

ADVANCED ORGANIC CHEMISTRY LABORATORY CURRICULA IN AUSTRALIAN UNIVERSITIES: INVESTIGATING THE MAJOR TOPICS AND APPROACHES TO LEARNING

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A key goal of tertiary education is to prepare graduates with the training, skills, and knowledge necessary to thrive in the workforce. In chemistry, 50% of undergraduate students from Australia, New Zealand and the UK plan to pursue a career that uses chemistry (Ogunde et al., 2017). However, it has also been noted that there is a mismatch in the skills desired by industry when compared with what is taught to undergraduates (Martin et al., 2011; Yasin & Yueying, 2017). Laboratory work is an essential part of undergraduate programs with the objective of developing practical and interpersonal skills with 'real world' engagement in chemistry. It is therefore concerning to note the perception among industry stakeholders that the laboratory skills of high-achieving chemistry graduates do not meet the desired standard (Kirton et al., 2014).

This project aims to investigate how we can better develop higher level undergraduate chemistry laboratory programs to improve training with research and industrially relevant skills. To extend our understanding regarding the importance and value of undergraduate laboratory skills, techniques, and equipment usage; semi-structured interviews were conducted with key external stakeholders, academics, and post-graduate teaching staff. Key findings saw the desire for more focus to be placed reaction monitoring and chromatographic techniques as well as a desire to focus on student autonomy and application of learned skills through student choice regarding the experimental design. We have subsequently created a new third year laboratory experiment that incorporates and address these highlighted learning goals/outcomes which will be employed this coming semester. This is an update from previous presentations of this project showing the results and application from our perspective analysis study.

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