



The Teaching-Research Nexus

A guide for academics and policy-makers
in higher education

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Examples from Australian universities

Creating an Advanced Program to Foster Teaching and Research Links in Computer Science

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Broad discipline area:

- Computer Science

Year level:

- First year undergraduate to Honours

TRN strategy:

- Encourage students to feel part of the research culture of departments
- Involve students in departmental research projects
- Design learning activities around contemporary research issues
- Infuse teaching with the values of researchers
- Build small-scale research activities into undergraduate assignments

Teaching and learning context:

- Curriculum design
- Lifelong learning
- Small group classes/tutorials
- Research laboratory
- Student/lecturer research collaborations

Brief description of the initiative:

The Bachelor of Information Technology (Honours) (Advanced Computer and Information Science) program is essentially an advanced program that is open to students who meet the entrance score requirements (students usually require an ENTER score of 95 or higher). There are usually five to seven students enrolled in this program.

In first year, in four of the eight courses, students work at a more advanced level than their peers, who are also enrolled in the Bachelor of Information Technology. In second year these students have two courses that are taught at a more advanced level. The remaining courses are completed by both groups of students. The degree is four years in duration and for the six advanced classes these students are together for tutorials and practical classes. These students are introduced to research in their first

year of their undergraduate degree. The material in this discipline is often considered difficult to incorporate into teaching before the basic skills have been learnt. The course designers believe that students with more academic success in secondary school might be better placed to understand research material as well as the basic skills from year one.

The program requires students complete two courses in which they undertake their study in a research laboratory in the School of Computer and Information Science. Students are allocated into one of the school's eight research laboratories, and are expected to attend the laboratory at least one day per week in order to work in a group and feel part of the research culture. Students are assessed on their research contribution, which may be a literature review, small program, user study or another research related endeavour. Students are also required to undertake an industry based placement and complete a minor thesis in the fourth year of the program.

This program is aimed at providing students with a high level of understanding of not only the technical issues of computer science but also the research that occurs to develop the field. Students are in a better position to deal with new problems and new technologies after they leave the supportive environment of the program. Students also develop their problem solving, teamwork and communication skills. Student feedback indicates that they value the experience of being involved in hands-on research and having an opportunity to work closely with the staff, particularly during the third year research projects within the school.

For further details:

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Handout/Teaching materials (if appropriate):

<http://www.unisanet.unisa.edu.au/programs/program.asp?Program=LHIS>