

THE UNIVERSITY OF
NEW SOUTH WALES



Australian School of Business
School of Actuarial Studies

ACTL 5304
RISK MANAGEMENT STRATEGIES

COURSE OUTLINE
SEMESTER 2, 2009

© 2009
The University of New South Wales
Sydney 2052 Australia

The original material prepared for this guide is copyright. Apart from fair dealing for the purposes of private study, research, criticism or review, as permitted under the Copyright Act, no part may be reproduced by any process without written permission. Enquiries should be addressed to the Head of School, Actuarial Studies, UNSW, Sydney 2052

TABLE OF CONTENTS

<u>1</u>	<u>STAFF CONTACT DETAILS</u>	<u>1</u>
<u>2</u>	<u>COURSE DETAILS</u>	<u>1</u>
2.1	Teaching Times and Locations	1
2.2	Units of Credit	1
2.3	Summary of Course	1
2.4	Course Aims & Relationship to other Courses	1
2.5	Student Learning Outcomes	2
	Graduate Attributes	2
<u>3</u>	<u>LEARNING AND TEACHING ACTIVITIES</u>	<u>2</u>
3.1	Approach to Learning and Teaching in the Course	2
3.2	Learning Activities and Teaching Strategies	3
<u>4</u>	<u>ASSESSMENT</u>	<u>3</u>
4.1	Formal Requirements	3
4.2	Assessment Details	3
4.2.1	Individual Presentation	4
4.2.2	Mid-Session Class Assessment	4
4.3	Late Submission	4
<u>5</u>	<u>ACADEMIC HONESTY AND PLAGIARISM</u>	<u>5</u>
<u>6</u>	<u>COURSE RESOURCES</u>	<u>5</u>
6.1	Reference Text	5
6.2	Internet Sites	5
<u>7</u>	<u>COURSE EVALUATION AND DEVELOPMENT</u>	<u>5</u>
<u>8</u>	<u>STUDENT RESPONSIBILITIES AND CONDUCT</u>	<u>5</u>
	Special Consideration and Supplementary Examinations	5
<u>9</u>	<u>ADDITIONAL STUDENT RESOURCES AND SUPPORT</u>	<u>6</u>
<u>10</u>	<u>COURSE SCHEDULE</u>	<u>7</u>
<u>11</u>	<u>INDIVIDUAL PRESENTATIONS</u>	<u>8</u>

1. STAFF CONTACT DETAILS

Course Coordinator: Associate Professor John Evans
Email address: john.evans@unsw.edu.au
Telephone: 0414 643 658
Location: Quad 2060

Morton Lane, President of Lane Financial, L.L.C. in Chicago (email: mlane@lanefinancialllc.com) will teach the intensive session in Week 10

Consultation Times: as advised on WebCT and by appointment only.
Communication: students may phone/email the Course Coordinator during normal university hours.

2. COURSE DETAILS

2.1 Teaching Times and Locations

Lectures will be held at Kensington campus at times shown in myUNSW.

2.2 Units of Credit

The course is 6 UOC.

2.3 Summary of Course

This course covers strategies for managing insurance risks, and in particular will cover traditional reinsurance approaches, as well as the new derivative based strategies..

2.4 Course Aims and Relationship to Other Courses

This course is one of four options in the Master of Actuarial Studies covering advanced topics in quantitative risk management. These courses are: ACTL5301 Models for Risk Management, ACTL5302 Risk and Capital Management, ACTL5303 Asset-Liability Management and ACTL5304 Risk Management Strategies. The courses are normally undertaken by students who have completed the professional actuarial courses in the Master of Actuarial Studies or by students entering the Master of Actuarial Studies who have an undergraduate major in actuarial studies or related disciplines. The courses include more advanced topics related to the actuarial professional syllabus. They also provide a valuable background for postgraduate students who are aiming to enter the risk management area in insurance, banking or funds management.

The aims of this course are to provide students with an understanding of:

- ART products and markets and recent developments.
- Risk management and the use of insurance and reinsurance products including captives.
- Risk management and the use of capital market products, securitization, contingent capital and insurance derivatives.
- Risk management and the use of industry loss warranties, risk swaps, CAT Bonds, life insurance securitization and longevity bonds.
- Pricing and optimisation models for insurance linked securities, deal structuring, pricing and documentation.

2.5 Student Learning Outcomes

At the end of this course students should have increased their ability to:

- Developed an understanding of the main types of products and markets for implementation of risk management strategies.[LO1]
- Developed an understanding of the practical issues in implementing a risk management strategy.[LO2]
- locate and evaluate the research literature on current developments in risk management strategies.[LO3]
- present and discuss insurance, reinsurance and financial concepts used in risk management strategies.[LO4]

Graduate Attributes

The Australian School of Business has as its core graduate attributes the development throughout a program of an awareness of and ability to:

- Think critically [GA1]
- Communicate [GA2]
- Work in teams [GA3]
- Have an appreciation of relevant social and global issues [GA4]
- Professional skills [GA5]

In this course, the attributes that are developed and assessed are critical thinking (LO 2, 3 and 4) communication (LO4), appreciation of global and social issues (LO1 and 2) and professional skills (LO1, 2, 3 and 4). These attributes are developed primarily through interactive class discussions, individual presentations, and assignments and assessed by class participation and ability to concisely answer the assignments.

3. LEARNING AND TEACHING ACTIVITIES

3.1 Approach to Learning and Teaching in the Course

The learning experience will primarily involve guided self-learning through a combination of:

- Interactive lectures by the course coordinator and guest lecturer
- Class discussions in small groups
- Student presentations
- One to one discussions with the course coordinator where students have difficulties with particular concepts
- Feedback through assignments, comments on class discussions

Students are not permitted to bring into the lectures any sound or video recording devices.

A “guided self learning” approach is adopted as this is expected to allow students the best opportunity to learn and retain the course material. The purpose of the guided self learning process is to equip students to be able to develop the necessary analytical and communication skills to assess new problems encountered, rather than rote learning of particular problems, which are unlikely to be met in precisely that format in the work environment.

3.2 Learning Activities and Teaching Strategies

The teaching strategy is primarily guided self-learning, which involves:

- Students preparing for a lecture by reading relevant material, and identifying issues they are uncertain of for discussion in the class.
- Lectures consisting of highlighting the main points that need to be understood, accompanied by discussion points where the class is expected to contribute and to provide feedback to the lecturer that the topics have been understood.
- Presentations where the student is expected to research a topic and then develop a lecture for their peers, accompanied by discussions by the class.

Overall the strategy revolves around highlighting the main issues that need to be understood, accompanied by extensive discussion to provide feedback that the issues were understood and to correct misunderstandings.

4. ASSESSMENT

4.1 Formal Requirements

In order to pass this course, you must:

- Achieve a composite mark of at least 50%; and
- Make an attempt at all assessment tasks
- Attend at least 80% of all lectures

4.2 Assessment Details

The summary table below provides an overview of the assessment tasks, due dates and relative weighting:

Assessment Task	Weighting	Learning Outcomes assessed	ASB Graduate Attributes assessed	Date
Mid Session Assessment	10%	LO 1,2,3	GA 1,2,4,5	Due Week 10
Individual Presentation	10%	LO 1,2,3,4	GA 1,2,4,5	See webCT
Exam	80%	LO 1,2,3	GA 1,2,4,5	To be advised
TOTAL	100%			

Whilst feedback will be provided to students after their assignment and presentations have been completed, students should note that the final assessment can involve scaling of overall marks to adjust for varying difficulty across years and to adjust for variations in marking standards of different examiners. The overall assessment for each course will use the Fail, Pass, Credit, Distinction and High Distinction grading system (see table below).

Code	Grade	% Mark	Explanation
HD	High Distinction	85-100	An outstanding performance
DN	Distinction	75-84	A superior, well above average performance
CR	Credit	65-74	A good, above average performance
PS	Pass	50-64	An acceptable level of performance
FL	Fail	0-49	Unsatisfactory performance

A more comprehensive list of possible grades can be found at <http://www.student.unsw.edu.au/atoz/atoz-Results.shtml>

4.2.1 Individual Presentation

You will be assigned a topic that you need to research and present to your peers. This exercise is aimed at developing your research skill, critical thinking skill and communication skill.

Your individual presentation is due as scheduled on WebCT, but students may agree between themselves to swap presentations provided both students involved notify the Course Coordinator at least 1 week before the first presentation is due. The topics to which you will be assigned are shown in this Course Outline.

Grading will take into account:

- Has the topic been adequately covered? (ie have you addressed the topic?)
- Thought given to how best to answer the topic (ie how can I best communicate with other students?)
- Flow of the answer (ie do the ideas flow properly?)
- Originality of ideas (ie has the student thought through the issues or just regurgitated the class discussion/notes/textbook?)

Presentations must include power point slides and a copy made available to the Course Coordinator to put onto WebCT in the week following the presentation. Presentations must not exceed 10 minutes duration, and 1 mark will be deducted for each minute the presentation goes over 10 minutes.

4.2.2 Mid-session Class Assessment

There will be an assignment posted to WebCT in week 7. The assignment is to be handed in during the Week 10 lecture. The assignment will count for 10% of the overall assessment for this course. The Assessment will consist of one or more case studies with assessment of risks encountered, their measurement and management. Marks will be awarded for covering the risks and the common management techniques, with additional marks for conciseness in answering.

4.3 Late Submission

Late submission of the scheduled presentation or failure to complete the Mid Session assessment without prior agreement of the Course Coordinator will result in zero marks being awarded for this component.

5. ACADEMIC HONESTY AND PLAGIARISM

The University regards plagiarism as a form of academic misconduct, and has very strict rules regarding plagiarism. For UNSW's policies, penalties, and information to help you avoid plagiarism see: <http://www.lc.unsw.edu.au/plagiarism/index.html> as well as the guidelines in the online ELISE tutorial for all new UNSW students: <http://info.library.unsw.edu.au/skills/tutorials/InfoSkills/index.htm>.

6. COURSE RESOURCES

6.1 Reference Text

These books will be used as text references for the course:

Banks, E., *Alternative Risk Transfer*, Wiley Finance, 2004.

Lane, M, *Alternative Risk Strategies*, RISK Books, 2002

6.2 Internet sites

The WebCT site for this course will contain the course outline, presentations made by lecturers, presentations made by students, and any notices relevant to this course. It is important that you visit the site regularly to see any notices posted there by the Course Coordinator. It is also important you check your student emails regularly as the Course Coordinator will use this email address for communication.

7. COURSE EVALUATION AND DEVELOPMENT

Each year feedback is sought from students about the courses offered in the School and continual improvements are made based on this feedback. In this course, we will seek your feedback through the Catei assessment of the course at the end of the Session, and individual comments at anytime during the Session to the Course Coordinator are welcome. The Course content has been marginally changed for 2009 with the removal of the group assignment which was difficult to manage and ensure all students gained from the experience.

8. STUDENT RESPONSIBILITIES AND CONDUCT

Students are expected to be familiar with and adhere to university policies in relation to class attendance and general conduct and behaviour, including maintaining a safe, respectful environment; and to understand their obligations in relation to workload, assessment and keeping informed.

Information and policies on these topics can be found in the 'A-Z Student Guide': <https://my.unsw.edu.au/student/atoz/ABC.html>. See, especially, information on 'Attendance and Absence', 'Academic Misconduct', 'Assessment Information', 'Examinations', 'Special Consideration', 'Student Responsibilities', 'Workload' and policies such as 'Occupational Health and Safety'.

Special Consideration and Supplementary Examinations

You must submit all assignments and attend all examinations scheduled for your course. You should seek assistance early if you suffer illness or misadventure which affects your course progress. For advice on UNSW policies and procedures for granting special consideration and supplementary exams, see: 'UNSW Policy and Process for Special Consideration':

<https://my.unsw.edu.au/student/atoz/SpecialConsideration.html>

Students may be required to sit for an oral or written supplementary examination. Any supplementary examination date will be advised to students after the final examination. In general, a supplementary examination will only be offered to a student who has been prevented from taking the Final Examination, who has been placed at a serious disadvantage during the examination, and whose circumstances have improved considerably in the period since the relevant examination was held. Failure to attend a supplementary examination, if you have been granted one, will result in forfeiture of any additional assessment granted to you. Satisfactory performance in any course assessment is required in order to be granted a supplementary examination.

STUDENTS SHOULD NOTE THAT SPECIAL CONSIDERATION WILL NOT BE GRANTED UNLESS PERFORMANCE AND ATTENDANCE AT LECTURES IS SATISFACTORY. THIS WILL USUALLY MEAN THAT YOU WILL HAVE TO PASS ALL ASSESSMENT TASKS IN ORDER FOR ANY SPECIAL CONSIDERATION TO BE GIVEN.

9. ADDITIONAL STUDENT RESOURCES AND SUPPORT

The University and the ASB provide a wide range of support services for students, including:

- **ASB Education Development Unit (EDU)** (www.business.unsw.edu.au/edu)
Academic writing, study skills and maths support specifically for ASB students. Services include workshops, online and printed resources, and individual consultations. EDU Office: Room GO7, Ground Floor, ASB Building (opposite Student Centre); Ph: 9385 5584; Email: edu@unsw.edu.au
- **UNSW Learning Centre** (www.lc.unsw.edu.au)
Academic skills support services, including workshops and resources, for all UNSW students. See website for details.
- **Library training and search support services:** <http://info.library.unsw.edu.au>
- **UNSW IT Service Desk:** Technical support for problems logging in to websites, downloading documents etc. Library, Level 2; Ph: 9385 1333.
Website: www.its.unsw.edu.au/support/support_home.html
- **UNSW Counselling Service** (<http://www.counselling.unsw.edu.au>)
Free, confidential service for problems of a personal or academic nature; and workshops on study issues such as 'Coping with Stress' and 'Procrastination'. Office: Level 2, Quadrangle East Wing; Ph: 9385 5418.
- **Student Equity & Disabilities Unit** (<http://www.studentequity.unsw.edu.au>)
Advice regarding equity and diversity issues, and support for students who have a disability or disadvantage that interferes with their learning. Office: Ground Floor, John Goodsell Building; Ph: 9385 4734.
- **Capturing the Student Voice:** An ASB website enabling students to comment on any aspect of their learning experience in the ASB. To find out more, go to <http://tinyurl.com/ASBStudentVoice>

10. COURSE SCHEDULE

The topics to be discussed each week, and the references in the text books and other reading that students will be assumed to have read will be:

Week Number	Topic Covered
1	Enterprise Risk Management [10] & Risk Management Motivations [1,2]
3	Insurance and Reinsurance, Captives [4,5]
5	Securitization [7]; Contingent Capital Structures [8]
6	Insurance Derivatives [9]
7	Case Study Assessment task posted to webCT
2 day course Week 10	Trends in Insurance Securitizations and the ART Market; Products: Industry Loss Warranties, Risk Swaps, CAT Bonds, Sidecars; Pricing Insurance Linked Securities: Pricing Models, Secondary Market Pricing; Underwriting Portfolio Optimisation in Practice; Longevity, Life Insurance and Liability Securitization, Longevity Bonds and Liability Product developments; Re insurers and Securitization
12	Revision

[X] Refers to the chapter in Banks

11. INDIVIDUAL PRESENTATIONS

Students will be allocated a topic from the list below by the Course Coordinator. Students are free to change topics with another student, but both must advise the Course Coordinator of the exchange at least one week prior to the first presentation.

Week 3	
Topic 1	Outline the essential components of a risk management program for a general insurer
Topic 2	Describe how as a corporation you would determine the sum insured and deductible for a policy to cover fire damage to your factory
Topic 3	Describe how, as a general insurer issuing most types of contracts, you would assess whether to use traditional reinsurance or CAT Bonds to manage your portfolio risk
Topic 4	How would you determine and then diversify the credit risk of insurers used to cover your risks?
Topic 5	Outline the economic rationale for ART, and describe the advantages and disadvantages to the community of developing these facilities
Topic 6	Outline the advantages and disadvantages from the corporate/ sponsor point of view of using Captive Insurance arrangements

Week 5	
Topic 1	Outline the structure of a typical catastrophe bond and describe why each component is necessary
Topic 2	Outline the general principles involved in valuing/ pricing a CAT Bond
Topic 3	Describe the trigger events for the Allianz Flood Bond and comment as to their suitability and ease of assessment for an investor
Topic 4	Outline the advantages of a contingent equity put over the normal capital raising methods for a general insurer
Topic 5	Comment on the necessary features of a CAT Bond to be attractive to a large pension fund as an investment.
Topic 6	Regulators usually allow insurers a deduction from reserves for re insurances. Comment on the necessary features of a CAT Bond for a regulator to be comfortable in allowing a liability offset and indicate what the offset should be

Week 6	
Topic 1	As a bank, how would you assess the effects of a swap transaction that trades off your variable interest income on mortgages for a fixed rate over 5 years, and why would you want to enter into this transaction?
Topic 2	ART is often seen as a method of managing liabilities, especially of insurers, but it can also be used to manage assets and asset/liability covariance. Comment on how you would use ART techniques to manage the typical assets of an insurer, and what you would consider as the advantages and disadvantages of using ART techniques
Topic 3	The Chicago Mercantile Exchange has introduced trading in Hurricane Futures. Outline the structure of the futures, and their benefits to investors
Topic 4	American Safety Insurance has an ART contract that purports to give contractors a cheaper method of insuring their liabilities. Assess the product against the alternative of the contractor acquiring a standard type of liability insurance and outline the risks involved for both the contractor and the insured
Topic 5	Design a cat bond for a health insurer outlining the risks transferred and how you would price the bond
Topic 6	Design a cat bond for a company about to operate in a foreign country to cover environmental risks; include a description of the triggers, the term of the bond, and how you would determine the interest paid

Week 7	
Topic 1	Pension funds generally have long term liabilities; how would you assess the suitability of their investing in longevity bonds?
Topic 2	Most catastrophe bonds involve single event triggers for loss assessment; how feasible do you think it is to issue an ERM catastrophe bond covering the multiple enterprise risks of a bank?
Topic 3	A reinsurer of general insurances proposes to manage their risks through issuing several catastrophe bonds; how would you assess the likely effect of these multiple bonds on the variability of expected profits?
Topic 4	The Brookings Institute Brief #150 points out that in reality when catastrophes occur, the taxpayer becomes the insurer of default through relief programs instituted by governments. Comment on whether this is more or less appropriate than trying to assess these super catastrophes and use ART techniques to move some of the risk to the global capital markets
Topic 5	Compare the advantages and disadvantages of a Californian insurer issuing a series of CAT Bonds to cover earthquake risk with entering into a swap arrangement with a Tokyo insurer to effectively take on each other's exposure to earthquake risk
Topic 6	Outline the regulation that applies to ART in Australia for general insurers and comment on whether it is appropriate