Business School
School of Risk & Actuarial Studies

ACTL5102
FINANCIAL MATHEMATICS

Course Outline
Semester 1, 2016

Part A: Course-Specific Information

Please consult Part B for key information on Business School policies (including those on plagiarism and special consideration), student responsibilities and student support services.
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Welcome to ACTL5102 Financial Mathematics.

This course is one of the elective actuarial courses for the Master of Actuarial Studies. It corresponds to a major component of the CT4 course of the Institute of Actuaries/Faculty of Actuaries.

In this course outline, you will find the details of the course requirements, course aims and learning outcomes, content, teaching methods, assessment tasks, texts and readings, and expectations.

**The way the course is taught this year is radically different. It is often referred to as “flipped”**.

The main rationale for this new structure is to bring the face-to-face time later in the learning process, when students are more comfortable with the materials, and more likely to interact and ask questions. The first conceptual encounter with the materials happens at home when students watch video lectures. They then move on to practicing their knowledge with tutorial exercises. At this stage, tutorial sessions provide some face-to-face on a weekly basis to personalise help. Consultation is also available. Towards the end of the learning of a given module, everyone gathers in the lecture room for a “letcherial”. The word combines *lectures*—because they are run by the lecturer, and with the whole group, and *tutorial*—because their goal is not to “lecture” students, but to discuss a module at a higher conceptual level, and to cement students’ learning with other activities (such as guest lectures, discussions, advanced exercises).

Please read this outline carefully and thoroughly, as it will be assumed that you are familiar with its contents.

If you have any questions about the course at any time, please contact me.

I look forward to guiding your learning for the duration of the course.

Priya Dev—Lecturer in charge
PART A: COURSE-SPECIFIC INFORMATION

1 STAFF CONTACT DETAILS
Lecturer-in-charge: Dr Priya Dev
Room 645 Business School East Wing Level 6
Phone No: 9385 2647
Email: priya.dev@unsw.edu.au
Consultation Times Weeks 2 to 13
– Monday 4:00pm – 5:00pm in the foyer outside the department of Risk & Actuarial Studies located on Level 6 of the Business School.

2 COURSE DETAILS

2.1 Teaching Times and Locations
Lectures start in Week 1 (to Week 12): The Time and Location are:
Monday 6:00 pm – 9:00 pm Law Theatre G04 (K-F8-G04).

Tutorials start in Week 1 (to Week 12). They are held during the Lecture.

2.2 Units of Credit
The course is worth 6 units of credit.

2.3 Summary of Course
This course develops the financial mathematics required for the analysis of financial and insurance transactions. Topics covered include: mathematics of compound interest; valuation of cash flows of simple insurance contracts; analysis and valuation of annuities, bonds, loans and other securities; yield curves and immunisation; introduction to stochastic interest rate models and actuarial applications.

2.4 Course Aims and Relationship to Other Courses
At the end of the course students should be able to:

A. Explain how to evaluate, and assign a single value to a series of contingent cash flows under different assumptions on the time value of money (interest);
B. Understand and assess the principles underlying the evaluation of the main securities that are available in the financial markets;
C. Demonstrate an ability to apply the technical skills related to the course in a practical context.

This course covers financial mathematics at an introductory level. The assumed knowledge of the course is a good understanding of mathematics as covered in a full year undergraduate program in Calculus and Linear Algebra. The main mathematical topics are covered in a series of lectures by Randell Heyman that are available on Blackboard on the ACTL students common website (section “Back to Basics: Basic Mathematical Tools for Actuarial Students”). Students should review these lectures at the very latest by the end of the first week.

ACTL5102 Financial Mathematics builds on the basic concepts of financial mathematics. Parts of the course will apply some of the concepts covered in
ACTL5101 Probability and Statistics for Actuaries. More advanced models are covered in Session 2 in ACTL5103 Stochastic Models for Actuarial Applications. The course is necessary knowledge for the more advanced coverage in ACTL5104 Financial Economics for Insurance and Superannuation and is an introduction to the more extensive coverage in ACTL5105 Life Insurance and Superannuation Models.

Furthermore, students should be able to use a word processing package (such as WORD), a spreadsheet (such as EXCEL) and computational software (such as R, MATLAB, or MAPLE). Students are expected to develop their skills in R throughout the course.

2.5 Student Learning Outcomes
The aims of Section 2.4 (A to C) have been unpacked in the following learning outcomes. At the end of the course students should be able to:

A1. Understand the concept of time value of money;
A2. Explain and compare different types of interest: simple vs compound interest, discount interest, nominal vs effective interest rates, rate vs force of interest, real vs money interest rates, the term structure of interest, as well as simple stochastic interest models;
A3. Understand the relation between a present value, a set of cash flows and interest, as well as understand the interest rate risk (duration, immunisation);
A4. Explain how to modify a simple valuation problem by taking into account tax and transaction costs;
A5. Assess financial calculations for reasonableness and criticise their assumptions;
B1. Describe, compare and value the following securities: bonds, shares, loans, forwards and futures contracts, options, annuities and life insurance contracts;
B2. Describe the basic market conventions in the securities and money markets for the instruments introduced during the course;
B3. Develop formulae for the expected value and variance of the present values of simple insurance and annuity contracts, assuming constant deterministic interest;
C1. Integrate financial valuation concepts to practical situations such as in investment project appraisals or in financial markets;
C2. Explain difficult concepts in simple terms and in an effective way, both in oral and written forms;
C3. Use R to implement the models introduced in the course.

The course covers the syllabus of the Institute of Actuaries CT1 Financial Mathematics examination. The course’s Learning Outcomes relate to the aims of Actuaries Institute of Australia aims in the following way:

<table>
<thead>
<tr>
<th>Course Learning Outcomes</th>
<th>Actuaries Institute aims</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>CT1: 2</td>
</tr>
<tr>
<td>A2</td>
<td>CT1: 3, 4, 13, 14</td>
</tr>
<tr>
<td>A3</td>
<td>Not included in The Institute Aims</td>
</tr>
<tr>
<td>A4</td>
<td>CT1: 1, 5, 6, 7, 8, 11</td>
</tr>
<tr>
<td>A5</td>
<td>CT1: 11</td>
</tr>
<tr>
<td>B1</td>
<td>(CT2: v.3)</td>
</tr>
<tr>
<td>B2</td>
<td>CT1: 10, 12</td>
</tr>
<tr>
<td>B3</td>
<td>(CT5: introduction)</td>
</tr>
</tbody>
</table>
The Learning Outcomes in this course also help you to achieve some of the overall Program Learning Goals and Outcomes for all postgraduate 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 the Postgraduate Program Learning Goals and Outcomes, see Part B of the course outline.

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):

<table>
<thead>
<tr>
<th>Program Learning Goals and Outcomes</th>
<th>Course Learning Outcomes</th>
<th>Course Assessment Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>This course helps you to achieve the following learning goals for all Business undergraduate students:</td>
<td>On successful completion of the course, you should be able to achieve:</td>
<td>This learning outcome will be assessed in the following items:</td>
</tr>
<tr>
<td>1 Knowledge</td>
<td>Learning Outcomes A1 – C2</td>
<td>• Tutorial Problems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mid-session exam</td>
</tr>
</tbody>
</table>
## 3 LEARNING AND TEACHING ACTIVITIES

### 3.1 Approach to Learning and Teaching in the Course

The approach adopted in this course is one of assisted self-study. The **approach adopted in this course is called flipped classroom**. While reading this subsection, please refer to the schedule given in Section 7.

The main rationale for this new structure is to bring the face-to-face time later in the learning process, when students are more comfortable with the materials, and more likely to interact and ask questions. The first conceptual encounter with the materials happens at home when students watch the video lectures. They then move on to practicing their knowledge with tutorial exercises. At this stage, tutorial sessions provide some face-to-face, and personalised help. Towards the end of the learning of a given module, everyone gathers in the lecture room for a “lectual”. The word combines lectures—because they are run by the lecturer and tutorial—because their goal is not to “lecture” students, but to discuss a module at a higher conceptual level, and to cement students’ learning with other activities (such as guest lectures, discussions, advanced exercises).

Course materials are organised in 6 modules. They consist of:

- Prescribed books (and recommended books for additional support)
- Topic video lectures available on the course website
- Exercises with solutions
- All past quizzes and exams for advanced exercises (with solutions)
- Videos of the solutions of selected past quizzes and exams questions
Additionally, students who are not familiar with the software package R should complete the module "R you ready?" (with videos, exercises and documents) which is available on Blackboard on a website available to all ACTL students.

Given the substantial amount of course on-line support, lectures will focus on providing the intuition and the big picture rather than repeating the details that are available on the videos. Students should have read the prescribed books, watched the videos and attempted the tutorial exercises prior to the lectures. An ideal lecture would be one consisting essentially of answers to the students’ questions. Students are encouraged to prepare questions and communicate them to the lecturer in advance on the course website’s forums (although this is not required).

Tutorials are for students to ask questions on aspects of the course that need further clarification and to interact with other students in the course. Students need to attempt the tutorial exercises prior to the tutorial classes and identify problems that require closer review during tutorials. They are an opportunity to learn from other students and to develop team skills by working on problems with other students.

### 3.2 Learning Activities and Teaching Strategies

It is expected the students will take a pro-active approach to learning. The course is organised in the learning activities given in the following table.

<table>
<thead>
<tr>
<th>Activity</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-study (readings, videos, exercises)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lectures</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tutorials</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Assignment</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Optional readings</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optional exercises</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The aims A and B are developed during all activities. The learning outcome C3 is developed through the “R you ready” module, tutorial exercises and the assignment. The broader aim C is developed in the assignment.

A detailed mapping of the tutorial exercises to the modules’ contents is provided on the course website. Exercises are organised in an increasing level of difficulty and it is recommended to complete all the exercises of a subsection before attempting the exercises of the following subsection.

It is expected that you will spend at least ten hours per week studying this course. In periods where you need to complete assignments or prepare for examinations, the workload may be greater. Over-commitment (to extra-curricular activities) has been a cause of failure for many students. You should take the required workload into account when planning how to balance study with employment and other activities. In the past, students have found the amount of contents particularly challenging. Don’t allow yourself to fall behind the schedule!
4 ASSESSMENT

4.1 Formal Requirements
In order to pass this course, you must:
- achieve a composite mark of at least 50; and
- make a satisfactory attempt at all assessment tasks (see below).

In order to pass the course students must complete and submit all components of assessment at or before the due times. Late assessment submissions will not be marked. It is important that students be punctual and reliable when submitting assessment. This is an important workplace requirement and students need to ensure they meet deadlines.

Your regular and punctual attendance at lectures and tutorials is expected in this course. University regulations indicate that if students attend less than eighty per cent of scheduled classes they may be refused final assessment.

In order to pass the course students must perform satisfactorily in all course assessment components. Students who have an overall performance at the Credit level (65% and above) are eligible for exemption of the Institute of Actuaries CT1 examination.

4.2 Assessment Details

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Weighting</th>
<th>Length</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-term exam</td>
<td>15%</td>
<td>60 mins</td>
<td>Monday 4th April 2016, 6pm – 8pm</td>
</tr>
<tr>
<td>Assignment</td>
<td>25%</td>
<td>N/A</td>
<td>Monday 16 May 2016, 11 am sharp</td>
</tr>
<tr>
<td>Final Exam</td>
<td>60%</td>
<td>2 hours</td>
<td>TBA</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Mid-term exam**
There will be one written answer mid-term exam in week 6 of 60 minutes duration (+ 5 minutes reading time). The mid-term exam will take place during a lecture during week 6. **The mid-semester exam will take place on Monday 4th April 2016 from 6pm – 8pm.** Its venue will be advertised later. The mid-term exam will be closed book. Students will only be allowed to bring the text "Formulae and Tables for Actuarial Examinations".

**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. 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.

The course exams require written responses, with students earning marks for correct mathematical working as well as part marks for incorrect responses with correct
method and reasoning. They test not only their knowledge of the material, but also the depth of their understanding of it.

**Assignment**
The practical application of the course concepts based on actual financial problems is an important graduate attribute that employers require and this course aims to provide at least some introductory exposure to this. Writing skills for technical material are also important.

There will be one major Assignment for this course involving the practical application of course concepts to a financial problem and an essay whose theme will be based on professional ethics. These will provide students with an opportunity to also develop writing skills of different types.

The assignment offers students the opportunity to engage in independent research, engage in critical analysis, self-reflection and problem solving, as well as to demonstrate their understanding of the concepts and perspectives that are central to actuarial studies.

Full information about the major assignment will be released early in the session.

**Final Examination**
The final examination will assess students’ understanding of the concepts covered in the course and their ability to apply them to financial market problems. A deeper grasp of materials is expected from students at the final exam level than at the tutorial level.

The final examination will be a two hour written paper. The final examination will be closed book. Students will only be allowed to bring the text "Formulae and Tables for Actuarial Examinations" into the exam. This must not be annotated.

**4.3 Assignment Submission Procedure**

Assignments must be submitted via the Turnitin submission box that is available on the course Moodle website. Turnitin reports on any similarities between their own cohort’s assignments, and also with regard to other sources (such as the internet or all assignments submitted all around the world via Turnitin).

More information is available at: [http://elearning.unsw.edu.au/turnitin/content/TurnItInStudentSupport.cfm?ss=0](http://elearning.unsw.edu.au/turnitin/content/TurnItInStudentSupport.cfm?ss=0) Please read this page, as we will assume that its content is familiar to you. You will be able to make multiple submissions. You need to check your document once it is submitted (check it on-screen). We will not mark assignments that cannot be read on screen.

Students are reminded of the risk that technical issues may delay or even prevent their submission (such as internet connection and/or computer breakdowns). Students should then consider either submitting their assignment from the university computer rooms or allow enough time (at least 24 hours is recommended) between their submission and the due time. The Turnitin module will not let you submit a late report. No paper copy will be either accepted or graded.

In case of a technical problem, the full document must be submitted to the course coordinator before the due time by e-mail, with explanations about why the student was not able to submit on time. In principle, this assignment will not be marked. It is only in
exceptional circumstances where the assignment was submitted before the due time by e-mail that it may be marked—and this only if a valid reason is established.

**Avoid a 0 for your assignment (in the mildest case) because of plagiarism**

Students are reminded that the work they submit must be their own (see section 5 above). While we have no problem with students working together on the assignment problems, the material students submit for assessment must be their own. This means that:

- The mathematical solutions you present are written up by you, without reference to any other student’s work.

- Students should make sure they understand what plagiarism is (see Section 5 and do the quiz) — cases of plagiarism have a very high probability of being discovered. For issues of collective work, having different persons marking the assignment does not decrease this probability.

Students should consult the Turnitin section of the website accessible to all ACTL students well in advance, as this gives a (non exhaustive) list of things that could go wrong and explains how the policies above are implemented.

### 4.4 Late Submission

The School of Risk and Actuarial Studies has a policy of grading late assignments with a zero mark. Punctual submission of work is required in order to satisfy the requirements of the course. The assignment may be marked at the discretion of the course co-ordinator if there is a valid reason for late submission and used in cases where your final overall results are marginal.

<table>
<thead>
<tr>
<th>Quality Assurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>
5 COURSE RESOURCES

Textbooks
The required textbooks for the course are:

- Broverman, S.A. (2010), Mathematics of Investment and Credit, 6th Edition, ACTEX Publications. [A solutions manual is available for purchase. The 6th Edition is largely similar to the 5th Edition, so it may be possible to learn with the 5th Edition as well; the references at the end of this course outline are valid for both editions. However, Editions previous to the 4th are not recommended.]
- Zuur, A. F., Ieno, E. N., Maesters, E. (2009), A Beginner’s Guide to R, Springer [This book is a very good reference for the statistical software R. An online version is available through the UNSW Library, and it may thus not be necessary to purchase a paper copy]

Additional (optional) readings are:

- The Actuarial Education Company, Course CT1 Study Guide. [A subset of the course, which has the advantage of showing exactly what the Institute of Actuaries expects from students at CT1 exam, should you need to take the exam later]
- Daniel, J. W. and Vaaler, L. J. F. (2007), Mathematical Interest Theory, Pearson, Prentice Hall. [A book similar to Broverman’s, useful as a second reference if a second, different explanation is necessary. It also has the advantage of discussing the use of modern calculators and explaining how to use them]

All these books are available from the library, some of them with copies in the reserve. Should the quantity available be insufficient, please inform the course coordinator, who will forward this information to the library.
Formulae & Tables
Students will only be allowed to bring into the examinations for the Actuarial courses in the BCom the text "Formulae and Tables for Actuarial Examinations". This text must not be annotated. All students in the actuarial courses should purchase a copy of this text if they wish to use this in the final examinations for this course. The text is available from the UNSW Bookshop, the UK Institute of Actuaries or from ActEd Australia. Visit the ActEd website at http://www.acted.com.au.

Course website
The course Blackboard website is available from the UNSW TELT platform: http://elearning.unsw.edu.au/
To access the Blackboard online support site for students, follow the links from that website to UNSW Blackboard Support/Support for Students. Additional technical support can be obtained from itservicecentre@unsw.edu.au (02 9385 1333).

All course contents will be available from the course website (except for the modules “R you ready?” and “Back to Basics” which are available on Blackboard ACTL students common website). It is essential that you visit the site regularly to see any notices posted there by the course coordinator, as it will be assumed that they are known to you within a reasonable time.

6 COURSE EVALUATION AND DEVELOPMENT

Each course in actuarial studies at UNSW is reviewed each session by the course co-ordinator using student evaluative feedback from UNSW's Course and Teaching Evaluation and Improvement (CATEI) Process. Student feedback is taken seriously, and continual improvements are made to the course based on such feedback. Significant changes to the course are communicated to students taking the course.

Your input into improving future offerings of the course is highly valued.

In the last few years, the structure of the course and its learning and teaching strategy was changed radically. The main rationale for this change was the exceptional success of the lecture video recordings that were provided to the students in 2009, as well as the salient need for additional coverage of exercises during contact hours.

In 2011, 2012, 2013 and 2014, course evaluations resulted in the introduction of the following additional developments:

- Video recordings of a selection of past quizzes and exams problems for each module;
- The organisation of formative self-assessments throughout the session;
- Corrections of typos in the exercises and improvement of the solutions;
- A higher weight for the assignment in the final grade.

We repeat that we take students’ feedback extremely seriously and we count on your cooperation when seeking feedback that will help us identify the strengths and weaknesses of the course contents and learning and teaching strategies. We guarantee that the process is entirely anonymous and that your feedback will not have any impact on your final results.
7 COURSE SCHEDULE
Lectorial / Tutorial Schedule

Lectures start in Week 1 and finish in Week 12. Lecture time: **Monday 6:00 pm – 9:00 pm.** Tutorials start in Week 2 and finish in Week 13.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Introduction to course &amp; <strong>Tutorial 1</strong></td>
<td><strong>STUDY PRIOR TO FIRST LECTURE / TUTORIAL WEEK 1</strong></td>
</tr>
<tr>
<td>29 February</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 2</td>
<td><strong>Tutorial 2</strong></td>
<td><strong>Self-study Module 1</strong></td>
</tr>
<tr>
<td>7 March</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 3</td>
<td><strong>Lectorial &amp; Tutorial 3</strong></td>
<td><strong>Self-study Module 1</strong></td>
</tr>
<tr>
<td>14 March</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 4</td>
<td><strong>Tutorial 4</strong></td>
<td><strong>Self-study Module 2</strong></td>
</tr>
<tr>
<td>21 March</td>
<td><em>(Friday 25 March is Good Friday public holiday)</em></td>
<td></td>
</tr>
<tr>
<td>Week 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 April</td>
<td><strong>Mid-century Exam Monday 4 April 6:30pm</strong></td>
<td><strong>Self-study Module 3</strong></td>
</tr>
<tr>
<td>Week 6</td>
<td><strong>Lectorial &amp; Tutorial 5 / 6</strong></td>
<td><strong>Self-study Module 3</strong></td>
</tr>
<tr>
<td>11 April</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 7</td>
<td><strong>Tutorial 7</strong></td>
<td><strong>Self-study Module 4</strong></td>
</tr>
<tr>
<td>18 April</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 8</td>
<td><strong>PUBLIC HOLIDAY</strong></td>
<td><strong>Self-study Module 4</strong></td>
</tr>
<tr>
<td>25 April</td>
<td><em>(Monday 25 April is Anzac Day public holiday)</em></td>
<td></td>
</tr>
<tr>
<td>Week 9</td>
<td><strong>Tutorial 8 / 9</strong></td>
<td><strong>Self-study Module 5</strong></td>
</tr>
<tr>
<td>2 May</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 10</td>
<td><strong>Lectorial &amp; Tutorial 10</strong></td>
<td><strong>Self-study Module 5</strong></td>
</tr>
<tr>
<td>9 May</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 11</td>
<td><strong>Assignment Due Monday 16 May 11am Sharp</strong></td>
<td><strong>Self-study Module 6</strong></td>
</tr>
<tr>
<td>16 May</td>
<td><strong>Tutorial 11</strong></td>
<td></td>
</tr>
<tr>
<td>Week 12</td>
<td><strong>Lectorial &amp; Tutorial 12</strong></td>
<td><strong>Self-study Module 6</strong></td>
</tr>
<tr>
<td>23 May</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 13</td>
<td><strong>Self-Study / Revision</strong></td>
<td><strong>Self-assessment</strong></td>
</tr>
<tr>
<td>30 May</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Students who are not familiar with R should cover the module “R you ready?” within the first two weeks of the course. See Section 3.1.*
This timetable may be altered. Students will be advised of any changes in lectures and via the course web site.

Detailed information about the modules’ contents and their associated readings is provided on the course website. Note that all topics have been mapped to the Institute of Actuaries CT1 Exam 2010 Syllabus. Only the readings Broverman (6th Edition) and Sherris are prescribed. The other three references are optional and provide further support if needed (see Section 6).