

---

# BIOLOGY STUDENTS' EXPERIENCE OF PRACTICAL WORK

Alexandra Williams<sup>a</sup>, Lauren Crean<sup>a</sup>, Susan Howitt<sup>a</sup>

Presenting Author: Alexandra Williams ([Alexandra.Williams@anu.edu.au](mailto:Alexandra.Williams@anu.edu.au)), Lauren Crean ([Lauren.Crean@anu.edu.au](mailto:Lauren.Crean@anu.edu.au))

<sup>a</sup>Research School of Biology, ANU, Canberra 2601, Australia

**KEYWORDS:** Practical, Laboratory, Confidence, Research Skills, Student Experience

**SUBTHEME:** Modes of Learning

## BACKGROUND

University students studying biological science degrees have classically been taught through both theoretical and practical laboratory classes. We are interested in how students perceive practical work and how they think their skills and confidence develop with greater experience. Since the COVID pandemic and the rise in online teaching, the role of practical work is seen by some as essential to a science degree but by others as something that can be largely replaced by online experiences. We think it is important to gain student perspectives to contribute to this debate.

## PLAN

Drawing from several published studies (Semsar et al., 2017; Pavlova, et al., 2021; Humphrey & Wiles, 2021), we have developed a short online survey to gain insight on student experiences of practical work. Focusing on student perceived confidence in research skills, following different modes of teaching. We have chosen participants for surveys and interviews from students at two different points in their degree. Following the initial survey, we plan to interview individual participants to explore their thoughts and reasoning behind particular answers given.

## ACTION

We plan to use the gathered data to analyse student attitudes towards practical learning in university biology courses. This will inform future course design to improve student learning outcomes. Further, this study will form a basis for assessing the value of practical vs online teaching for university science subjects.

## FUTURE

We are currently in the process of gathering the data and aim to have it ready to present at ACSME 2024. We plan to extend this study further by working with partners across multiple institutions, to gain a larger sample size and range of student backgrounds. Additionally, this study could be run over multiple years to survey changes in learning experience over time.

## REFERENCES

- Humphrey, E. A., Wiles, J. R. (2021). Lessons learned through listening to biology students during a transition to online learning in the wake of the COVID-19 pandemic. *Ecology and Evolution*. 11(8). 3450–3458.
- Pavlova, I. V., Remington, D. L., Horton, M., Tomlin, E., Hens, M. D., Chen, D., Willse, J., Schug, M. D. (2021). An introductory biology research-rich laboratory course shows improvements in students' research skills, confidence, and attitudes. *PLoS ONE*. 16(12).
- Semsar, K., Knight, J. K., Birol, G., & Smith, M. K. (2017). The Colorado Learning Attitudes about Science Survey (CLASS) for Use in Biology. *The American Society for Cell Biology*. 8(3), 268-278.

Proceedings of the Australian Conference on Science and Mathematics Education, The University of Canberra, 18 – 20 September 2024, page 97, ISSN 2652-0481.