

# MOTIVATING MEDICAL SCIENCE STUDENTS TO ENGAGE WITH CHEMISTRY CONCEPTS

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Cognitive reasoning in chemistry in admissions tests, is a significant hurdle for many medical science students aiming for graduate medicine, in particular for non-chemistry majors (Shulman, 2013). We developed an interdisciplinary subject focussed on building students' confidence in physical sciences coupled with medical ethics for a new undergraduate premedical program. Organic chemistry in particular, can be a turning point for many students (Barr, Matsui, & Gonzalez, 2010). Thus, we aimed to increase engagement of first year premedical students with organic chemistry concepts by contextualising teaching and learning through highlighting historical medical errors and future ethical challenges. Connections between medicinal plants and current drugs were explored including aspirin derived from willow bark and anaesthetics from Indian arrow poisons, alongside concepts of benefit sharing of traditional knowledges. Spectroscopy was taught alongside medical imaging techniques and stereochemistry in the context of drug stereopurity and the thalidomide tragedy. Substituent directing effects were highlighted by early antibiotic development from azobenzene dyes and S<sub>N</sub>2 nucleophilic substitution illustrated by using alkylating anti-cancer drugs (e.g. cyclophosphamide), exploring from chemical warfare agents to chemotherapy. The outcome of introducing this medical-aligned chemistry subject for premedical students will be presented including the impact on learning (Mansfield, Peoples, Parker-Newlyn, & Skropeta, 2020) and overall student performance and satisfaction.

## REFERENCES

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