THE UNIVERSITY of EDINBURGH

Job Description

Internship Title: How do diet and development affect individual startle response of frog *Xenopus tropicalis?*

Department/ School	Institute of Ecology & Evolution, School of Biology, University of Edinburgh
Reports To	Patrick Walsh – Patrick.walsh@ed.ac.uk Josie McPherson (PhD Mentor)– Josie.mcpherson@ed.ac.uk

Job Purpose

This placement primarily involves analysing video data of *Xenopus tropicalis* movement. You will learn to use a Python script to process videos, extract movement patterns, and perform statistical analysis on this data.

Main Responsibilities

- Extract data from video recordings of startle responses using a custom python script (60%)
- Using R, with support, to be able to do statistical analysis of the startle response date (30%)
- Read and review the literature on the topic to be aware of the important concepts (10%)

Knowledge Skills and Experience (required for the role)

Attribute	Essential	Desirable
Education, Qualifications & Training	Undertaking Undergraduate studies in relevant area	
Knowledge & Experience	- An interest in animal behaviour, ecology and evolution - Willingness to learn video analysis in Python	- Experience with R

Person Specification

Planning and Organising
- Organising your own schedule to complete the extraction of data from the videos and analysis in the time available for the placement
- Organising the support needed for using the python script to extract the data and for R for the statistical analysis

Problem Solving
- Working out most informative way to collect video analysis data (with support)
- Thinking about best way to statistically analyse the data (with support)

Decision Making
- Make decisions on criteria for the inclusion or exclusion of any videos from the analysis, if relevant

Key Contacts:
- Supervisors (Josie McPherson and Patrick Walsh)
- Building Manager

Dimensions
Closing date for applications: Wednesday 14th May 2025 (midnight)
Start date: From: Anytime from 16th June 2025
Hours per week and preferred pattern/ restrictions (if applicable): 35 hours per week for 8 weeks (6 weeks possible)

Additional Information

Project Outline
Early life experiences can have a lasting effect on individuals. These effects are the subject of contrasting theories. The 'thrifty phenotype' or predictive adaptive response theory proposes that individuals born into impoverished conditions may become 'programmed' to excel under such circumstances, potentially performing better in poor conditions than in favourable ones. However, in the absence of predictive environmental responses, experiencing favourable conditions during adulthood might be more advantageous. This is due to the potential compensatory ability of good adult conditions to mitigate the consequences of an unfavourable early start.

Behavioural flexibility is thought to confer advantages and be costly. The project aims to explore intra-individual consistency in response to a startle stimulus and how this is impacted by diet in early and later life in frog species *Xenopus tropicalis.* This will involve performing video analysis on a behavioural assay on individuals that either experienced high or low food availability during their tadpole stage and the same or different diet as juveniles and adults. The objective is to assess whether this behaviour conforms to predictions of the predictive adaptive response and those that experience poor conditions as both tadpoles and frogs show more flexible behaviour, or if favourable adult conditions are able to compensate for a poor start.

Further Reading

Monaghan, P. (2008) Early growth conditions, phenotypic development and environmental change. Philos. Trans. R. Soc. Lond. B Biol. Sci., 363(1497): 1635–1645. doi: 10.1098/rstb.2007.0011

Kelleher,SR., Silla,AJ., Niemelä,PT., Dingemanse,NJ., Byrne,PG. (2019) Dietary carotenoids affect the development of individual differences and behavioral plasticity. Behav. Ecol., 30(5): 1273–1282, https://doi.org/10.1093/beheco/arz074

Sih,A., Bell,A. & Johnson,JC., (2004) Behavioral syndromes: An ecological and evolutionary overview. *Trends in Ecol. Evol.*, 19(7): 372–378. Doi: 10.1016/j.tree.2004.04.009

Budget

A maximum of £500 towards project costs.

Location

Ashworth Building, Kings Buildings Campus

Health & Safety Requirements for the role

Standard Risk Assessment associated with computer working

Key Job hazard information specific to the role

None

Programme Information

The Research Experience Programme (REPs), funded by NERC, offers paid research opportunities for undergraduate students. The programme is designed to address both demographic and diversity challenges in the environmental sciences, as well as thematic skills gaps, such as quantitative skills.
This is a valuable opportunity to gain hands on research experience, boost your employability, and explore potential pathways into further study or careers in environmental science.

For full details on how to apply and the selection process, please visit our REP webpage

Application Support

The University's Careers service provides a wide range of resources to support your application, including guidance on CVs, cover letters, and interview preparation.
Students undertaking a REP placement will also have the opportunity participate in the **Edinburgh Award** - a structured programme that helps you reflect on and gain recognition from the University for the skills and attributes developed during your internship.
For more information, you can book an appointment with a Careers Consultant via MyCareerHub.

Eligibility Criteria

To be eligible for a REP placement, applicants must meet **all** of the following criteria:

• Be currently studying towards their first undergraduate degree studies (including integrated Master's degrees) in a UK Higher Education institution, in any science discipline ***Note:*** *Final year students are eligible if they still hold student status at the* ***start of the placement,*** *even if the student graduates during the course of the placement.*

• Be eligible for subsequent NERC PhD funding as defined here:
- A UK citizen who has been living in the UK for at least the past 3 years OR
- An EU citizen with pre-settled or settled status under the EU Settlement Scheme OR
- A non-EU citizen who has obtained the right to remain in the UK - known as 'indefinite leave to remain' (ILR) OR
- An International/EU student currently studying in the UK under a Tier 4 or Student Route Visa with validity until at least September 2025.

REPs **do not** meet the requirements for visa sponsorship. As such, students who are not currently residing in the UK or who do not hold a valid UK visa are not eligible to apply.

You cannot take part if you are a visiting student, or have previously taken part in REP programme.

Privacy Statement

In addition to the University's HR Privacy Information Notice, please read the Student and Graduate Privacy Statement: Internships and work experience programmes to understand how your personal information will be collected, used, and stored as part of the application process. .

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