

Honours Pathway Courses and Honours Pathway Options (HPCs and HPOs)

Background

In 2010 a science working party investigated extending undergraduate research experiences beyond the PhB. Specifically it was felt that the Advanced Honours Programs needed to be re-evaluated and there was recognition that students wanted more Honours Pathway Options and Courses. However there was some concern from staff about the increased resources required. Key issues that were identified at that time were:

- “A sense that in Advanced Honours program[s] in Science we are not yet providing adequately the research support students need.”
- “Research in Sciences, looking to opportunities to do things, to embed students early in concept of research-mindedness.” *Not all research-focussed activity needs to be an independent research experience.*
- “The importance in these advanced cohorts of building a sense of community and identity.”

Much of the subsequent discussion revolved around how to persuade “research-only” staff to engage more with education, which perhaps led to no clear way forward on the Advanced Honours Programs. Many of the issues that were identified around clear and explicit research-focused activities within courses and within the Advanced Honours Program remain. It is the intention that this is now addressed.

Parallel activities are being undertaken:

- Analysis of the performance of the BSc Advanced Honours cohort
- Understanding Students Perceptions of Research (survey in 2017)
- Defining the principles for HPO’s and HPC’s –the topic of the current paper.

There are currently two Advanced Honours programs in science: the Bachelor of Science Advanced (Honours) and the Bachelor of Psychology (Honours). A third program the Bachelor of Interdisciplinary Studies (Sustainability) Advanced (Honours) has been disestablished from 2016 and a new program, the Bachelor of Environment and Sustainability Advanced (Honours) commences in 2017. All Advanced Honours Programs are four year undergraduate degrees, with a requirement for 24 units of Honours Pathway Courses or Honours Pathway Options, and a fourth year honours project.

Principles for Advanced Honours Programs

1. The Advanced Honours programs should have a focus on development of research capability and “research-mindedness”¹.

Development of research capability can be fostered through:

- *Skills:* a way of thinking, scientific methods, vocabulary, hypothesis generation
- *Knowledge:* disciplinary theory, research methodology concepts
- *People:* Role models, good research supervision, mentoring
- *Environment:* facilities and resources
- *Conditions:* time to think, opportunity to engage, research embedded into teaching activities, students being empowered to own ‘doing’ science.

Research-mindedness at the undergraduate level includes:

¹ Principle 1 adapted from 2010 Science Undergraduate Research Working Party Notes – Denise Higgins *et. al.*

- *Qualities*: open-mindedness, confidence, adaptability, creativity, subjectivity curiosity, reflection, determination, obsession, self critique, ability to focus.
- *Skills*: communication, problem solving, critical thinking, research question framing, dissemination.
- *Knowledge*: research methods and processes, dealing with evidence and data.
- *Environment*: Being part of a discipline, community, culture.
- *Conditions*: Enabling individual or group control of inquiry directions, a discovery element, building confidence in students that they can engage in research.

2. Not all research-focused activities are required to be independent research experiences, although such courses should be included in the suite of offerings.

Research focused activities can include:

- *Independent (guided) research project*
- *Inquiry based group project*
- *Problem-based learning activities*
- *Literature reviews, critiques, presentations of research (e.g journal clubs)*
- *Analysis and critical evaluation of research data*
- *Teaching on research methodology and techniques*
- *Teaching on hypothesis generation and testing*
- *Teaching of research communication skills*
- *Embedding current research in lectures*

3. As a defining feature of Advanced Honours Programs, Honours Pathway Options (HPO) and Honours Pathway Courses (HPC) must be explicitly research-focused as evidenced through the course description and learning outcomes and/or the Honours Pathway Option description.

- To be defined as an HPC, the learning outcomes of the course must include some statements with a research focus.
- HPO's within a course must have:
 - a research focus (broadly defined)
 - a description on programs and courses
 - learning outcomes, different from or additional to those of the underlying course.