MACQUARIE
BUSINESS SCHOOL

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University

Data analysis – an enhanced toolkit for Actuaries

Endorsed by:

Actuaries Institute

COURSE OVERVIEW

Digital disruption has led to the generation of large volumes of data and the challenge of managing and making use of such data globally. The modern tools and techniques in data science help with drawing insights from this data.

Analysing data is a core skill for Actuaries but there is an increasing need to become familiar with emerging techniques in this fast moving and digitally transformed environment. This course will cover data visualisation, data manipulation and ethics as well as machine learning and AI.

This practical course is part of the Actuaries Institute's initiative to provide members with the opportunity to develop and enhance their skills on modern approaches to data science and modelling.

COURSE OBJECTIVES

The central aim of this course is to give actuarial practitioners an enhanced understanding of modern methods for data analysis which go beyond the approaches taught in the actuarial studies syllabus prior to 2020. Methods will be viewed through an actuarial lens where possible giving participants an opportunity to consider the new methods within familiar contexts.

COURSE INFORMATION

DURATION

10 weeks: 1 March - 17 May 2021.

LOCATION

Online Self-Directed Learning with weekly virtual consultations with faculty.

REGISTRATION

- Early Bird Fee: $2,350 incl GST per person if registered and paid prior to 31 January 2021.
- Full registration: $2,750* incl GST after 31 January 2021.
- Group discount: 10% for 3 or more from the same organisation.**

REGISTER NOW

** No further discounts apply.*
*** Please call MQBS on (02) 9850 9138 for the group discount code to add to your registration.*

WHO SHOULD ATTEND?

Experienced/qualified actuaries but new to modern data analytic methods.

CPD POINTS

Actuaries Institute members are eligible for 150 CPD points upon successful completion of this course.

MICRO-CREDENTIALS

Successful completion of this program will provide 5CPs towards further programs at Macquarie University.

WHAT YOU WILL NEED

You will need unrestricted access to R and R Studio to complete this course.

Refer to Frequently Asked Questions for more information.

CONTACT US

Corporate and Professional Education
T: (02) 9850 9138
E: professional.education@business.mq.edu.au

COURSE OUTCOMES

- Solve a business problem by supplementing traditional actuarial techniques with new modern analytical techniques.
- Source, prepare, manipulate and evaluate data to be used with new modern machine learning methods.
- Understand the advantages and limitations of different modern machine learning methods and apply judgement when applying these to solve actuarial problems.
- Communicate the implications and limitations of these new methods to non-technical business executives.
- Understand professional and ethical considerations when using these methods to perform analytical work in a business environment.

VOLUME OF LEARNING

This program covers 75 hours volume of learning. It is anticipated that each topic would take approximately 6-7 hours to complete.

2021 COURSE TIMETABLE	
WEEK 1: 1-5 MARCH	Overview of the machine learning process in an actuarial business context (including professional and ethical considerations) and the programming language R
WEEK 2: 8-12 MARCH	Communication using R
WEEK 3: 15-19 MARCH	Data: key tools for data exploration, management and manipulation
WEEK 4: 22-26 MARCH	Data: key tools for data visualisation and exploratory analysis
EASTER BREAK	
WEEK 5: 6-9 APRIL	Machine Learning for Actuaries – Parametric regression methods
WEEK 6: 12-16 APRIL	Machine learning for Actuaries – non-parametric regression tree methods
WEEK 7: 19-23 APRIL	Machine learning for Actuaries – Classification problems
WEEK 8: 26-30 APRIL	Machine learning for Actuaries – Unsupervised learning
WEEK 9: 3-7 MAY	Assignment Preparation
WEEK 10: 10-14 MAY	Assignment Preparation
17 MAY	Assignment Submission Date

COURSE FACILITATORS

MAGGIE LEE

Maggie Lee is a Senior Lecturer in the Department of Actuarial Studies and Business Analytics at Macquarie Business School (MQBS). Maggie teaches actuarial courses including the Actuarial Data Analytics Principles course.

Prior to joining Macquarie University in 2018, Maggie worked as a Manager in the Actuarial practice of Ernst & Young (EY). She is a qualified Actuary with eight years of experience in the general insurance and health in Australia and has strong skills in data analytics and traditional general insurance reserving methods. She continues to have strong relationships with the industry as a Health Practice Committee member for the Actuaries Institute and health agencies and entities through research.

PROFESSOR PAVEL SHEVCHENKO

Pavel Shevchenko is a Professor in the Department of Actuarial Studies and Business Analytics and Co-Director of the Centre for Risk Analytics at Macquarie University. Prior to joining Macquarie University in 2016, he worked in the government science agency CSIRO Australia (1999-2016) holding a position of Senior Principal Research Scientist during 2012-2016. Since 1999, Prof Shevchenko has been working in the area of risk analytics leading research and commercial projects on: modelling of longevity and mortality, retirement products; option pricing; operational and credit risks, insurance; modelling commodities and foreign exchange; and the development of relevant numerical methods and software. His publication records include three research monographs, over 60 journal papers and over 80 technical reports. Prof Shevchenko has delivered four university courses on machine learning and data analytics in finance and insurance at Macquarie University, Vienna University of Technology and University of NSW since 2016 and teaches the Actuarial Data Analytics Principles course.

PROFESSOR DAVID PITT

David Pitt is a Professor in Actuarial Studies and Head of the Department of Actuarial Studies and Business Analytics at Macquarie University. He is a Fellow of the Institute of Actuaries of Australia and has completed undergraduate study in actuarial science and statistics, a Masters in Statistics and a PhD in Actuarial Studies. He has a long experience teaching actuarial and statistical concepts to students at the undergraduate and postgraduate levels and has won numerous awards for his work in this area. David regularly publishes work in leading actuarial studies journals and enjoys communicating the results of his applied statistics work to audiences at conferences around the world.

CANCELLATION FEE

Notice before program commencement	Cancellation Fee	Transfer Fee
14 days or less	100% of program fee	50% of program fee
15-28 days	50% of program fee	10% of program fee
29 days +	10% of program fee	No charge

If the option to transfer is not taken up in the 12 month period from the program commencement, a cancellation fee of up to 100% will apply.

If a cancellation is received from a discounted group and the numbers drop below 3 – remaining group members will be charged the balance of the advertised rate at the time of registration.

All requests for cancellation and transfers must be made in writing to MQBS.

In the event this program needs to be cancelled due to insufficient registrations, any payments made for this program will be fully reimbursed.