ACTUARIAL STUDIES

Development of School Teaching and Learning Plan

A Teaching and Learning Plan for Actuarial Studies for 2006-2009 has been developed in consultation with academic staff and is to be finalised during Session 2 2006.

The Actuarial Studies program at UNSW plans to focus on a number of key goals over the period 2006-2009 in its teaching and learning plan. These goals are:

- implementation of strategies to develop graduate attributes in the undergraduate and postgraduate experience,
- completion of the curriculum mapping process for graduate attributes to the undergraduate and postgraduate programs and development of strategies to ensure alignment between assessment tasks and graduate attributes,
- implementation of education technology and flexible learning in the actuarial undergraduate and postgraduate courses, and
- continuing actuarial professional accreditation and recognition for teaching and learning innovation.

Goal 1 Graduate attributes

The UNSW Actuarial program aims to develop a range of important graduate attributes through the student learning experience in the courses required for professional recognition. These attributes have been developed through both formal and informal consultation with various stakeholders including academic staff, graduates of the program, employers and professional associations. The Graduate Attributes are:

| Technical Skills | In depth knowledge of quantitative risk modelling in a broad business context, capacity for analytical and innovative problem solving, ability to analyse data and knowledge of relevant software, ability to use data and models for decision making |
| Communication     | Effective and confident communication of complex financial issues, capable of balanced and informed discussion, ability to influence and achieve positive outcomes |
| Professional     | Understanding of practical and ethical issues, awareness of social responsibility and willingness to contribute to the profession and community |
| Interdisciplinary approach | Understanding of the importance of broader business and analytical skills, respect for and knowledge of other disciplines, willingness to learn from other disciplines |
| Intellectual enquiry | Capacity for life long learning, ability to take responsibility for learning, ability to locate and evaluate information, ability to recognise and respond to change |
| Teamwork and collaboration | Capacity for leadership and teamwork, ability to network with peers, positive approach to collaboration and achieving common goals, a respect for others |
| International Perspective | An international perspective on disciplinary knowledge, recognition of international diversity |

Currently many of these attributes are informally developed in various assessment tasks across the actuarial courses. Technical skills are a key focus of all the actuarial
courses. Communication has been developed through various tasks including presentations, literature reviews, reports, and tutorial group problem tasks although the relationship between the assessment task and this graduate attribute has not been emphasised in course guides. A number of the graduate attributes need further development in the course assessment tasks including teamwork and collaboration and communication skills more broadly. Not all courses develop all the attributes and the Curriculum Mapping process is being used to identify the courses and stages of the program that will develop each of the attributes. Assessment tasks will be aligned with graduate attributes across courses. Feedback has been received from the Institute of Actuaries on Communication skills development from a survey of recent graduates.

**Strategies to achieve the goal:**
- Finalise the Curriculum Mapping process to identify attributes and assessment tasks to be developed in each of the courses in the undergraduate and postgraduate program
- Involve all course coordinators in the Curriculum Mapping process to ensure an awareness of the assessment tasks across all courses and the alignment of attributes and assessments
- Revise assessment tasks and course guides to specify the graduate attributes and how assessment is aimed at developing the identified attributes
- Communicate the Graduate Attributes and Curriculum Mapping outcomes to current students and obtain feedback
- Revise the UNSW Actuarial Studies web site to include the graduate attributes, the courses and assessment tasks used to develop the attributes and to provide current and future students with an awareness of the full program structure
- Evaluate the effectiveness of the assessment tasks through the course evaluation process and from feedback from other stakeholders over future years.

**Goal 2 Curriculum mapping**
The UNSW Actuarial program has developed Graduate Attributes for the undergraduate and postgraduate programs. These have been developed by staff incorporating input from graduates and employers. These graduate attributes have been mapped to the individual courses by course coordinators and assessment tasks and approaches aiming to develop these attributes summarised based on current course assessment. The extent to which each course develops each graduate attribute has been rated from 0 (lowest) to 3 (highest) and a summary for undergraduate and postgraduate courses is attached. Attributes and courses that need further review have been identified. The graduate attributes were discussed with the Institute of Actuaries Accreditation Panel in the mid term review of the UNSW actuarial program in September 2005.

The next stage of the Curriculum Mapping process is to review assessment tasks and courses and produce revised course assessments. This will take place at the February 2007 actuarial staff retreat. These will then be incorporated into course guides in Session 1 and Session 2 2007.

**Strategies to achieve the goal:**
• Review the Curriculum Mapping and Graduate Attributes and identify the changes to assessment tasks and the current assessment tasks taking into account stakeholder feedback
• Incorporate the results of the Curriculum Mapping and Graduate Attributes into the course outlines for Session 1 and Session 2 2007
• Communicate the outcomes to and seek feedback from the IAAust Accreditation Panel at the Panel visit in 2007
• Communicate the outcomes to and seek feedback from UNSW Actuarial Studies Coop sponsors.
• Incorporate feedback into the Curriculum Mapping and Graduate Attributes review process at the end of 2007.

Goal 3 Increased and Effective use of Education Technology and Flexible Learning

The UNSW Actuarial program currently uses WebCT for all courses. The use of the web and on-line course technology is confined to the delivery of course materials, assessment tasks, feedback to students on assessment and course administration. Little use has been made of on line learning or the use of other educational technology. One of the postgraduate courses has used flexible delivery and intensive teaching sessions over the last two years.

The actuarial courses are technical and include significant content that requires students to spend time outside of class learning and developing a deeper understanding through exercises and application. Lectures can be improved in value to students and course coordinator if they provide a guide to student learning, highlight the major topics of the course and provide an opportunity for student feedback and discussion of more difficult topics. This is difficult to achieve without the use of education technology and more flexible teaching and learning strategies.

Strategies to achieve the goal:
• Review the use of education technology and flexible teaching and learning in actuarial courses and identify those that can benefit most
• Review the types of Education Technology and Flexible Learning that would be most suitable for the actuarial courses and identify the most beneficial approaches
• Develop an initial flexible delivery module for a review of background mathematics for postgraduate students entering the Master of Actuarial Studies using the smartboard/recording approach developed in Electrical Engineering and Telecommunications in S2 2006
• Target two actuarial courses in each of the undergraduate and postgraduate program in each session in 2007 for development of and increased use of education technology and flexible teaching and learning
• Assess the success of the use of education technology and flexible teaching and learning at the end of 2007.
Goal 4 Achieving Continuing Professional Accreditation and Recognition for Teaching and Learning Innovation

The UNSW Actuarial Program is accredited by the Institute of Actuaries of Australia through formal accreditation process. The actuarial courses are also approved for exemptions from professional examinations of the Institute of Actuaries (London) through its accreditation process for overseas universities. The Society of Actuaries (North America) also approves UNSW actuarial courses for VEE credit towards their professional examinations. The accreditation process is designed to provide the actuarial profession with assurance that the actuarial programs at accredited Universities adequately cover the professional technical syllabus and that the exemptions from professional examinations granted by accredited Universities maintain the required standards. They also provide assurance that appropriately qualified actuarial academic staff teach within the program. There is no consideration given in this process for other graduate attributes other than technical skills. The accreditation of the UNSW Actuarial Program is essential for its success in attracting very high quality students in both the undergraduate and postgraduate program.

The UNSW Actuarial Program has established a reputation for innovation in teaching and learning and this is reflected in the fact that it is a Centre of Excellence of the Institute of Actuaries of Australia. These innovations include the introduction of the new Master of Actuarial Studies program from 2005 including a stream in Quantitative Risk Management which is the first of its kind in Australia. UNSW was the first university in Australia, and is currently the only Australian university, to offer a separately taught Masters program covering all of the Part I and Part II subjects for graduates of mathematics and science degrees to enter the profession. The UNSW program was the first Australian university, and remains the only university in Australia, to offer a Coop program. The UNSW actuarial program has also developed innovative courses for professionals, including the ART and Risk Management course in 2002 and the conference on DFA in 1999. UNSW Actuarial Studies is also a Founding Member of the Enterprise Risk Management Institute International (ERMii).

Achieving professional accreditation and recognition for innovations in teaching and learning is an important aim of the teaching and learning plan for Actuarial Studies since this will ensure the UNSW actuarial program maintains its high reputation and attracts the best and brightest students at both undergraduate and postgraduate level.

Strategies to achieve the goal:

- Provide all actuarial staff with an awareness of the IAAust Accreditation requirements and encourage them to actively contribute to the successful accreditation of the UNSW Actuarial program for the full Panel visit in 2007
- Develop innovative course offerings for professionals in the quantitative risk management area including executive education programs
- Review the undergraduate and postgraduate actuarial programs in 2007, commencing with the actuarial studies staff retreat, in order to identify innovations in teaching and learning and program offerings that will maintain the program’s reputation
- Involve stakeholders including industry representatives in the review of programs and development of proposals for revision of the programs.
Conclusion
This Teaching and Learning Plan sets out the goals for the UNSW Actuarial program over the period 2006-2009 and identifies the strategies to achieve these goals. It will be reviewed by the actuarial staff at the actuarial studies staff retreat in February 2007. It will form the basis for the development of teaching and learning innovations in the UNSW Actuarial program.