conferences.

Continuous Professional Development

Undertake continuous professional development activities.

Grant Applications

Contribute to the production of grant applications.

Teaching Support

Engage in teaching support activities, up to a maximum of three hours per week, possibly including leading a small number of units (no more than two per annum).

Aid in the supervision of postgraduate research students.

In addition to the above, undertake such duties as may reasonably be requested and that are commensurate with the nature and grade of the post.

ADDITIONAL INFORMATION

Scope and dimensions of the role

Using their skills and experience with COMSOL software and microfluidics, the post-holder will drive the experimental and modelling studies required to develop predictive models of the effects of small-scale viscosity gradients on microbial chemotaxis. The post-holder will carry full responsibility for the practical implementation of the microfluidic device design, testing and operation. They will also be involved in the practical supervision of undergraduate and postgraduate students.

The post-holder will use both experimental and computational methods to generate testable predictions and provide insight into effects of viscosity gradients on marine bacteria. Key methods will include Multiphysics modelling in COMSOL, design of microfluidic devices to generate viscosity gradients, microscopic experiments tracking motile marine bacteria. The main project themes for this post will be to (i) model and generate viscosity gradients at the microscale in the lab, and (ii) examine the effect of viscosity on bacterial chemotaxis. For suitably qualified candidates there may be the opportunity to take part in diving-based field work in Hawaii, using In-Situ Chemotaxis Assay (ISCA) devices.

The post holder will help write and publish high quality peer-reviewed scientific papers in addition to contributing to the development of research proposals and applications for external funding, will contribute to the dissemination of the results to the scientific community through presentation at international conferences and workshops, and to the general public through public lectures and interviews with the media where appropriate.

Key working relationships/networks

Internal	External
<ul style="list-style-type: none">• Principal Investigator• Head of Research Centre• Head of School• Other research and academic staff within the school	<ul style="list-style-type: none">• Research collaborators• Sponsors and clients



**UNIVERSITY OF LINCOLN
PERSON SPECIFICATION**

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Selection Criteria	Essential (E) or Desirable (D)	Where Evidenced Application (A) Interview (I) Presentation (P) References (R)
Qualifications:		
PhD or equivalent in a relevant area (good candidates may be accepted with a PhD pending, subject to publication record)	E	A
Experience:		
Experience with COMSOL and Matlab	E	A
Experience with designing and using microfluidic devices	D	A/I
Microbial laboratory experience	D	A
Scientific diving qualification	D	A
Authorship of research outputs of national/international standing	D	A/I
Skills and Knowledge:		
Extensive knowledge specific to project/area	E	A/I
Ability to design, conduct and project manage original research in the subject area	E	A/I
Excellent written communication, including the ability to write reports and research outputs	E	A/I
Ability to prioritise own workload and work to specified deadlines under pressure	E	A/I
Ability to communicate complex subjects orally	E	A/I
Skills specific to project/area	E	A/I
Competencies and Personal Attributes:		
Flexible approach to workload	E	I
Ability to work on own and as part of a team	E	I/R
Enthusiasm and commitment	E	I
Business Requirements:		
Able to work for up to one month per year overseas	D	I

Essential Requirements are those, without which, a candidate would not be able to do the job. **Desirable Requirements** are those which would be useful for the post holder to possess and will be considered when more than one applicant meets the essential requirements.

Author	SH	HRBP	SP
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