

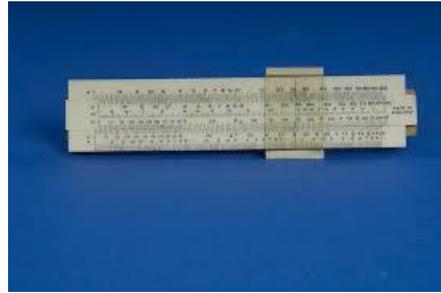
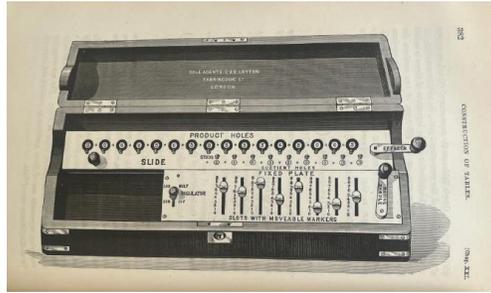
# The AI Enabled Actuary

Mike Callan  
March 2026

**Actuaries  
Institute.**



# New tools



## 40 Years of Microsoft Excel

**Excel 3.0, Excel 4.0, and Excel 5.0**

- Introduced the first toolbar ever in an app, 3D charts, drawing capabilities, and add-in support
- Introduced drag and drop, autofill, workbooks, auto format, and spell-checking
- Added support for Visual Basic for Applications (VBA), enabling powerful macros and automation

**Excel 2003 and Excel 2007**

- Improved XML support and file functionality
- Major UI overhaul with the Ribbon interface, new file format (.xlsx), support for 1 million rows per worksheet, multithreaded recalculation, and improvements to financial model performance
- Excel Services, enabling you to build and interact with workbooks on SharePoint, is introduced in 2007 (later to become Excel for the web)
- 64-bit support is added in 2010

**Excel for Microsoft 365 and Copilot integration**

- Introduced dynamic arrays, XLOOKUP, LAMBDA, and LET functions
- Enabled real-time collaboration in Teams via Excel Live
- Introduced AI-powered formula generation, data insights, and natural language queries

1985–1990    1990–1995    1995–2000    2000–2010    2010–2020    2020–Today

**Excel 1.0 for Macintosh and Excel 2.0 for Windows**

- Introduced a graphical interface and mouse support
- Microsoft gains a foothold in the spreadsheet market dominated by Lotus 1-2-3

**Excel 95 (Excel 7.0) and Excel 97 (Excel 8.0)**

- The first 32-bit version, with improved performance and stability
- Introduced the Office Assistant (Clippy), pivot tables, and data validation
- VBA was significantly enhanced
- The scroll wheel is popularized by the Microsoft IntelliMouse in 1996 as a solution to easily navigate long spreadsheets
- Hyperlinks and internet-enabled features like web queries and HTML file formats are added in 1997

**Excel 2010, Excel 2013, and Excel 2016**

- Introduced Sparklines, slices for pivot tables, and PowerPivot add-in for advanced data modeling
- Deepened integration with the cloud (OneDrive), Flash Fill, and Power View for data visualization
- Added forecasting functions, new chart types (e.g., waterfall, sunburst), and better collaboration tools
- Excel for mobile launches in 2010 with the release of the Windows Phone 7
- Collaboration in Office 365 is introduced in 2016, allowing multiple users to work on the same spreadsheet simultaneously

FIS

## FIS INSURANCE RISK SUITE

Formerly Prophet



*"We need to rethink our strategy of hoping A.I. will just go away."*



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# How to help all members learn 'AI'



Structured to meet stated outcomes  
– what can a new actuary do?

Tools for well-defined questions

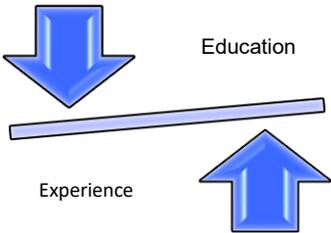
Introducing real world processes

Deep dive – domain or service



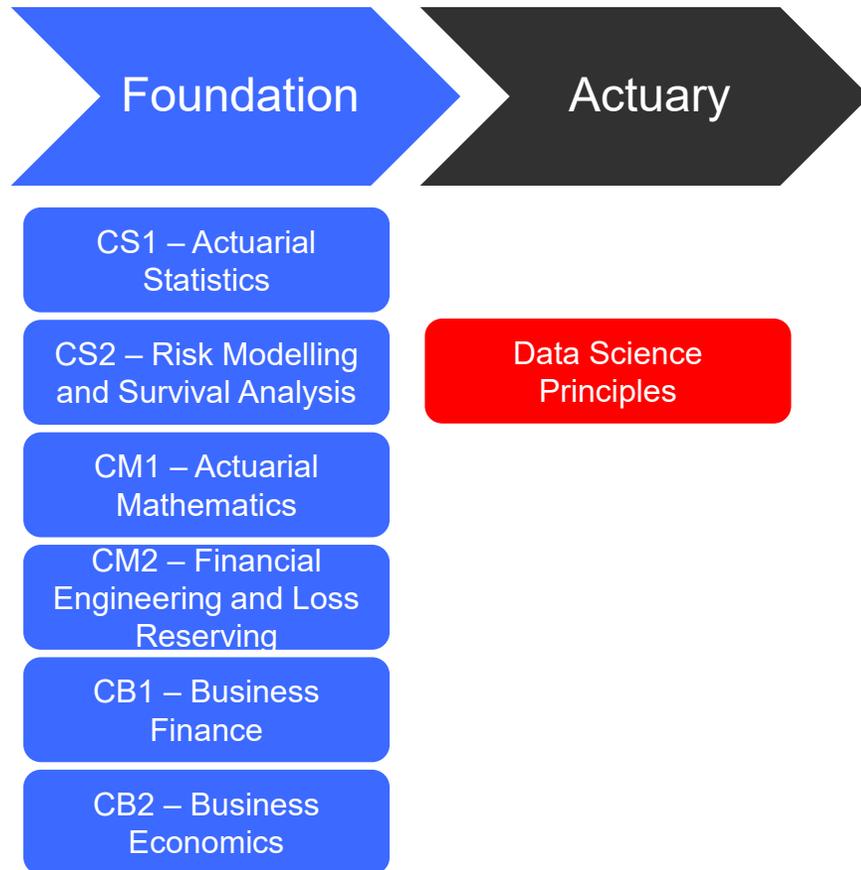
Professional Practice

Industry drives AI needs



Promote to all members?

# Tools for well-defined questions – Adding more DS



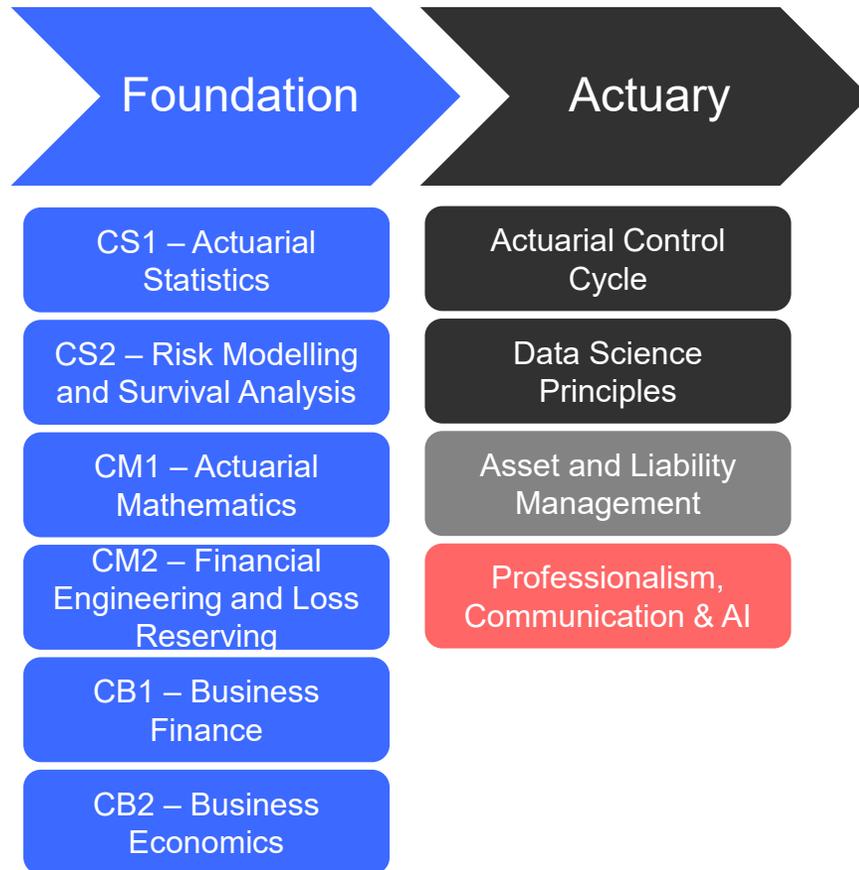
## Data Science Principles Outcomes:

Successful students will be able to **contribute** to all stages of a data science project across multiple industries or domains, including:

- explaining where and how their data science work can add value to the business environment and strategy;
- sourcing, interpreting, evaluating and preparing data for modelling;
- using judgement to select appropriate predictive analytic techniques for a given business problem;
- applying predictive analytic techniques to solve regression and classification problems;
- evaluating and comparing performance of different models; and
- communicating findings to a range of audiences.



# Introducing real-world processes – efficient & ethical Gen AI

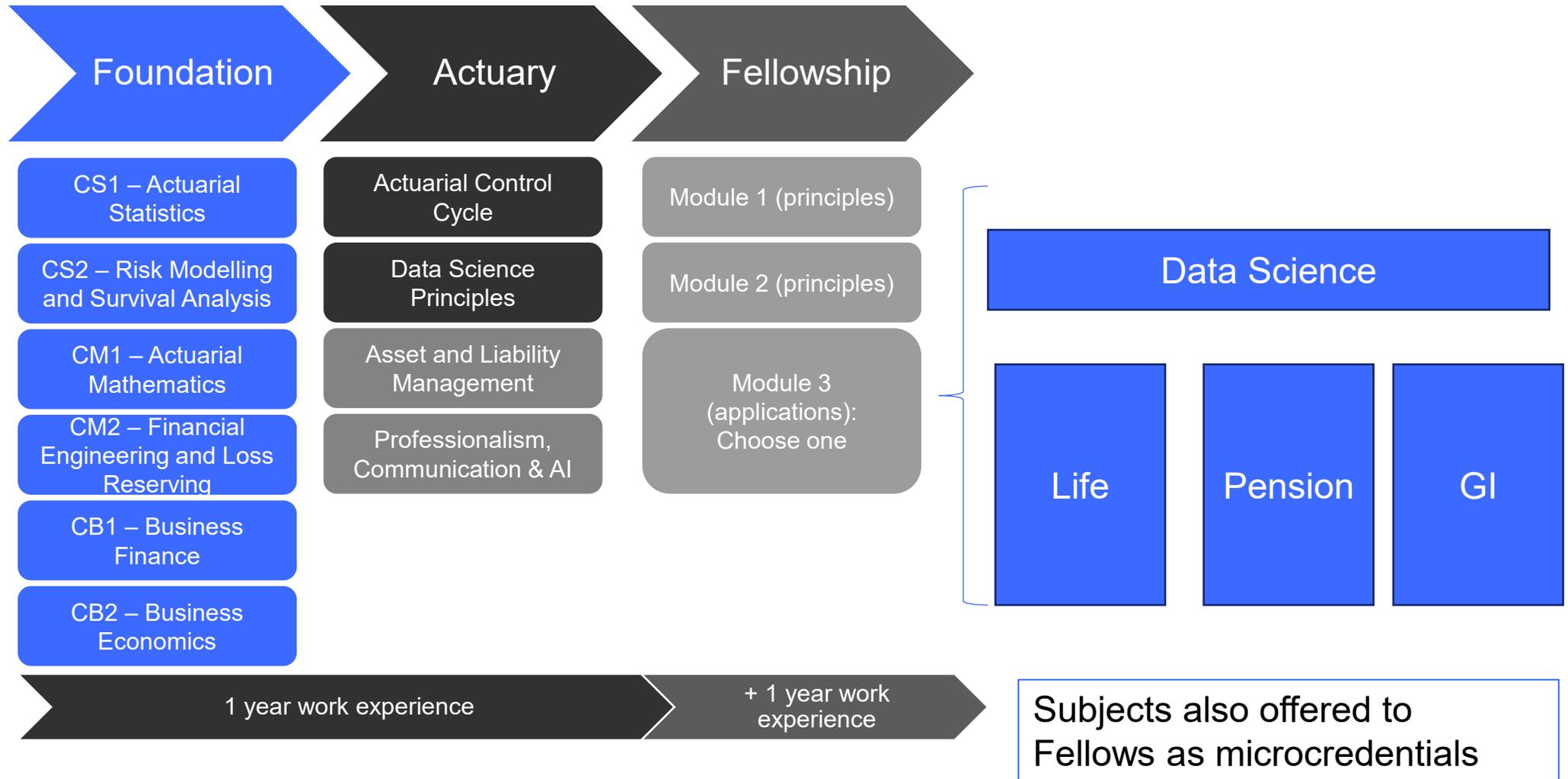


## Develop effective and professional practices for using GenAI tools

- Explain how GenAI models produce original content
  - Explain how large language models generate text
  - Explain how diffusion models generate images, audio, and video content
- Develop ethical and safe practices for using GenAI tools in professional actuarial contexts
  - Discuss the benefits, limitations, and risks of using GenAI
  - Apply adequate privacy, security, and ethical safeguards when using GenAI tools
  - Apply the Institute's Code of Conduct principles when using GenAI tools
  - Evaluate GenAI outputs by identifying potential biases
- Develop effective approaches for using GenAI tools to solve actuarial business problems
  - Select appropriate GenAI tools for a given context
  - Apply effective techniques for instructing GenAI tools to enhance their outputs
  - Apply techniques for actively engaging with GenAI outputs
  - Evaluate the usefulness of GenAI outputs.



# Deep dive: domain or service



# Data Science Applications – Data Science Actuary

## Subject Materials

Chapter 1

**Introduction**



Chapter 2

**Domain Knowledge**



Chapter 3

**Security, privacy and ethics**



Chapter 4

**Data architecture**



Chapter 5

**Classification and neural networks**



Chapter 6

**Unsupervised learning**



Chapter 7

**Natural language processing**



Chapter 8

**Business optimisation**



Chapter 9

**Implementing change**



## Resources

**Tutorials**



**Study tips**



**Aim:**

Apply a range of data science skills together with professional judgment, to solve a variety of complex and challenging business problems.

**Outcomes:**

- assess the impact of complex business environments on all stages of their data science projects;
- perform data science using a variety of tools and techniques to successfully solve realistic business problems; and
- contribute to the successful implementation of data-driven change in an organisation.



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Assessed 50% Exam/50% assignment

# AI education for qualified members



# Promotion to qualified members: Actuaries Institute 2026 Summit

Validating AI in Practice: Accuracy, Confidence and Bias

An Interpretable Deep Learning Model for General Insurance Pricing – Pho et al

Modernising Actuarial Modelling: Migrating to Open-Source Code Solutions

How to Find Data-Driven Insights When You Have No Data (or Just Want More): Case Studies in Leveraging Public Data

From Data Taker to Data Generator: Introduction to Causal Inference and a Case Study of Field Experiment

Fairness Testing for Insurance Pricing: A Statistical Inference Framework

Making All the Right Noise - Using Diffusion Deep Learning Models to Perform Multivariate Prediction for Simulation and Reserving

Generative AI in Injury and Disability Schemes: Enabling Sustainable, Client-Centred Systems in a Time of Economic Recalibration

The AI CEO Experiment: From Founder to Algorithm

Efficient Data Transformation with Python for Actuaries

Lights, Camera, Algorithm: AI Takes the Stage

2026 Summit:  
AI & DS  
presentations

Always-On Intelligence: Embedding AI in Retirement Guidance

Reimagining Claims Triage: Enhancing Claims Triage and Claims Understanding with GLMs and LLMs



# Promotion to qualified members: AI & DS learning resource

## Topics

<b>Introduction</b> <a href="#">Explore resources →</a>	<b>Coding</b> <a href="#">Explore resources →</a>	<b>Data</b> <a href="#">Explore resources →</a>
<b>Visualisation</b> <a href="#">Explore resources →</a>	<b>Supervised Learning</b> <a href="#">Explore resources →</a>	<b>Unsupervised Learning</b> <a href="#">Explore resources →</a>
<b>Natural Language Processing</b> <a href="#">Explore resources →</a>	<b>Generative AI</b> <a href="#">Explore resources →</a>	<b>Optimisation</b> <a href="#">Explore resources →</a>
<b>Metaverse</b> <a href="#">Explore resources →</a>	<b>Security and Privacy</b> <a href="#">Explore resources →</a>	<b>Ethics and Professionalism</b> <a href="#">Explore resources →</a>
<b>Case Studies</b> <a href="#">Explore resources →</a>	<b>Overseas Actuarial Associations</b> <a href="#">Explore resources →</a>	

Each topic contains curated material by experts - papers, textbooks, videos, etc. that provide a solid introduction.





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Thank you

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# About the Actuaries Institute

The Actuaries Institute ('Institute') is the peak professional body for Actuaries in Australia. The Institute provides expert comment on public policy issues where there is uncertainty of future financial outcomes.

Actuaries have a reputation for a high level of technical financial expertise and integrity. They apply their analytical and risk management expertise to allocate resources efficiently, identify and mitigate emerging risks and to help maintain system integrity across multiple segments of the financial and other sectors. This unrivalled expertise enables the profession to comment on a wide range of issues including life, general and health insurance, climate change and sustainability, superannuation and retirement income policy, enterprise risk management and prudential regulation, the digital economy and AI, finance and investment, and wider health issues.

Actuaries use data for good by harnessing the evidence to navigate into the future and make a positive impact. They think deeply about the issues at hand, whether it is advising on commercial strategy, influencing policy, or designing new products. Actuaries are adept at balancing interests of stakeholders, clients and communities. They are called upon to give insight on complex problems, they will look at the full picture. Actuaries analyse the data and model scenarios to form robust and outcome-centred advice.