UNSW Business School

School of Risk & Actuarial Studies

ACTL4303 and ACTL5303
ASSET LIABILITY MANAGEMENT

Course Outline
Semester 2, 2017

Course-Specific Information

The Business School expects that you are familiar with the contents of this course outline. You must also be familiar with the Course Outlines Policies webpage which contains key information on:

- Program Learning Goals and Outcomes
- Academic Integrity and Plagiarism
- Student Responsibilities and Conduct
- Special Consideration
- Student Support and Resources

This webpage can be found on the Business School website:
https://www.business.unsw.edu.au/degrees-courses/course-outlines/policies

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COURSE-SPECIFIC INFORMATION

1 STAFF CONTACT DETAILS

Lecturer-in-charge: Greg Vaughan
Email: gregory.vaughan@unsw.edu.au
Consultation Times: Tuesdays from 5:00pm (by appointment)

2 COURSE DETAILS

2.1 Teaching Times and Locations

Lectures start in Week 1(to Week 12): The Time and Location are:
Tuesday 6:00pm-9:00pm Webster Theatre A
Please note that the lectures for Week 7 (5 September) and Week 8 (12 September) will be pre-recorded. Students must still attend campus on 5 September for the mid-session exam, but will be able to access the lecture for that week, and the following week online. There will be no lecture on campus on 12 September.

2.2 Units of Credit

The course is worth 6 units of credit.
This course is taught in parallel to both Year 4 undergraduate and postgraduate students. Year 4 undergraduate, 4th year Honours and final year Co-op undergraduate students, Master of Actuarial Studies and non-award postgraduate students are eligible to enrol in the course.

2.3 Summary of Course

This course covers the knowledge, skills and judgement necessary to understand investment and asset liability modelling with an emphasis on practical issues. It covers the design and monitoring of investment strategies for a range of liability profiles including life insurance, general insurance and superannuation funds. There is an emphasis on investment and asset issues of relevance for the management of liabilities. The course has been designed to cover the International Actuarial Association syllabus on Investments and Asset Analysis, and the Investments and Asset-liability Management component of the Institute of Actuaries of Australia part II professional syllabus.

The topics covered include the economic and operating framework of Investments, including EMH and alternative hypotheses, the fundamental principles of investing, with particular emphasis on risk and return characteristics of different asset classes including non-traditional asset classes, the construction and management of multi asset class portfolios including a review of contemporary asset/liability models, the characteristics of futures, options and other derivative security markets and the practical aspects of investment management and asset liability management.

2.4 Course Aims and Relationship to Other Courses

The course aims are

1. To provide students with coverage of the Institute of Actuaries of Australia part II professional syllabus.
2. To provide an understanding of the main features of investors, investment markets, investment classes and investment theories.

3. To develop an understanding of asset liability models, their application to asset allocation decisions and the investment management process.
4. To be able to assess asset liability models along with relevant applications to different types of liabilities.

The course builds on prior courses in the actuarial program, in particular ACTL3004 Financial Economics for Insurance and Superannuation (or ACTL3182 Asset-Liability and Derivative Models) for undergraduate students and ACTL5109 Financial Economics for Insurance and Superannuation for postgraduate students. It is one of three UNSW courses that cover the Actuaries Institute Part II – this covers Part IIB – Investment and Asset Modelling syllabus.

An exemption from the Institute of Actuaries of Australia Part II course is based on obtaining an average of 75% in ACTL4001, ACTL4002 and ACTL4303 or ACTL5100, ACTL5200 and ACTL5303.

2.5 Student Learning Outcomes

The Course Learning Outcomes are what you should be able to DO by the end of this course if you participate fully in learning activities and successfully complete the assessment items. These are:

1) Describe and critically discuss the characteristics and behavior of different Investment types under different economic conditions, understanding the relationship between risk and return and recognizing risk factors which include issuer default, counterparty failure, systemic liquidity, the collapse of speculative bubbles, shocks to the economic system and cyclical/structural changes.
2) Develop an understanding of the methods used for valuation of the common forms of debt, equity, property and derivative securities. In particular students should be aware of:
   a) the valuation methods and principles
   b) data requirements and sources
   c) the implicit assumptions and limitations of these models
3) Develop an understanding of the application and limitations of the major economic and financial theories relevant to investment, and be able to critically evaluate these theories including:
   a) the efficient market hypothesis
   b) the capital asset pricing model
   c) multi-factor pricing models
   d) theories from behavioral finance
4) Construct, critically evaluate and apply asset models of a stochastic nature that are appropriate to the management of liabilities, and be able to
   a) Define appropriate investment objectives based on the liability profile of a fund
   b) Specify appropriate investment constraints, based on the liability profile of a fund
   c) Identify the characteristics of different types of asset models.
   d) Critically evaluate the appropriateness of an asset model for a given context
   e) Derive consistent asset assumptions for asset models, taking into account historical date, prevailing industry expectations, contemporary investment literature, and other practical considerations such as tax.
   f) Apply asset assumptions, and the linkages contained within asset models, to real world situations.
   g) Describe and critically evaluate different approaches to asset allocation.

The Learning Outcomes in this course also help you to achieve some of the overall Program Learning Goals and Outcomes for all undergraduate students in the Business School. Program Learning Goals are what we want you to BE or HAVE by the time you successfully complete your degree (e.g. 'be an effective team player'). You demonstrate this by achieving specific Program Learning Outcomes - what you are able to DO by the end of your degree (e.g. 'participate collaboratively and responsibly in teams').

For more information on Program Learning Goals and Outcomes, see the School's Course Outlines Policies webpage available at https://www.business.unsw.edu.au/degrees-courses/course-outlines/policies

The following table shows how your Course Learning Outcomes relate to the overall Program Learning Goals and Outcomes, and indicates where these are assessed (they may also be developed in tutorials and other activities):

Program Learning Goals and Outcomes		**Course Learning Outcomes**	**Course Assessment Item**
This course helps you to achieve the following learning goals for all Business undergraduate and postgraduate coursework students:		*On successful completion of the course, you should be able to:*	*This learning outcome will be assessed in the following items:*
1	Knowledge	Learning Outcomes 1	• Class Discussion and participation • Assignment • Mid-Session Test • Exam
2	Critical thinking and problem solving	Learning Outcomes 2 to 4	• Assignment • Mid-Session Test • Exam
3a	Written communication	Prepare written work which is logically and professionally presented.	Assignment
3b	Oral communication	Communicate ideas in a succinct and clear manner.	Participation in class discussions not separately assessed.
4	Teamwork	Work collaboratively to complete a task.	Assignment – not separately assessed in this course
5a.	Ethical, social and environmental responsibility	Identify and assess ethical, environmental and sustainability considerations in problems in an actuarial context. Awareness of UNPRI.	• May be included in Exam Assignment - not separately assessed in this course
5b.	Social and cultural awareness	Not specifically addressed in this course.	

3 LEARNING AND TEACHING ACTIVITIES

3.1 Approach to Learning and Teaching in the Course

The approach to learning and teaching is to actively engage students in the learning process by providing students with opportunities to develop their understanding of course topics and to reflect on and gain deeper understanding of the more challenging applications of the course material.
The purpose of the lectures is to introduce and explain concepts in the student learning outcomes of the Course. It is expected that students come to lectures having read the relevant chapters in the textbook and lecture notes or PowerPoint slides. Each lecture will provide an overview of the topics and will focus on explaining concepts and issues along with applications and practical issues. The role of the lecture is also to provide students with an opportunity to ask questions and discuss the major aspects of the topic with other students.
Lectures are used both to communicate knowledge to students and to provide opportunities for interactive teaching and learning with students encouraged to ask questions. Lectures will also be used to engage students with the course topics through interaction and discussion. Lectures are designed to ensure students have grasped the key concepts and aims of the course.

3.2 Learning Activities and Teaching Strategies

The course reading, lectures and assessment tasks are designed to provide a framework for your learning. Every student has a different approach to learning. How much time you spend on reading in preparation for lectures, completing assessment tasks, reviewing course objectives, deepening your understanding and preparing for final examinations will depend on your learning approach. Lectures will generally cover the main concepts and issues and will not necessarily cover all the details of the course readings or texts

The learning activities of this course involve three key components – the lecture, the assignment, and your private study. The role of the lecture is to help you understand the context of the topic as well as work through the difficult points. The assignment presents you with a practical application of course concepts. Your private study is the most important component of this course. Weekly readings, solving problems, and your own topic summaries should be considered as a basis of a regular private study regime. Keeping up to date is very important and each week builds on the prior week so it is important that you have your study regime organised early.

Discussion points for each topic will be reviewed in the following week and aim to enhance critical thinking and analysis skills, enhance presentation skills; and engage with others in the class.

The report is used to give you an opportunity to apply the course concepts and to practice working with other students in a team environment.

4 ASSESSMENT

4.1 Formal Requirements

In order to pass this course, you must:

- achieve a composite mark of at least 50;
- make a satisfactory attempt at all assessment tasks (see below);

4.2 Assessment Details

Assessment Task	Weighting	Length	Due Date
Mid-Session Exam	15%	1 hour	Tuesday 5 September
Assignment - individual	10%	2000 words max each component	As in schedule
Assignment – Group average and class presentations	5%		
Final Exam	70%	2 hours	University Exam Period
Total	100%		

The assignment is divided into four segments, each to be submitted by one member of a four-student group. Students will be assessed on their individual segments (10%). A group mark will also be allocated based on the average of the individual segments, and in class presentations during the course (5%). This is to encourage teamwork within the group, and learning across all segments of the assignment.

Feedback will be provided to students after their assessments; students should note that the final assessment can involve scaling of overall marks. In addition, in this course, results will be reviewed by an external examiner from the Institute of Actuaries of Australia.

4.3 Assessment Format

Mid-Session

The mid-session exam is intended to test your knowledge, understanding and application of the course coverage as well as your ability to concisely express yourself.

The mid-session exam will be held from 6.10-7.10pm on Tuesday 5 September. Students should be in the room by 6:00pm. This exam will be part multiple choice. Students should make sure they have their student cards with them.

Normal examination rules apply to the conduct of mid-term exams. Calculators will be allowed in the mid-term and final examination but a clear indication of all of the steps involved in your calculations must be shown (except in the case of multiple choice questions). The University will not supply calculators to students for use in examinations where the provision of calculators has not been requested by the course examiner. It is

the student's responsibility to be familiar with the rules governing the conduct of examinations.

Final Exam
The final exam is intended to test your knowledge, understanding and application of the course coverage as well as your ability to concisely express yourself. The final examination will be a two hour written paper. The final examination will be closed book. The final exam is reviewed by an external examiner of the Actuaries Institute, and the results and papers are also reviewed by the external examiner.

Report
A group report combining various aspects of the course will be worked on and assessed throughout the session. Students will be assigned to groups with a maximum of 4 students in each group. You will work together but will have individual components that each member of the group will be primarily responsible for during the session.

Each individual component t will be a maximum of 2000 words and must be prepared on A4 paper with a minimum font size of 11 point. Analysis must be clearly set out and easy to follow.

Full details for the report will be provided in a separate document, released on the date of the first lecture (Tuesday, 25 July). The submission dates for each of the four parts are:

Part (a)	Tuesday, 15 August
Part (b)	Tuesday, 29 August
Part (c)	Tuesday, 19 September
Part (d)	Tuesday, 17 October

4.4 Assignment Submission Procedure

Each of the four parts of the group report must be submitted through Turn-it-in on the Course website.

4.5 Special Consideration, Late Submission and Penalties

For information on Special Consideration please refer to the Business School's Course Outlines Policies webpage**.**

Special consideration and assessments other than the Final Exam in undergraduate and postgraduate courses:

For courses offered by the School of Risk and Actuarial Studies, the weight of the assessment items for which special consideration is granted is re-allocated to the Final Exam. Alternatively, in exceptional cases and only for assessment items with a submission deadline, a delayed deadline may be granted. This may be no more than 5 business days after the initial deadline, and must be before feedback is provided to students.
Special consideration **does not** entitle students to a supplementary opportunity to complete the assessment item.

Late submission of assessment items

When an assessment item had to be submitted by a pre-specified submission date and time and was submitted late, the School of Risk and Actuarial Studies will apply the following policy.

A penalty of 25% of the mark the student would otherwise have obtained, for each full (or part) day of lateness (e.g., 0 day 1 minute = 25% penalty, 2 days 21 hours = 75% penalty). Students who are late must submit their assessment item to the LIC via e-mail. The LIC will then upload documents to the relevant submission boxes. The date and time of reception of the e-mail determines the submission time for the purposes of calculating the penalty.

4.6 Protocol for viewing final exam scripts

The UNSW Business School has set a protocol under which students may view their final exam script. Please check the protocol here.

Individual Schools within the Faculty may set up a local process providing it is in keeping with the Faculty protocol. The School of Risk and Actuarial Studies implements the abovementioned faculty guidelines in the following way:

1. There will be only one viewing.
2. Students must register (that is, lodge a request to view their final exam script) to rasadmin@unsw.edu.au after results are released, but no later than COB on Wednesday 6 December 2017.
3. The viewing will take place on Monday 11 December 2017, at a time and location to be announced to registered students by COB on Friday 8 December 2017. Student MUST remain available for the WHOLE of 11 December 2017 until the time of their viewing is communicated.

Note that students must make a separate, subsequent appointment with the LIC, should they wish to lodge a formal application for re-assessment.

Quality Assurance
The Business School is actively monitoring student learning and quality of the student experience in all its programs. A random selection of completed assessment tasks may be used for quality assurance, such as to determine the extent to which program learning goals are being achieved. The information is required for accreditation purposes, and aggregated findings will be used to inform changes aimed at improving the quality of Business School programs. All material used for such processes will be treated as confidential.

5 COURSE RESOURCES

The website for this course is on Moodle at:
http://moodle.telt.unsw.edu.au

Lecture presentations are the primary reference material. In addition the following are required readings.

Required Readings (to be provided on Course web site):

Week 3
Beck,N., J. Hsu, V. Kalesnik, and H. Kostka (2016), Will Your Factor Deliver? An Examination of Factor Robustness and Implementation Costs, FAJ Vol 72 No 5 pp 58-82
Bodie, Kane and Marcus, Investments (see below). Section 27.3
Sargen, N (2014) Facing the Reality of Bubble Risk, CFA Institute Magazine, July-August 2014 pp 22-24

Week 4
Hardy, M. (2001). A Regime-Switching Model of Long-Term Stock Returns, North American Actuarial Journal Vol 5 No.2

Week 5
Society of Actuaries, Economic Scenario Generators (2016), (pp 138-141, Dynamic Nelson-Seigel model)
Gootkind, C.L. (2012) Fundamentals of Credit Analysis (from Petii, B.S., J.E.Pinto and W.L.Pirie,), Fixed Income Analysis, CFA Institute

Week 6
Heffernan, M.J., (2013) Real Property In Australia, Ch 6 & 7.6
Inderst, G (2010) Infrastructure as an Asset Class, EIB Papers Vol 15 No 1
Waring, M.B. and L.B.Siegel (2006), The Myth of the Absolute-Return Investor, FAJ Vol 62 No.2, pp14-21

Week 8
Grinold, R.C., K.F.Kroner and L.B.Siegel (2011) A Supply Model of the Equity Premium, The Research Foundation of the CFA Institute
Perold, A., & Sharpe, W. (1988). Dynamic Strategies for Asset Allocation, FAJ, Vol 44 No.1 pp 16-27.
Society of Actuaries, Economic Scenario Generators (2016), Chapter 6 (pp63-79)

Week 9
Maginn, J., D. Tuttle, J. Pinto and D. McLeavey, Managing Investment Portfolios Ch 5 pp 286-295
Society of Actuaries, Economic Scenario Generators (2016), Executive Summary (pp7-16),Chapter 1 (pp18-23), Chapter 4 (pp 45-54).

Week 10
Society of Actuaries, Economic Scenario Generators (2016), Chapter 5 (pp55-62), Chapter 13 (pp163-169)

Week 11
Israelov R and L.N.Neilsen (2014), Covered Call Strategies: One Fact and Eight Myths, FAJ Vol 70 No 6 pp 23-31
Society of Actuaries, Economic Scenario Generators (2016), Chapters 9-10 (pp-97-112)

Week 12
Society of Actuaries, Economic Scenario Generators (2016), Chapter 14 (pp170-183)

Background Reading
Students in need of general investment background will find the following text useful:

Investments. Zvi Bodie, Alex Kane, and Alan Marcus, , McGraw Hill, 2014
ISBN13: 9780077861674

Much of this material will have been covered in previous courses.

6 COURSE EVALUATION AND DEVELOPMENT

Each year feedback is sought from students and other stakeholders about the courses offered in the School and continual improvements are made based on this feedback. UNSW's myExperience survey is one of the ways in which student evaluative feedback is gathered.

7 COURSE SCHEDULE

Lectures start in Week 1 and finish in Week 12.

LECTURE SCHEDULE		
Week	Topic	Reference
Week 1 Tuesday 25 July	Introduction and investment background	
Week 2 Tuesday 1 August	Portfolio theory and asset pricing	BKM Chapters 5 to 10
Week 3 Tuesday 8 August	Economic and Financial Theories	Beck et al BKM 27.3 Sargen
Week 4 Tuesday 15 August	Equity valuation and Portfolio Management	Hardy (2001) Report (a) due
Week 5 Tuesday 22 August	Interest Bearing Securities	SOA (pp138-141) Gootkind (2012)
Week 6 Tuesday 29 August	Property, infrastructure, absolute return assets	Heffernan (2013) Inderst (2010) Waring and Siegel (2006) Report (b) due
Week 7 Tuesday 5 September	Mid-Session Exam Risk Management	

Week 8 Tuesday 12 September	Capital Market Expectations and Asset Allocation	Grinold et al (2011) Perold and Sharpe (1988) SOA (pp 63-79)
Week 9 Tuesday 19 September	Economic Scenario Generators - Overview	Maginn (pp286-295) SOA (pp7-12, pp18-23, pp45-54) Report (c) due
Mid-semester break: Saturday 23 September - Monday 2 October inclusive		
Week 11 Tuesday 3 October	Economic Scenario Generators - Evaluation	SOA (pp55-62, pp163-169)
Week 11 Tuesday 10 October	Futures and Options; Risk Neutral Scenarios	I Israelov et al (2014) SOA (97-112)
Week 12 Tuesday 17 October	Currency and International Diversification, Multi-Economy Modeling	SOA (pp170-183) Report (d) due
Week 13	No Lectures	