

## Editorial

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## UROS 2023

The University of Lincoln piloted the Undergraduate Research Opportunities Scheme (UROS) in 2007, which provides an opportunity for students and academics to collaborate and engage as partners through research projects. Applications are invited from all undergraduate students seeking to develop a research project in partnership with an academic school or a professional service department. Successful projects are awarded a student bursary of either £500 or £1000, and students are required to produce a research poster and a paper to contribute to this edition.

UROS was developed under the Student as Producer ethos, which has been institutionally developed for over a decade as a multi-disciplinary teaching and learning model through the work of Mike Neary (Neary and Winn, 2009:193). The model is framed through eight key principles: Discovery, Technology in Teaching, Space and Spatiality, Assessment, Research and Evaluation, Student Voice, Support for research-based teaching through expert engagement with information resources, and Creating the future. This continues to have legacy at the university, establishing an institutional framework for student engagement through curriculum development, research engaged teaching, and facilitating extra curricula opportunities for student to engage in learning.

## The UROS special edition

This edition provided students with the opportunity to publish their findings and experiences of completing a UROS project in the IMPact journal. Submissions were supported by LALT, and the format presents a reflective account discussing the background of their project, literature, methodology and results, alongside commentary on their UROS experience and lessons learnt throughout the process. Submissions went through a peer review process conducted by academic colleagues, demonstrating the commitment to Student as Producer and engagement through students as authors (Strudwick, 2021).

Bick worked with DNA and protein to focus on the enzyme T4 lysozyme, and how changing single amino acids in the gene that encodes it also changes the stability of the overall protein. In collaboration with Rutgers University, USA, the aim was to prove that the

analytical computer program 'Prometheus' can accurately predict how proteins fold and how likely each amino acid is to accept new interactions with other compounds. They also wanted to be able to confirm that this program can aid the discovery and improvement of new and existing drug molecules.

Stanley's project delved into the work on mathematical models of human cognition, mainly focusing on investigating a bistable optical illusion known as a Lissajous curve, which may be perceived to change directions when rotated at certain speeds using quantum probability theory and a 'quantum Zeno model'. They also consider existing studies of a conjunction fallacy, a famous error in human decision making, with both classical and quantum probability models.

Davidson investigates whether condensed matter physics can inform the metaphysics of substance. They distributed a survey to explore how physicists, philosophers, and laymen understand their intuitive solutions to problems that relate to the intersection of physics and substance theory, and analysed the results to extract key response themes and create a dataset for statistical analysis.

Laver explores the impact flux (asteroids impacting celestial bodies) on Planet Earth and whether it is sensitive to the Milky-way galaxy being either a Grand Design spiral galaxy or a Flocculent Spiral Galaxy. They look into the ambiguity of the structure of the Milky-way galaxy by tracking radioactive material deposited by asteroid movement across space.

Ratcliffe worked with participants with high and low bipolar disorder (BD) traits assessed by a questionnaire, to do a colouring task while undergoing an electrocardiogram (ECG) to assess the relationship between mood instability and ADHD traits.

Rees' project involved the replication of the bonnet worn by Lydia Lawrence, D.H Lawrence's mother. This was an area of interest as this is a piece that cannot be displayed in the D.H Lawrence Birthplace Museum due to poor conservation condition. Rees therefore produced a replica of the bonnet to explore how replication craft can help conservators better understand an object.

Hennessy explores the Barbican Building in the Lincoln and seeks to uncover the voices of individuals who might not appear in more conventional histories. Specifically, they look at how oral history techniques have been utilised to understand the importance of the building in the post-war period. This will reveal how notions of belonging, local identity and social change are attached to the built environment.

deMestre investigates the impact of fumed silica on the long-term properties of two-part epoxy resins, with specific focus on colour stability, chemical structure, and adhesive

strength. They conducted two phases, focusing on colour stability and chemical structure, and adhesive strength, and intend to publish full results in a conservation-specific journal.

Lobo completed work as part of the Lincoln Swan Project, and developed Swan Track, which tracks the movements of Lincoln swans. This involved the creation of a software to plot sighting locations on a map to enable researcher and data collectors to visually see movements of swans, and hopes to engage the wider public in the research of this project.

Marriott looks into the relationship between the alteration of certain characteristics of the guitar pickup (what generates the electric signal that becomes the acoustic output of an electric guitar) and the tonal performance, and the effects of manufacture defects (and the identification of these). With collaborative aid from Nottingham Trent University Music Engineering Lab, guitar pickups were manufactured to specified parameter and analysed to show the relationship between the frequency response and parameters variation.

### References

Neary, M. and Winn, J. (2009) The Student as producer: Reinventing the subject experience in higher education. In: L. Bell, H. Stevenson and M. Neary (eds) *The future of Higher Education: Policy, Pedagogy and the Student Experience*. London: Continuum.

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