# Providing WIL across complex interconnected science degrees at Western Sydney University

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## Objectives

The project had three specific aims:

1. Identify and compile current activities in the science degrees at Western Sydney University (WSU) that constitute WIL.
2. Determine which new/existing activities can be explicitly incorporated into the Bachelor Science (BSc) programs with a particular emphasis on the appropriateness of the activity with respect to curricula, student development and WIL learning outcomes.
3. Provide an opportunity for students to complete placements/volunteer opportunities and gain academic credit for the activity via reflection on WIL outcomes.

## Context

There are eight science degrees offered at WSU, through the School of Science and Health, and only one of these has an explicit WIL requirement. This WIL component is a ‘mastery requirement’ which has no credit point value, and is completed outside of semester. It is highly likely that there are current WIL activities being undertaken in many of our science degrees, although they are not explicitly articulated or scaffolded. In addition, many students deliberately seek part-time work in their professional area (either voluntary or paid), which could also be considered WIL and should be recognised as such. Others are cognisant of the need for work experience to develop their work readiness skills but, without an explicit course requirement, lack the incentive to attempt this before graduation.

The primary purpose of this project was to provide a platform for introducing WIL as a clearly defined and identifiable component of science degrees at WSU. The project links directly with the University’s mission statement and the University Strategic Plan ‘Securing Success 2015-2020’ which states that WSU is to be a ‘distinctively student-centred university’ that will ‘transform(ing) its teaching and learning environments…. with innovative curricula and work integrated learning’ and ‘develop more employment-based and volunteering programs and experiences that promote personal development, industry and civic engagement and career readiness’. The draft Teaching and Learning Plan (2016-2020) also explicitly articulates developing WIL experiences in all undergraduate courses. These documents and their timely release indicate the priority given to incorporating WIL in the curriculum and the explicit support for the development of WIL in science.

## Implementation

To identify existing WIL activities, we reviewed the learning guides from all core or alternate core units within the eight science programs, using the descriptors of WIL activities outlined by Edwards et al. (2015). We then interviewed unit coordinators (n=71) to verify this information, and map WIL activities against the learning objectives identified by Edwards et al. (2015). Specifically, we focused on:

1. whether WIL activities were present in the unit and if so what type (based on the typology of WIL activities in Edwards et al., 2015)
2. whether there is evidence of scaffolding and linking of the activity in the curriculum
3. a description of the activity including learning outcomes and names of industry/community groups involved
4. whether WIL was clearly articulated in the learning outcomes of the unit.

Academics were also interviewed (with Human Ethics approval) on their perceptions of WIL in the context of science.

Our initial findings indicate that there is more hidden WIL in earlier stages of courses compared with later years. This may be due to academics identifying the need to develop skills, but not communicating how activities relate back to the workplace. We have found variable coverage of WIL learning outcomes and almost no scaffolding of WIL learning outcomes in the science degrees.

To encourage students to be proactive in finding placements during their studies, we developed a unit (level II) that enables students to gain credit for such activities. This unit also includes activities to help students identify and reflect on work ethic, workplace skills, communication, teamwork, independent learning and temporal changes in attitudes and expectations during the experience. In addition to recognizing and awarding credit for the valuable work experience a significant number of our students already engage in, this unit also expands the university’s engagement with industry.

## Achievements and impact

We now have the data to validate our impression of WIL in our current courses. This has provided the basis for reconstructing some of our courses. We have identified both hidden and explicit WIL, have an understanding of the level of authenticity of the experience and whether it is scaffolded and covers the learning outcomes articulated in Edwards et. al. (2015).

Through our discussions with unit co-ordinators, we have dispelled the ideas that all WIL involves a placement and that embedding WIL always requires radical change from existing practice. For instance, just presenting material with a different emphasis can make WIL more explicit in units. The interviews with the unit co-ordinators, while extremely time-consuming were worthwhile as it also gave us a chance to discuss changes in modern pedagogy, learning outcomes and the engagement levels of the diverse student cohort which we now teach. We are reinforcing the term ‘Science Professional’ as well as ‘Scientist’ as an outcome of our degrees and encouraging professional behavioural characteristics from first year.

These discussions also stimulated collaboration between the Health and Science sides of the school, resulting in the sharing of knowledge and practical support with placement administration. The development of the WIL unit involved collaboration with the Careers service, resulting in a stronger relationship and better integration of careers in science.

We have embedded WIL in the minds of academics across Science. As staff are being asked to consider WIL in university documentation, they have responded that they now feel they are empowered to identify and embed WIL in a confident manner. The project team have been asked for input into WIL activities outside of the programs in Science and to work with some professional accreditation bodies to assess meaningful WIL. The profile of the team, with the support of external funding and the power of government report outcomes, has meant that now WIL has a very high profile in our school.

Through the roadshows around the Lighthouse project, several universities have discussed the methods the project has been using to identify WIL and the rubric. Most have commented that our methods are an achievable way to start invoking change in the attitude of staff to WIL.

A summary of our recommendations from this process include:

* identification of WIL activities must include transferability of skills to non-traditional science careers
* listen to staff and communicate – use WIL champions to share knowledge and support, and to build profile
* embedding WIL does not always require radical change from existing practice – some WIL is simply ‘hidden’, and only needs to be described more explicitly
* reinforce the concept of ‘Science Professional’ (to both staff and students) as an outcome of a science degree

## Emerging Issues and next steps

It is imperative that students graduate not only with core discipline knowledge, but also with professional skills and capabilities. We are yet to evaluate how the first groups of students engage in the new WIL unit, and entry is restricted until the unit has been trialed. Implementation with determine: demand for the unit; developing appropriate and genuine assessment, and placement of the unit as an alternate core unit in the B.Sc. (Advanced) and B. Med. Sc. (Advanced) competing with traditional lab based research projects.

Areas yet to be addressed include:

* defining what is the minimum WIL that should be provided via courses and which WIL learning outcomes could be delivered by other areas of the university (e.g. Careers)
* reviewing WSU degree structures with WIL prominent in these discussions
* creating WIL as ‘having a sense of belonging to the profession’ which encourages a cohort network amongst students and supports targeted activities earlier.

## Role of the WIL in Science project

The project has had a significant impact on WIL in Science at WSU. As outlined in this report, a review of the science courses is underway, and will consider WIL alongside discipline threshold learning outcomes and graduate attributes. As a direct result of participation in this project, the Dean and the university acknowledge the project team as sector leaders and ‘champions’ in sharing knowledge and application of WIL in science.