



Exploring alternate models for WIL in Science: Linking Work with Learning

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Thank you UQ FoS and ACDS

Problem

Science graduates work in diverse settings.

Providing work placements for large numbers of students is administratively difficult.

Students need a structured way to appreciate the learning and skills they obtain from a workplace.

Students are time poor.



STEM UNIVERSITY GRADUATES

Industries and occupations

STEM graduates work across the economy in a wide variety of industries and largely as professionals (55%) and managers (18%).

Top six industries

(65% of STEM graduates)



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Approach

This is an experiment.

We aim to develop a program that provides course credit for work that students are already doing in diverse settings.

Curriculum develops student understanding of the transformational role of work.

We will use sections of UQ MOOC Employ101x

You can access it here - <https://www.edx.org/course?school=UQx>



Where are we so far?

Learning Outcomes

Upon completion of the proposed course a student will be able to

1. Critically reflect on experiences in the workplace and explicitly link those experiences to potential employment opportunities as a science-based professional.
2. Have awareness of strengths and capabilities cultivated in a BSc and be able to articulate how those attributes can be applied in a workplace
3. Critically read the literature related to science employability and apply this knowledge to a reflection on current work experience
4. Present a learning portfolio that charts their development through the course, reflects their skills and interests, and provides a plan for their career development.

What will we do during the course?

Workshops (~10 x 2 h workshops)

Each workshop involves students reflecting on readings, sharing experiences from their workplace and their university training, and creating action plans for assignments and later workshops.

Peer mentoring

All students are required to mentor peers (6 h total) and be mentored (6 h total).

This supported process helps students understand the strengths and weaknesses they have. They will be guided in how to learn from others, how to ask for help, and how to offer help in a professional and gracious way.



Readings

During the program students will complete readings and question sets around a number of key areas. Here are some example papers.

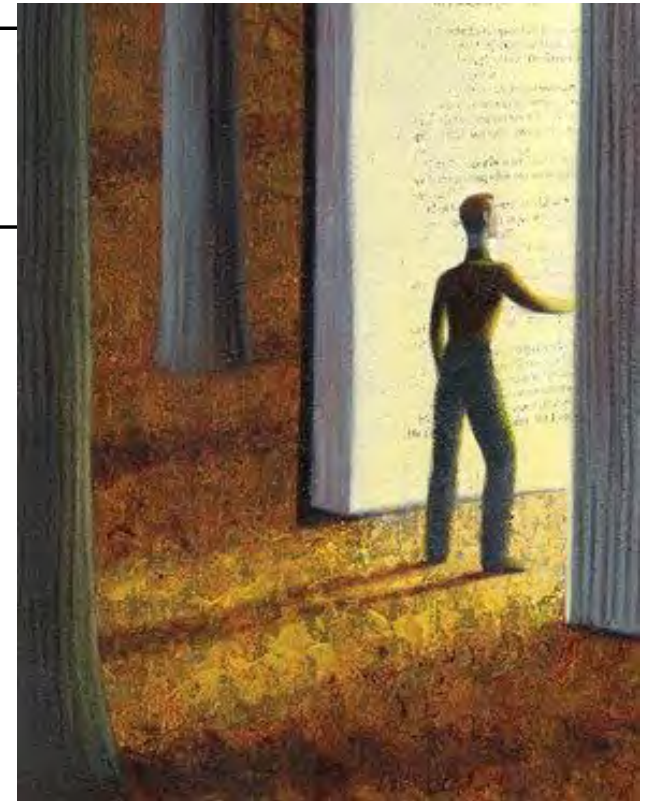
Office of the Chief Scientist (2016) *Australia's STEM Workforce*. Canberra: Office of the Chief Scientist.

This article lets students see the career pathways of science graduates in particular areas.

Krause, K-L (2012) *A Background in Science – What science means for Australian Society*. University of Melbourne: Centre for the Study of Higher Education.

This article has first hand descriptions of the kinds of attributes and habits of mind that are developed in science.

Hobin, JA, Fuhrmann, CN, Lindstaedt, B, and Clifford, PS (2012) *You need a game plan*. Sciencemag.org.



What Kind of Scientist Could I Be?

You might think that a scientist is a person in a white lab coat who spends their life peering down a microscope, but there are many different sorts of career in science, technology, engineering and maths.



The Communicator

Combining science and technology expertise with an understanding of their audience's needs, Communicators tell the world about the amazing work scientists do. They work in areas like TV, advertising, regulation and public affairs.



The Developer

Developers transform other people's discoveries into something practical. They enjoy solving problems and often work on creating new products or services, developing new technologies or applying existing knowledge to new situations.



The Entrepreneur

Entrepreneurs use scientific inventions to make money and create jobs for other people. Their scientific and business knowledge and entrepreneurial flair allow them to see opportunities for innovation.



The Explorer

Boldly going where no one has gone before, Explorers are on a journey of scientific discovery. They bring a fresh, creative approach to research, and are happy taking risks. It's hard to predict what they might find, and that's half the fun!



The Investigator

Investigators piece together bits of information to map out the scientific landscape so that others can more easily find their way. They are good at seeing connections between ideas, and often work in a team.



The Service Provider

Service Providers work in special laboratories, carrying out key scientific tasks like testing or setting up experiments. They are essential in areas such as the health service, investigating crimes and food science, as well as in research and education.



The Policy Maker

Policy Makers use their science knowledge to ensure that the law and government policy are based on sound evidence. They need strong communication, people and negotiation skills, and must be able to make difficult decisions.



The Professional

Professionals with excellent science and technology skills are in huge demand across all industries, not just in the obvious industries like pharmaceuticals or IT, but also in marketing, product development, finance and insurance.



The Regulator

Regulators make sure that science and technology are practised safely. They must communicate well with the public and other scientists, building trust and confidence. For example, Regulators check that our food is safe to eat.



The Teacher

Trained in science, Teachers use their passion for their subject to inspire students. Working in and with schools, colleges, universities, they pass on their knowledge and enthusiasm and help to develop tools for teaching and learning.

Want to be a Scientist?

If you like the sound of any of these kinds of careers, talk to your teacher about which subjects will help you become a scientist.

Produced by Ada Lowman Day
www.findingada.com or @findingada



Based on the Science Council's Ten Types Of Scientists
www.sciencecouncil.org/10-types-scientist



Supported by ARM
www.ARM.com



Students will complete a number of self-assessments

<http://sciencecouncil.org/about-us/10-types-of-scientist/>

Students will create and IDP using this link:
<http://myidp.sciencecareers.org>



Create change

Interviewing graduates

Students must find a science graduate, interview them about their career pathway, and present this interview to the other students in the class.

We will co-construct the substance and structure of this interview with the students in the course.

Students must use their network for find this graduate and reflect on:

- a) the size and scope of their network and
- b) the ways they build and use this network.



Considerations re approach

We may have problems getting enough students to participate in the trial

- we are offering money
- ethics is already giving us trouble

We may have problems marrying the planned course activities to a wide variety of work experiences – mixed response from science colleagues.

We may find we need to restrict the types of “work” we include or use the idea of “developing science professionals” vs “working as a scientist”.

