In the next phase, teams design and develop a presentation in any format that will effectively communicate their topic and its core biological concepts to their peers. Suggested presentation formats include website, video, animation, role play, gamification, interactive lecture, infographics, music/song and models. An important presentation criterion was to align the fundamental biological concepts underlying their topic with the appropriate BABS1201 course concepts, and to explain these at a depth that is appropriate for a general audience.

Before students finalise and deliver their presentation, teams pitch their presentation concepts to their larger laboratory group for peer feedback on the design, content, and dynamics of their presentation, particularly with respect to how well these features align with the task objectives. Teams then use this feedback to finalise their presentation for delivery and viewing by their peers at the end of the semester.

A project portfolio is also required for submission. This documents the proceedings of team meetings, including an inventory of all ideas, decisions and work relating to the presentation design and execution. At the end of the activity, each student submits a reflective summary that describes their personal experiences throughout the project and how they might improve their performance. This also includes a peer evaluation of teammates for their contribution and engagement with the activity.

The pilot iteration of this project yielded very positive student and teaching staff feedback. As well as engaging students with modern biology, this project actively helped students to develop, exercise and enhance a range of general and science-based communication skills. For example, students reported gaining confidence in finding and navigating reliable scientific literature, and in describing the general features and outcomes of peer-reviewed journal articles. Students also enjoyed taking ownership of their project through topic choice and freedom of presentation design. Future iterations of the project will enlist students as partners in the revision of project instructions and the provision of presentation exemplars to further enhance student engagement and satisfaction with this learning activity. Subsequent courses will be monitored to ascertain whether this experience helps students perform better in similar tasks.

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My Experiences in Teaching Molecular Biology through Active Learning in China

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I periodically teach molecular biology at the Nanjing University of Chinese Medicine (NJUCM). I will share with you my experiences which might be of interest as many Australian universities have links or articulation pathways with Chinese universities. As I recall, my first teaching visit to China’s NJUCM, back in 2013, was a real eye-opener. Three major observations stuck in my mind: first, the limited technology available for teaching, I only had access to a computer for Powerpoint slides and a blackboard; second, lecturing by academics was reading from the textbook while students followed; and third, students freaking out when I sat down with them in problem-based learning sessions.

As much as designing activities for problem-based and inquiry-based learning are central to my teaching philosophy, so is providing students with a safe environment for their learning. As I embarked on yet another trip to China, I was contemplating the active learning strategies I would use in my classes, and concerned about retaining their effectiveness within the Chinese setting. The students I teach are part of an articulation program in biomolecular science. There are approximately 120 students who will complete three years at NJUCM and one year at Griffith University, with many transitioning into Honours and Masters programs. I am the first academic they will have from Griffith University, and the first time that they will have classes in English (with the exception of some English language classes). However, I knew before I started teaching that the students would be faced with cognitive overload. Students not only had to learn in English but also had to learn concepts in molecular biology through active
learning tasks, a strategy that was completely new for them. Introducing the students to active, problem-based activities is imperative for their successful transition to Griffith University.

In this article, I share some active learning tasks that I used in my class. One example is related to teaching transcription and translation. Students are provided with a DNA sequence and asked to identify key features of the gene such as its promoter region, start and stop codons, and Shine-Dalgarno sequence. Students are then required to translate the DNA molecule into amino acid one letter code, and the answer is MACDCHIGHWAYTHELL. I had used this task in Australia, with much success, however I did not expect the majority of these students would know ACDC. How wrong I was! Thanks to the universal language of Marvel, most of them knew the song from Ironman 2, although I did still share the 1979 video clip with them. In another activity, which I do in my last lesson, I ask every student to draw/write one concept on the board that they have learnt in my classes. By the end of the exercise, the blackboard was a collage representing every aspect of my teaching. The students embraced both of these activities with a vigour that impressed me. Their language skills and engagement in class improved remarkably, even though this style of learning was foreign to them, “It's interesting and brand new, very different from the way in China.”

I was pleased to notice that my teaching approach had an impact on my colleagues at the university. My Chinese colleagues increasingly led by example to encourage their students to actively participate in their learning. I also observed active learning taking place in their classrooms using a range of learning activities. One colleague confirmed the impact my teaching approach had on hers, stating, “I have learned to give quiet students many avenues of participation and encourage them to learn by creating a safe environment for all opinions.” The most satisfying and rewarding aspect of my teaching in China was recognising that the simplest active learning tasks had the most incredible impact; the enthusiasm shown by students undertaking these activities was the greatest source of inspiration for my Chinese colleagues to transition from passive to active learning approaches.

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Interdisciplinary Teaching:
Five Pieces of Workshop Wisdom

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At Monash University, staff from the nutrition and biochemistry disciplines collaborated to design and deliver a new second year undergraduate unit, Nutritional Biochemistry, which was undertaken by 70 students. It was the first unit I have been involved in, either as a student or Teaching Associate, which used case studies in workshops in place of a lecture. Having seen how well students respond to case studies in traditional tutorials, I felt that the students would interact with the content on a deeper level in the new workshop classes. While this did prove to be true, I was surprised at how much I learnt about teaching in that environment. As much as students were learning skills of deduction, independent thinking and problem solving, I was exploring ways of