BIOLOGY DISCIPLINE WORKSHOP

Michelle Power[a], Lisa Godinho[b], Pauline Ross[c]

Presenting authors: Michelle Power (michelle.power@mq.edu.au), Lisa Godinho (lisa.godinho@unimelb.edu.au), Pauline Ross (pauline.ross@sydney.edu.au)
[a]School of Natural Sciences, Macquarie University, Sydney, 2109, Australia
[b]School of Biosciences, University of Melbourne, Melbourne, 3010, Australia
[c]School of Life and Environmental Sciences, University of Sydney, Sydney, 2006, Australia

This workshop will address generate discussion on two topics of relevance to a contemporary biology curriculum.

OVERCOMING THE BINARY: SEXUAL DIVERSITY AND GENDER IN BIOLOGY CURRICULA

In this workshop we will explore avenues for greater inclusivity in biology curricula using approaches that provide better understanding of both sexual and gender diversity. Exemplars of diversity within the animal world, social and biological terminology and inclusive language, and use of materials relatable to all will provide participants with tools for creating inclusive learner experiences and support growth of underrepresented groups in STEM. The workshop will include a presentation integrated with small activities and a final group discussion.

EXPERIENTIAL LEARNING

Even prior to COVID-19 pandemic laboratory and field-based learning were the last remaining compulsory activities that students were expected to attend in person and on campus. Ever growing class sizes, increased online asynchronous interactions and the arrival of generative AI arguably make in person experiential opportunities in the laboratory and field ever more important. It is almost a given that biological science training would be significantly diminished without laboratory and field-based learning experiences. Fortunately, multiple student evaluations and reports agree they are valuable (Burke da Silva, 2014). Burke da Silva (2014) when reviewing the role of field-based learning in biological science degrees, concluded the benefits of laboratory and field-based learning out-weighed the cost and effort. But the review also showed significant differences in what we offer to undergraduate students across Australia.

Since this review many questions still remain about field and laboratory-based learning. For example, over the past decade have opportunities for students declined further? What of the cost and technical support required? To what extent are they now critical for transition to tertiary education, the development of student inclusion and belonging, and a critical component of the certification of student learning.

In this session we would like to re-consider practicals and fieldwork as key opportunities for student engagement and learning. We also propose to initiate a review and benchmarking process to understand the breadth of experiential learning (lab and field) in our biological and life science degrees in Australia, including the ways in which they may be responding to the emergence of AI. From here, we may consider, as an expert community, whether there are baseline expectations that could or should be set in curricula for the purpose of training our future biological scientists.

REFERENCES

Burke da Silva, K. B. (2014) Biological fieldwork in Australian higher education: Is the cost worth the effort? *International Journal of Innovation in Science and Mathematics Education*, 22: 64-74

Proceedings of the Australian Conference on Science and Mathematics Education, The University of Canberra, 18 – 20 September 2024, page 122, ISSN 2653-0481.