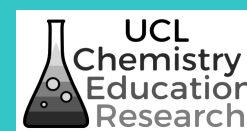


Student Startups. A Problem-Based Learning Approach to Teaching Sustainable Chemistry

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INTRODUCTION

In a rapidly evolving chemistry job market, it is essential to prepare students to understand the nature of roles available for chemistry graduates.¹ This poster introduces a Problem-Based Learning (PBL)^{2,3} strategy implemented in a sustainable chemistry module, designed to equip students with the confidence and familiarity needed to navigate industry-specific language when applying for jobs.

The PBL approach simulates the hierarchical structure of a startup company, where lead academics take on executive roles to introduce real-world sustainability challenges. Postgraduate Teaching Assistants (PGTAs) are Project Managers, guiding students' team discussions maintaining professional group dynamics. Students work in teams to solve real-world industry problems while assuming roles inspired by actual job postings.

TIMELINE AND STRUCTURE OF THE PBL ACTIVITY

WEEK	ACTIVITY	COMMENTS
0	On-line Educational Materials available	The activity is flipped, and the active learning sessions from week 2 are PBL workshops
1	Kick off lecture	<ul style="list-style-type: none">Chiel Scientific Officer (CSO, Lead Academic) introduces real-life industry problem in the context of sustainable chemistry. E.g. Sustainable production of PETStudents form groups (startup companies) and are assigned to a PGTA (Project Manager)
2	Workshop 1. Biomass Pre-treatment	First company meeting overseen by Project Manger to work on workshop 1.
3	Workshop 2. Design of Sustainable Chemical Processes	Second company meeting overseen by Project Manger to work on workshop 2.
4	Workshop 3. Design of Recycling Protocols	Third company meeting overseen by Project Manger to work on workshop 3.
5	Q&A Session	Feedback provided by CSO
6	Submission of Assessment and presentation of results to CSO	Example of Assessments include poster presentation, report submission and oral presentation to a panel of academics (e.g. pitch to a group of "investors")

MODEL INDUSTRY ROLES AND HIERARCHY OF PARTICIPANTS

