The Honours subjects 300-410 and 411 Actuarial Practice and Control I and II aim to bring actuarial students in touch with the actual problems faced by actuaries in insurance, superannuation and investment. These subjects are required to become a member of the Institute of Actuaries of Australia.

The goal of the project is to develop a basic model of the insurance industry, that lecturers and students can use in class and in assignments. The inner workings of the model will be based on the paper “A simple model of insurance market dynamics” by Greg Taylor (North American Actuarial Journal, 2008; Greg is Professorial Fellow of the Centre for Actuarial Studies). The model includes multiple insurers and insurance products with feedback from the market. The basic model is to be written in Excel-VBA (spreadsheet format).

For teaching the model will be used by assignment groups as they are required to assume the role of management of a financial services entity. The students can make strategic decisions for their hypothetical entities, and then see how these decisions play out in the modelled industry environment. In addition to the entities directly managed by the groups there would also be entities which are managed either by the lecturer or in accord with a previously established default industry basis to simulate a competitive industry environment. Student will have a much clearer idea of what type of decision-making is made in insurance companies, and will be able to see the effect of those decisions in a realistic setting. This is a significant improvement on the current style of teaching, which is mostly based on the lecturer's explanation of the business, required readings and case studies.

It is predicted that as the model is implemented specific sub-models will be developed, for instance superannuation, and also that the model will be made wider and more flexible. Once the basic framework is established then increasingly detailed analyses for specific areas of interest can be developed in the future and then incorporated into the modelling process. Enhancements could, for example, reflect a more sophisticated investment environment and investment choices, asset liability matching issues, the impact of reinsurance decisions, and capital and target surplus management. The impact of shocks to the 'business as usual' environment could also be incorporated. The need to move to a more structured environment will be greater if stochastic modelling is incorporated into the process. (Stochastic modelling is more and more used in the management of financial concerns.)

For the initial part of the development it is envisaged that in each of APC I and II the model would be used in class perhaps 4-5 times for illustration purposes, and that students would then use it as the main tool for one of the three assignments.

It is likely that the model will provide research ideas for Honours and PhD students.