

## **Lessons learnt from redesigning a major biomedical capstone course**

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Traditionally capstones are designed to focus on students demonstrating program level outcomes through the synthesis, integration and application of acquired knowledge and skills, rather than on the acquisition of new knowledge and skills (Lee & Loton, 2015). The capstone course for undergraduate students studying Biomedical Science (BIOM3200) at the University of Queensland is taken by a large (approximately 450 students per year) and diverse cohort of students who usually specialise in one or two of the discipline areas within Biomedical Science. However, in previous years, the course consistently received poor student evaluations. Consequently, a multidisciplinary working party, including representatives from the School of Biomedical Sciences, Medicine, Public Health, Industry and student partners, was established to revise the course.

A review of students' qualitative feedback revealed a number of core issues with the course including: the weight and timing of assessment, moderation of marks and provision of feedback; lack of choice and creative freedom; and inauthentic assessment which did not reflect the expected graduate destinations of students. In an attempt to address these concerns, three alternate streams were implemented: 1) Scientific Research (for those pursuing further study in scientific research); 2) Clinical Professions (those pursuing further study in medicine and allied health); and 3) Biomedical Industry and Communications (those seeking graduate positions in industry), with students being freely able to choose their preferred stream.

The course now includes two major pieces of assessment (broken into smaller successive tasks), so student can receive timely feedback. The first major assessment focuses on bioethics, with students undertaking identical assessment tasks, but able to choose a topic aligned with their preferred stream. The second major assessment is a Biomedical Project which differs for the three streams. The Scientific Research stream (chosen by 17% of students) developed a 'Research Proposal', the Clinical Professions stream (69% of students) a 'Science Translation' assessment, and the Biomedical Industry and Communications stream (14% of students) a 'Project Investment Proposal'. Although, the streams had different assessment, all assessment tasks were designed to further develop and evaluate student's skills in: understanding/knowledge of biomedical science; inquiry and problem solving; ethical reasoning; quantitative/statistical analysis; communication; and personal and professional responsibility, but did so within the context of their chosen stream. Each week, students were provided pre-readings, activities, and online or live lectures relevant to their chosen stream, but the primary contact was in group-based workshops held each week. Multiple on-line resources were developed to help students understand any content or process specific knowledge needed for the various assessment items within each stream; students had autonomy regarding the extent to which they used these resources, encouraging self-directed learning behaviours.

Although the course is now more complex to manage, preliminary findings suggest that students are more engaged and have greater support to achieve the course learning objectives. Students have expressed greater satisfaction with the course as a result of the increased level of choice provided and its increased relevance to their intended graduate destinations.

Lee N, Loton DJ. (2015). Capstone curriculum across disciplines: Synthesising theory, practice and policy to provide practical tools for curriculum design. OLT National Senior Teaching Fellowship. Final Report. Office for Learning and Teaching. Sydney: Department of Education.