

College of Liberal Arts and Sciences Spring 2023 Chemistry Seminar Series Friday, April 7th

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Developing a coherent practical curriculum

ABSTRACT: Laboratory work is a core component of chemistry degrees but its organisation and coordination is often compartmentalised into year groups and discipline specialisms, meaning that it can be difficult to implement a cohesive curriculum as viewed from a student perspective. The aim of this practice-focussed presentation is to outline an overall strategy for laboratory curriculum cohesion which focusses on progressive development and assessment of practical skills, research skills, and a discussion on managing and assessing research projects. Pathways to reform are outlined, grounded in pragmatism and experience in a research-intensive environment, with a focus on the role of graduate teaching assistants, technical staff, academics, and students. While the focus of this presentation is on chemistry, it mirrors challenges faced in other practical disciplines.

BIO: Michael Seery was until recently Professor of Chemistry Education and Director of Teaching in the School of Chemistry at University of Edinburgh. His research interests are grounded in laboratory education and the role of digital education in supporting student learning, and is especially focussed on the research-practice interface. He was awarded the 2021 RSC Nyholm Prize for Education for his work in laboratory education and for providing leadership and support to others carrying out chemistry education research. In 2022, Michael joined Cardiff Metropolitan University as Head of Digital Learning.

References

- 1. Seery, M. K., Establishing the Laboratory as the Place to Learn How to Do Chemistry. *Journal of Chemical Education* **2020**, *97* (6), 1511-1514.
- 2. Seery, M. K.; Agustian, H. Y.; Zhang, X., A Framework for Learning in the Chemistry Laboratory. *Israel Journal of Chemistry* **2019**, *59* (6-7), 546-553.
- 3. Agustian, H. Y.; Seery, M. K., Reasserting the role of pre-laboratory activities in chemistry education: a proposed framework for their design. *Chemistry Education Research and Practice* **2017**, *18*, 518-532.
- 4. Seery, M. K.; Agustian, H. Y.; Doidge, E. D.; Kucharski, M. M.; O'Connor, H. M.; Price, A., Developing laboratory skills by incorporating peer-review and digital badges. *Chemistry Education Research and Practice* **2017**, *18* (3), 403-419.

5. Seery, M. K.; Jones, A. B.; Kew, W.; Mein, T., Unfinished Recipes: Structuring Upper-Division Laboratory Work To Scaffold Experimental Design Skills. *Journal of Chemical Education* **2019**, *96* (1), 53-59.