This course follows on from ACST4060 (Enterprise Risk Management 1) to develop expertise in several aspects of Enterprise Risk Management including a thorough understanding of

- quantitative risk modelling and risk aggregation tools and techniques
- different risk measures
- the use of models in the ERM decision-making process, and
- methods and techniques for assessing and evaluating market risk, credit risk, operational and other risks.

<table>
<thead>
<tr>
<th>Mode of Delivery</th>
<th>On campus, blended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prerequisites</td>
<td>As listed in Programs and Courses</td>
</tr>
<tr>
<td>Incompatible Courses</td>
<td>As listed in Programs and Courses</td>
</tr>
<tr>
<td>Co-taught Courses</td>
<td>ACST8061</td>
</tr>
<tr>
<td></td>
<td>Note: graduate students attend joint classes with undergraduates but are assessed separately</td>
</tr>
<tr>
<td>Course Convener:</td>
<td>Gaurav Khemka</td>
</tr>
<tr>
<td>Phone:</td>
<td>6125 4642</td>
</tr>
<tr>
<td>Email:</td>
<td><a href="mailto:gaurav.khemka@anu.edu.au">gaurav.khemka@anu.edu.au</a></td>
</tr>
<tr>
<td>Office hours for student consultation:</td>
<td>TBA</td>
</tr>
<tr>
<td>Research Interests</td>
<td>Please see <a href="https://www.cbe.anu.edu.au/about/staff-directory/?profile=Gaurav-Khemka">https://www.cbe.anu.edu.au/about/staff-directory/?profile=Gaurav-Khemka</a></td>
</tr>
<tr>
<td>Workshop Convener:</td>
<td>Yunxi (Lucy) Hu</td>
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<tr>
<td>Phone:</td>
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<td>Email:</td>
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</tr>
<tr>
<td>Office hours for student consultation:</td>
<td>TBA</td>
</tr>
<tr>
<td>Relevant administrator if any (optional)</td>
<td>Maria Lander</td>
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<tr>
<td>Email:</td>
<td><a href="mailto:maria.lander@anu.edu.au">maria.lander@anu.edu.au</a></td>
</tr>
</tbody>
</table>
COURSE OVERVIEW

Learning Outcomes
Upon successful completion of the requirements for this course, students should have the knowledge and skills to:

1. Describe in detail the properties and limitations of common risk measures.
2. Explain how models can be used in the ERM decision-making process.
3. Demonstrate an understanding and be able to explain the different quantitative techniques for modelling and measuring risk including:
   - Risk aggregation methods
   - Statistical distributions
   - Copulas
   - Time series techniques
   - Extreme value theory
4. Recommend and communicate appropriate models for risk assessment based on quantitative and qualitative analysis.
5. Assess and explain different types of risk within an organisation including: market risk, credit risk, operational and other risks.

Assessment Summary

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Value</th>
<th>Due Date</th>
<th>Date for Return of Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Individual Assignment</td>
<td>5%</td>
<td>Due 23 August 3pm</td>
<td>31.08.17</td>
</tr>
<tr>
<td>2. Mid-semester exam</td>
<td>30%</td>
<td>Specific date to be advised (likely to be Week 6 or 7)</td>
<td>TBA</td>
</tr>
<tr>
<td>3. Group Assignment</td>
<td>15%</td>
<td>Friday, 20 October, 3pm</td>
<td>27.10.17</td>
</tr>
<tr>
<td>4. Final exam</td>
<td>50%</td>
<td>Specific date to be advised</td>
<td>NA</td>
</tr>
</tbody>
</table>

Research-Led Teaching
Gaurav has many years of professional practice and active research. He also has the relevant background in the field of enterprise risk management. The course will address current issues of interest and current approaches to actuarial practice in enterprise risk management.
Feedback

Staff Feedback

Students will be given feedback in the following forms in this course:

- Following the mid-semester examination, feedback will be given to the whole class about the general performance on the exam.
- Students will have an opportunity to look over their script-book following both the mid-semester and final examinations.
- Students will have the opportunity to speak with the lecturer and seek comments from the lecturer about their performance in the assignments.

Student Feedback

ANU is committed to the demonstration of educational excellence and regularly seeks feedback from students. One of the key formal ways students have to provide feedback is through Student Experience of Learning Support (SELS) surveys. The feedback given in these surveys is anonymous and provides the Colleges, University Education Committee and Academic Board with opportunities to recognise excellent teaching, and opportunities for improvement.

For more information on student surveys at ANU and reports on the feedback provided on ANU courses, go to http://unistats.anu.edu.au/surveys/selt/students/ and http://unistats.anu.edu.au/surveys/selt/results/learning/

Policies

ANU has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the University’s academic standards, and implement them. You can find the University’s education policies and an explanatory glossary at: http://policies.anu.edu.au/

Students are expected to have read the Academic Misconduct Rule before the commencement of their course.

Other key policies include:

- Student Assessment (Coursework)
- Student Surveys and Evaluations

Required Resources

It is strongly advised that students undertaking this course have access to the following texts:

- Actuarial Education Company (ActEd) ST9 Course Notes

These texts were also used for the course ACST4060.
In many weeks of this course, we will be using Excel spreadsheets and the statistical software R, in class to demonstrate various aspects of the course. Bringing your own laptop to class, or having access to someone else’s laptop, will be important if you wish to better understand the techniques taught in the class, and so you can apply your knowledge to real data. Working in pairs or three’s is encouraged, so students may share laptops with others.

**Examination material or equipment**
The following material is permitted in the examination room:

- Non-programmable calculator,
- paper dictionary (without annotation) and
- 1 A4 page with notes on both sides.

The standard for exemptions from the Institute Part III – Module 1 - Course C7A Enterprise Risk Management is achievement of a weighted average mark of 75 per cent or better over the combination of the two units ACST4060 and ACST4061, with a minimum requirement of 65 per cent in each unit. Each course counts 50% towards this exemption.
### COURSE SCHEDULE

<table>
<thead>
<tr>
<th>Week</th>
<th>Summary of Activities</th>
<th>Reading material*</th>
<th>Assessment</th>
</tr>
</thead>
</table>
| 1    | * Introduction to the Course  
|      | * Risk Measurement     | * ActEd ST9 Module 14 |           |
| 2    | * Risk Modelling – Part 1  
|      | * A Review of Statistical Distributions (I) | * ActEd ST9 Module 15  
|      |                         | * ActEd ST9 Module 16 |           |
| 3    | * A Review of Statistical Distributions (II)  
|      | * Copulas               | * ActEd ST9 Module 16  
|      |                         | * ActEd ST9 Module 18 |           |
| 4    | * Financial Time-Series  | * ActEd ST9 Module 17 |           |
| 5    | * Model Fitting Techniques  
|      | * Extreme Value Theory (I) | * ActEd ST9 Module 19  
|      |                         | * ActEd ST9 Module 20 | Assignment 1 Due |
| 6    | * Extreme Value Theory (II) | * ActEd ST9 Module 20 | Mid-semester Exam (week 6 or 7) |
| 7    | * Review and Catch up    
|      | * Risk Modelling – Part 2 | * ActEd ST9 Module 21 |           |
| 8    | * Analysing Market Risk – Part 1  
|      |                         | * ActEd ST9 Module 22 |           |
| 9    | * Analysing Market Risk – Part 2  
|      | * Analysing Credit Risk – Part 1 | * ActEd ST9 Module 22  
|      |                         | * ActEd ST9 Module 23 |           |
| 10   | * Analysing Credit Risk – Part 2 | * ActEd ST9 Module 23 |           |
| 11   | * Analysing Operational and Other Risks | * ActEd ST9 Module 24 and 25 | Assignment 2 Due |
| 12   | * Review and Catch up     | * ActEd ST9 Module 22 |           |

* The reading material for this course includes those parts of the Sweeting text referred to in the 2017 ActED course notes each week.
ASSESSMENT REQUIREMENTS

The ANU is using Turnitin to enhance student citation and referencing techniques, and to assess assignment submissions as a component of the University's approach to managing Academic Integrity. For additional information regarding Turnitin please visit the ANU Online website.

Students may choose not to submit assessment items through Turnitin. In this instance you will be required to submit, alongside the assessment item itself, copies of all references included in the assessment item.

As a further academic integrity control, students may be selected for a 15 minute individual oral examination of their written assessment submissions.

Any student identified, either during the current semester or in retrospect, as having used ghost writing services will be investigated under the University's Academic Misconduct Rule.

Assessment Tasks

Assessment Task 1: Individual Assignment (Assignment 1)

Details of task:
Assignment 1 will cover material from week 1-4 (up to and including financial time series).
The assignment will require answers to short essay type questions and some problem solving.

Value: 5%
Date: Wednesday 23 August 3pm.

Assessment Task 2: Mid-Semester Exam

Details of task:
The Mid-Semester Exam will be 2 hours plus an additional 10 minutes as reading time. Please note that the Mid-Semester Exam is compulsory and non-redeemable.

Value: 30%
Date: The Mid-Semester Exam will be scheduled for Week 7 or Week 8, however, this date may change depending on room availability. Further details relating to the exam will be provided closer to the scheduled date.

Assessment Task 3: Group Assignment (Assignment 2)

Details of task: The groups will be required to analyse a data set and write a report.

Word limit: TBA
Value: 15%
Due date: Friday 20 October 3pm (Week 11)

Assessment Task 4: Final Exam

Details of task:
The Final Exam will be 3 hours plus an additional 15 minutes as reading time. The Final Exam is compulsory. Further details relating to the Exam will be provided closer to the scheduled date.

Value: 50%
Date: To be advised
**Examination(s)**
The course includes formal examination through a mid-semester and final examination as described above.

**Assignment submission**

**Hard Copy Submission**: Students are required to hand in a hard copy of their assignments to the assignment boxes for Enterprise Risk Management 2 (ACST4061/8061) outside the RSFAS office on level 4 of the CBE building. Assignments **must** include the cover sheet available via Wattle. Please keep a copy of tasks completed for your records. Any additional instructions will be provided in lectures and will be posted on Wattle.

**Extensions and penalties**

Extensions and late submission of assessment pieces are covered by the Student Assessment (Coursework) Policy and Procedure.

The Course Convener may grant extensions for assessment pieces that are not examinations or take-home examinations. If you need an extension, you must request it in writing on or before the due date. If you have documented and appropriate medical evidence that demonstrates you were not able to request an extension on or before the due date, you may be able to request it after the due date.

No submission of assessment tasks without an extension after the due date will be permitted. If an assessment task is not submitted by the due date, a mark of 0 will be awarded.

**Returning assignments**

Marked assignments will be returned as soon as they are marked, either in class time, or via email or Wattle to individual students.

**Resubmission of assignments**

Students will not be permitted to resubmit assignments.

**Referencing requirements**

Accepted academic practice for referencing sources that you use in assignments can be found via the links on the Wattle site, under the file named “ANU and College Policies, Program Information, Student Support Services and Assessment”. For a more interactive guide on what this is all about, please see http://library.acadiau.ca/tutorials/plagiarism/.

Include at the end of your report a bibliography that lists only those references that have been cited in the body of your report. The bibliography does not count towards the assignment word limit. More information on the assignment requirements will be given in lectures and on Wattle.

**Scaling**

Your final mark for the course will be based on the **raw** marks allocated for each of your assessment items. However, your final mark may not be the same number as produced by that formula, as marks may be **scaled**. Any scaling applied will preserve the rank order of raw marks (i.e. if your raw mark exceeds that of another student, then your scaled mark will exceed the scaled mark of that student), and may be either up or down.
**Privacy Notice**

The ANU has made a number of third party, online, databases available for students to use. Use of each online database is conditional on student end users first agreeing to the database licensor’s terms of service and/or privacy policy. Students should read these carefully.

In some cases student end users will be required to register an account with the database licensor and submit personal information, including their: first name; last name; ANU email address; and other information.

In cases where student end users are asked to submit ‘content’ to a database, such as an assignment or short answers, the database licensor may only use the student’s ‘content’ in accordance with the terms of service – including any (copyright) licence the student grants to the database licensor.

Any personal information or content a student submits may be stored by the licensor, potentially offshore, and will be used to process the database service in accordance with the licensors terms of service and/or privacy policy.

If any student chooses not to agree to the database licensor's terms of service or privacy policy, the student will not be able to access and use the database. In these circumstances students should contact their lecturer to enquire about alternative arrangements that are available.

**Tutorial Seminar Registration**

Tutorial signup for this course will be done via the Wattle website. Detailed information about signup times will be provided on Wattle or during your first lecture. When tutorials are available for enrolment, follow these steps:

1. Log on to Wattle, and go to the course site
2. Click on the link “Tutorial enrolment”
3. On the right of the screen, click on the tab “Become Member of…..” for the tutorial class you wish to enter
4. Confirm your choice

If you need to change your enrolment, you will be able to do so by clicking on the tab “Leave group…..” and then re-enrol in another group. You will not be able to enrol in groups that have reached their maximum number. Please note that enrolment in ISIS must be finalised for you to have access to Wattle.

**SUPPORT FOR STUDENTS**

The University offers a number of support services for students. Information on these is available online from http://students.anu.edu.au/studentlife/