Lifelong learning across the world

Mike Callan May 2024

Actuaries Institute.



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Background





(Some) objectives of the Institute

- providing education & encouraging CPD
- promotion of actuarial research;
- fostering the development of actuarial science;
- holding conferences,
- delivery of lectures;
- discussing contemporary and relevant issues
- creating statistical tables; and
- commenting of actuarial aspects of legislation.



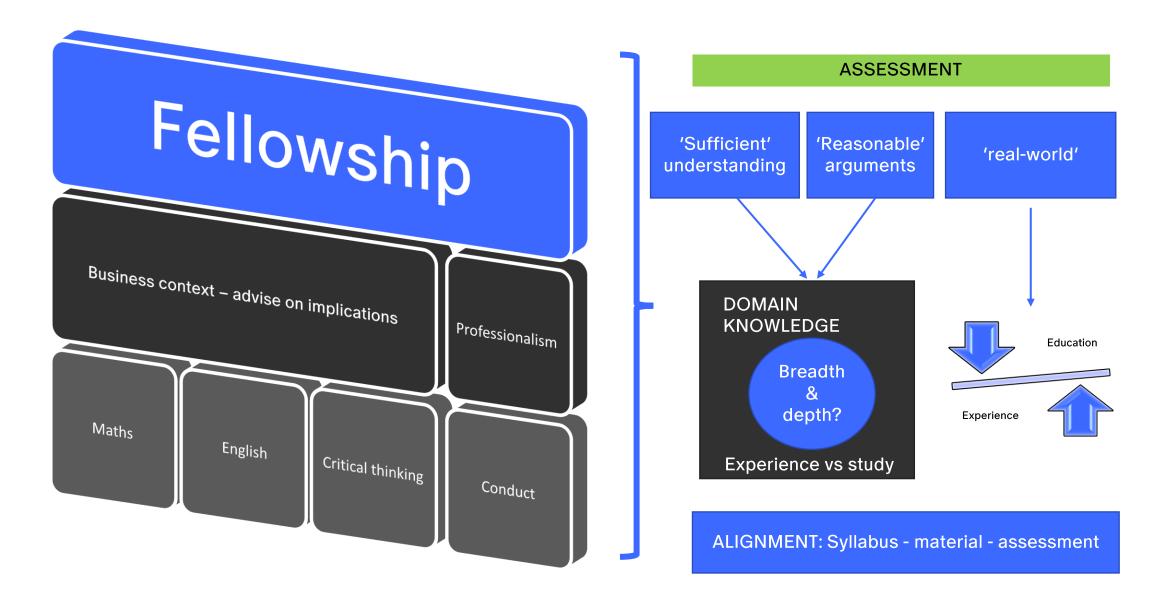




Progression to 'expert' Fellow + Experience: Code of **Pre-Fellow Conduct (1973)** Expert: Study: Learn Qualify: Freely communicate techniques discuss with without (1852)peers technical terms Model is Fellowship 'Well-prepared New Fellow to 10(say) plus Guidance Notes/ student should pass' years' experience. Information Notes, ... - but is not an Solidifies parts of the and relevant expert! education program. experience **Builds** experiential And CPD since early judgement. 1990s

Actuaries Institute.

Institute expects a well-prepared student should pass



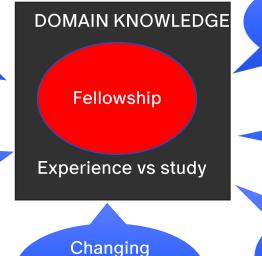
Increase knowledge post-qualification

Qualify: Freely discuss with peers

Fellowship tests a (large) subset of domain knowledge

Extensive volunteer work captured under PC

Co. & Industry knowledge (Insights, Summit, public policy, papers)



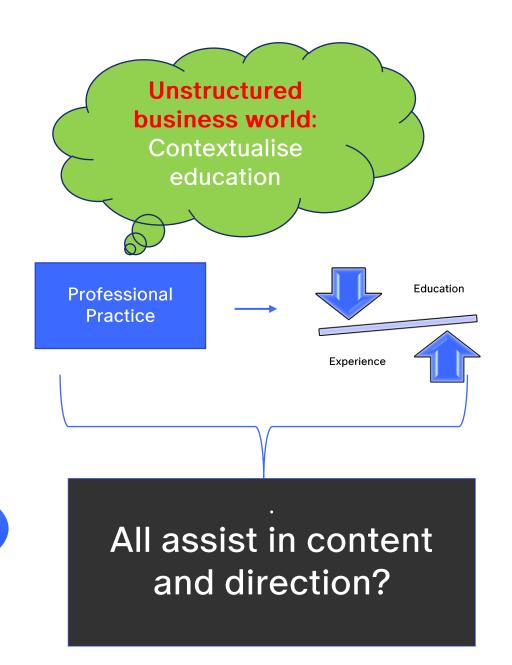
regulation &

environment

Academic research

Changes in Foundation subjects

Overseas & international actuarial bodies

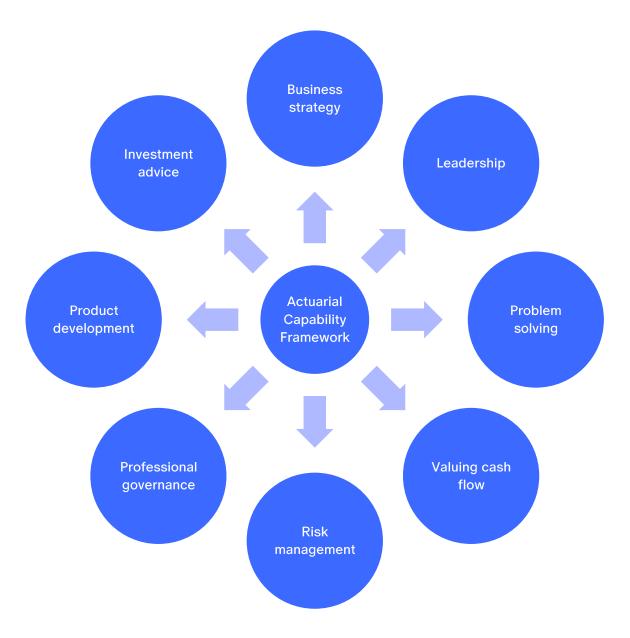


Endpoint in ACF – overview of possible 'experts'

Expert:
communicate
without technical
terms

The Actuarial Capabilities Framework provides explicit statements of the core skills members need to practise successfully as an actuary. It is the cornerstone upon which we build our education and continuing professional development programs and ensures their currency to existing and emerging areas of practice





Training to expert level?

Continuing professional development programs (?)

Qualify: Freely discuss with peers

Expert:
communicate
without
technical terms

Member creation of CPD > 850 assets p.a.

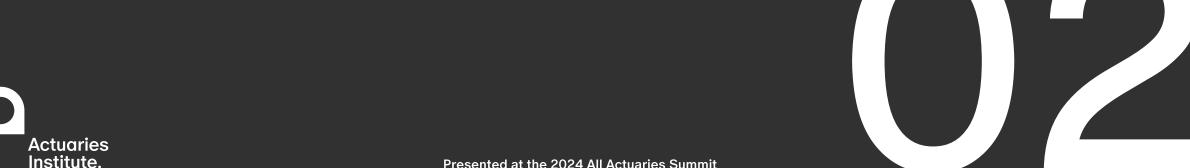
Expert:
Actuarial
Capability
Framework

- promotion of actuarial research;
- fostering the development of actuarial science;
- holding conferences,
- delivery of lectures;

- discussing contemporary and relevant issues
- creating statistical tables; and
- commenting of actuarial aspects of legislation

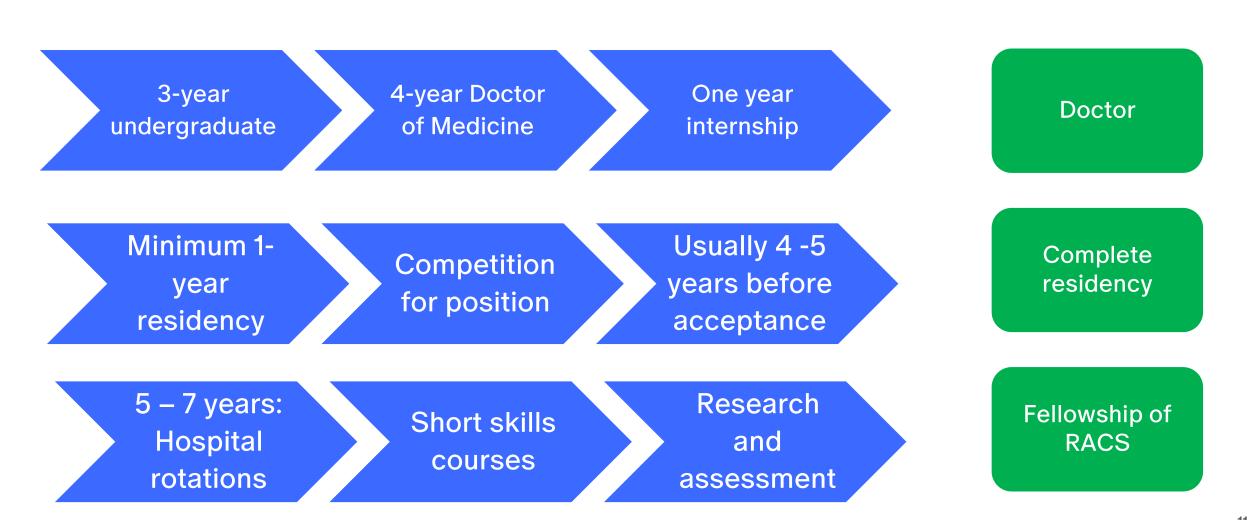


Fellowship in other professions





Surgeon: study-based plus targeted experience



Engineer: pre-eminence

work

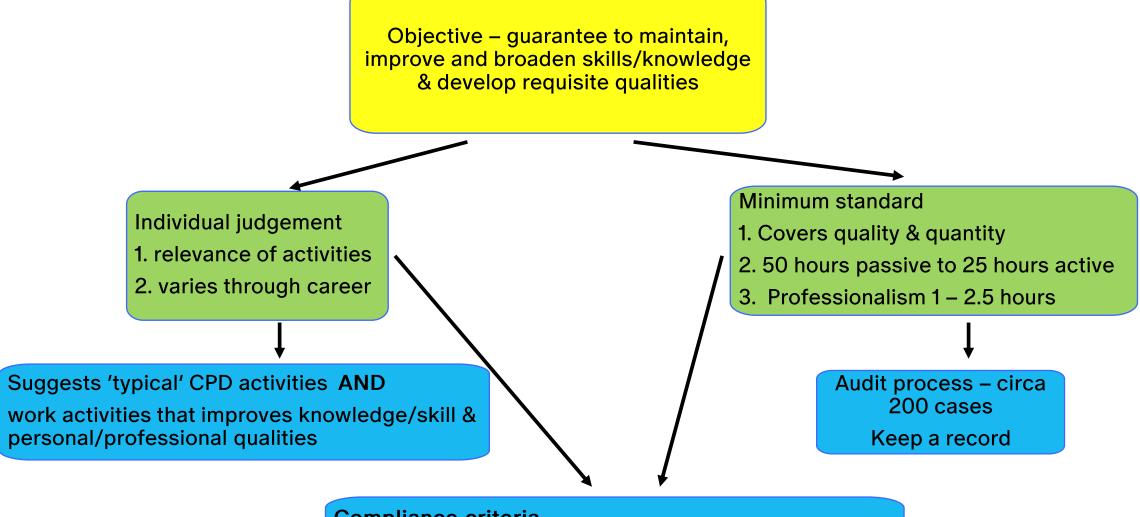
5+ years at CEO/Head engineering for large complex projects **Fellowship** 15+ years leading Major scientific important engineering contributions -Associate Professor

Actuarial CPD Schemes





Overview of PS1





Compliance criteria

Any relevant techniques and/or environment and/or professionalism and/or 'soft-skills'

Actuaries Digital Dec 2022:

"Our CPD system encourages, recognises and celebrates professional development by acknowledging that learning happens in a whole range of ways. CPD points should never be a source of worry. They're a marker of achievement."

Elayne Grace, CEO

"Today there are lot of different types of actuaries. But whatever role you have, our CPD system is designed to expand your skills in a way that suits you. Because expanding those skillsets is good for you, good for your employer or clients and good for the profession."



Assessing Capabilities against ACF

Year	Total Started	Total Completed	Completion Rate
2012	472	133	28%
2013	168	36	21%
2014	116	21	18%
2015	65	16	25%
2016	67	20	30%
2017	69	18	26%
2018	59	9	15%
2019	96	16	17%
2020	51	6	12%
2021	40	3	8%
2022	31	4	13%
2023	33	6	18%
2024	33	0	0%

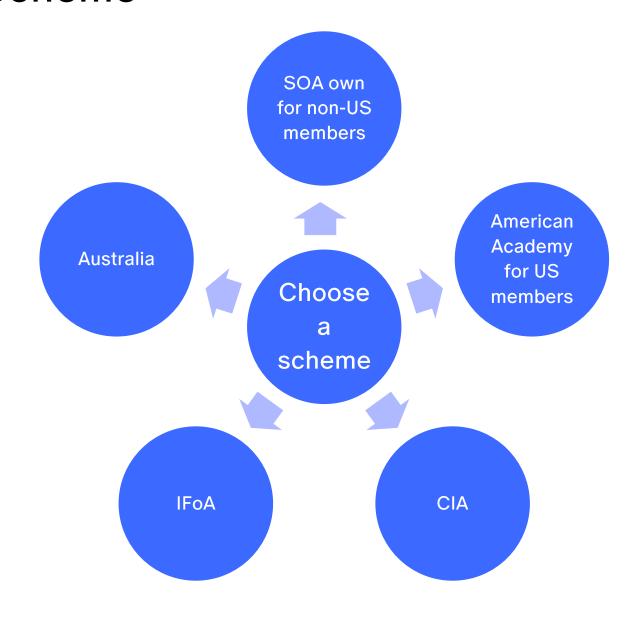


Capability Functions Skill Development Needed

This report shows your Capability statements requiring development ranked by development need from highest to lowest.

Function	Statement	Importance at Work	Ability to Perform	Gap	Development Indicator
СВ	Understand the context (political, regulatory and competitive issues) and need for reassessment	5	2	-3	000
PS	Monitor over agreed timeframe to agreed level and respond to issues identified through monitoring	4	1	-3	000
СВ	Generate and assess ideas, modelling and potential strategies	5	3	-2	00
СВ	Identify key assumptions and conduct high level reality and sensitivity checks	5	3	-2	00
PS	Model key trends, cycles, risks and sensitivities of the component parts and the whole problem	5	3	-2	00
VF	Analyse the outcomes using professional judgment including sensitivity analysis of outcomes, results comparison with other information and results of other methods	5	3	-2	00
PD	Create a solution to the needs that the product is trying to meet	3	1	-2	66
PD	Demonstrate the ability to solve problems and be responsive to the changing environment	5	3	-2	00
PD	Take proactive action as appropriate in the light of the evolving environment and performance drivers	3	1	-2	00
PD	Solve product problems by collaborating with other relevant business areas or personnel	3	1	-2	00
	Negotiate in tough situations with internal and external groups where differences are settled and concessions are won without damaging relationships	3	2	-1	•
PS	Present ideas in a language that stakeholders can understand where commercial thinking is demonstrated	4	3	-1	•
VF	Perform computation, projection and modelling to generate and value projected cash flows	5	4	-1	•
VF	Report and communicate results including limitations and sensitivity drivers	5	4	-1	•
VF	Discuss opportunities and implications with client / employer where own opinion is clearly stated	5	4	-1	•

SOA CPD Scheme



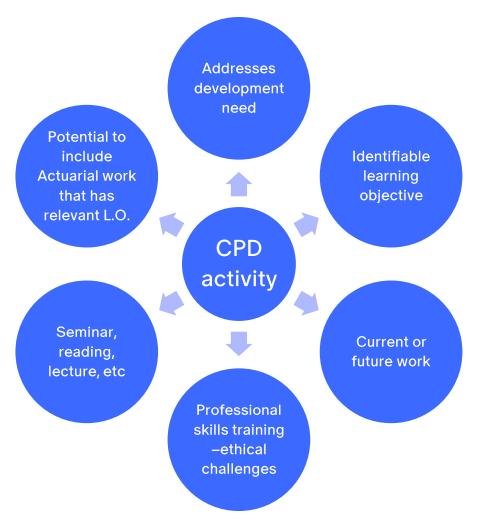


American Academy of Actuaries – Continuing education

Topics	Time (1 CE hour = 50 minutes): Minimum 30 CE hours	Outline
Professionalism	≥ 3 CE hours	Applying CoC, actuarial practice standards,
Bias topics	≥1 CE hour	Identifying bias in data, algorithms, models
General business skills	≤ 3 CE hours	Soft skills
Organised activities	≥ 6 CE hours	Conference etc
Other activities	No minimum	Self study



IFoA CPD Scheme



- 1. Application of CPD requirements
- 1.1. The requirements in this CPD Scheme apply to all Members except:
 - 1.1.1. Student Members;
 - 1.1.2. QAS Members; and
 - 1.1.3. Non-Practising Members
- 1.2. Members that are on parental leave or absent from work for health reasons will be deemed to be Non-Practising Members for the purposes of the requirements of section 2 of this CPD Scheme.
- 1.3. When a Member's status in terms of paragraph 1.1 above varies during a CPD Period, the requirements set out in section 2 below will apply on a pro-rata basis using the dates that their status changed.
- 2. CPD requirements
- Members must carry out 15 hours of CPD Activities during each CPD Period.
- Two of those hours must constitute Professional Skills Training.
- 3. Monitoring and Reflective Practice
- 3.1. Members should participate in a Reflective Practice Discussion with an Appropriate Person every CPD Period regardless of whether they are selected in terms of paragraph 3.2 below or not.
- 3.2. Members must, if selected to do so, also participate in a Reflective Practice Discussion with the IFoA.
- 3.3. Members must keep a record of their CPD Activities for the previous CPD Period. This record will help support their Reflective Practice Discussion(s). This may be facilitated using the IFoA's Optional Recording System.



Additional CPD to hold Practicing Certificate

ASSA CPD Scheme

TIME SPENT

START

"Old" CPD Time based

UPLOAD CPD

TIME SPENT

"New" CPD Outcomes based



ASSA aspects

The CPD framework is designed to support the three pillars of the professional promise and learning should be demonstrated across all three strands:







Develop technical skills and abilities

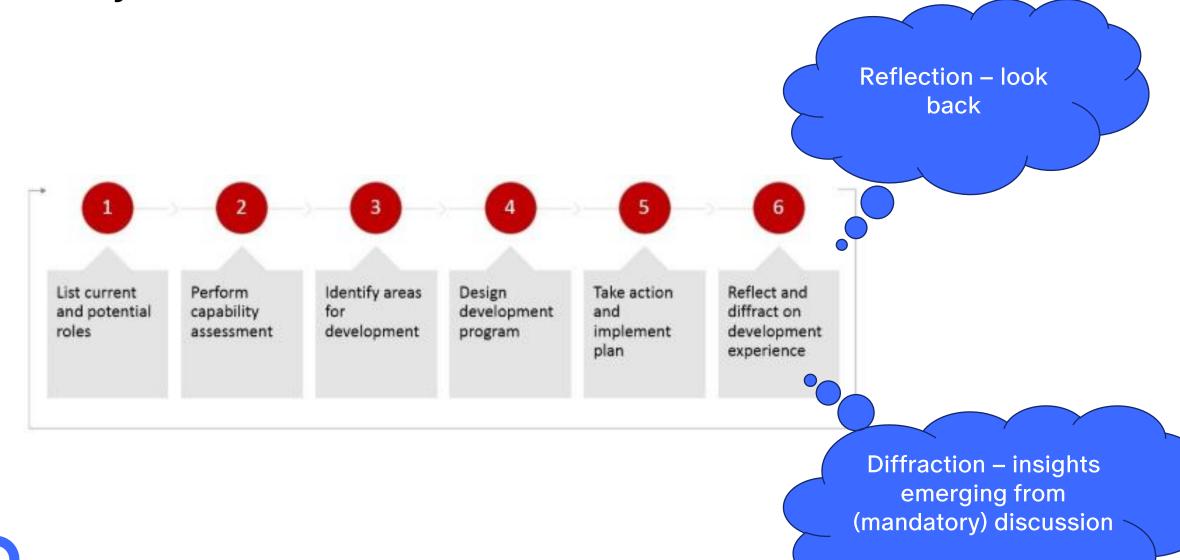
Develop behavioural and professional skills

Develop the Society and growing the profession



ASSA cycle

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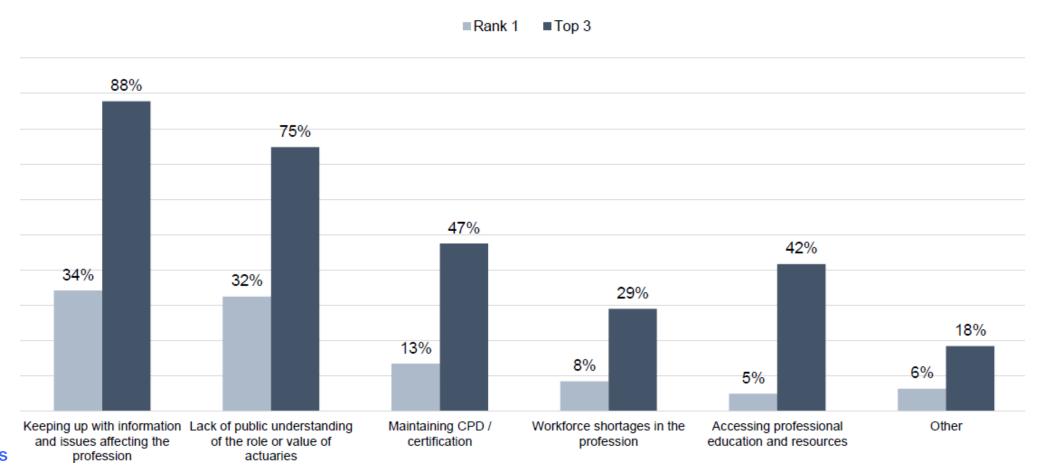
2023 member survey





2023 Member survey

Top Ranked Challenges, 2023



2023 Member survey

Top Six Additional CPD Topics

Data science and analytics

Artificial intelligence

Programming and other digital skills

Risk assessment (particularly climate risk)

Communication and other soft skills

Business acumen



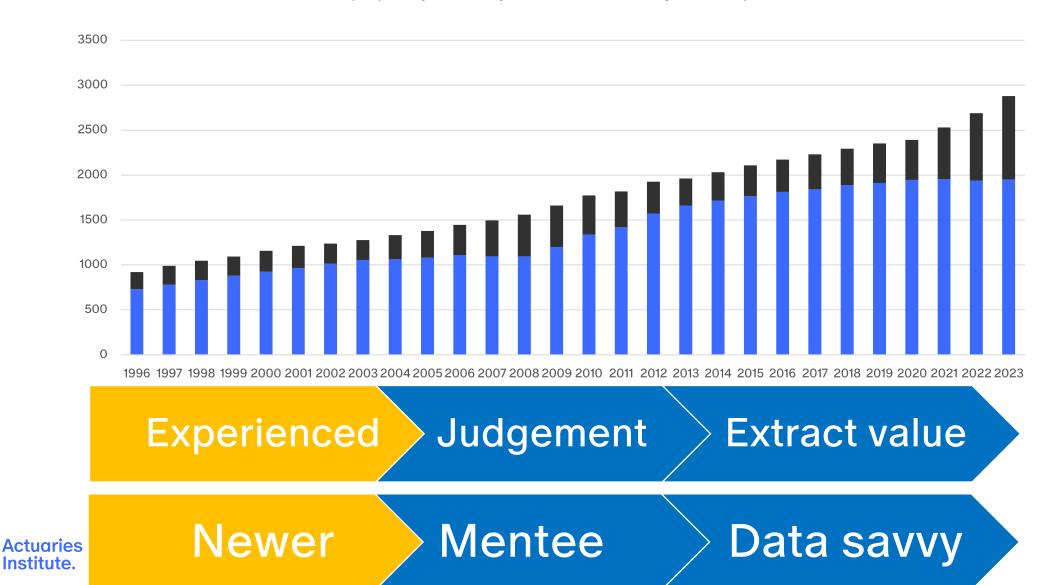
Changing membership & knowledge



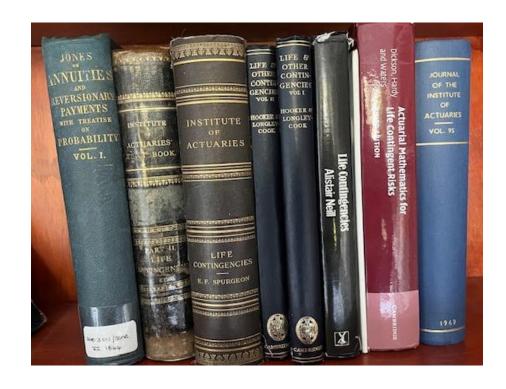


Changing mix of Fellowship

Fellowship split by over 5 years' and under 5 years' experience



Adapting to continual change



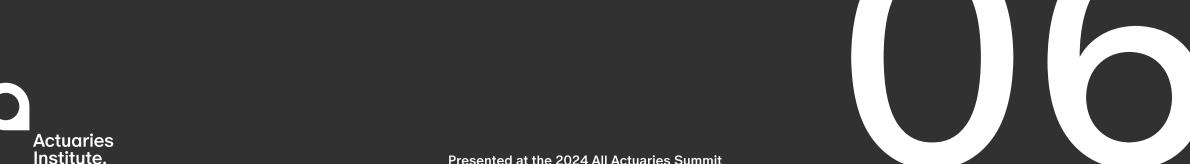
Commutation functions not taught but lots of new material is present

Actuaries Institute. Same aim of trusted business advisor but pathway is changing



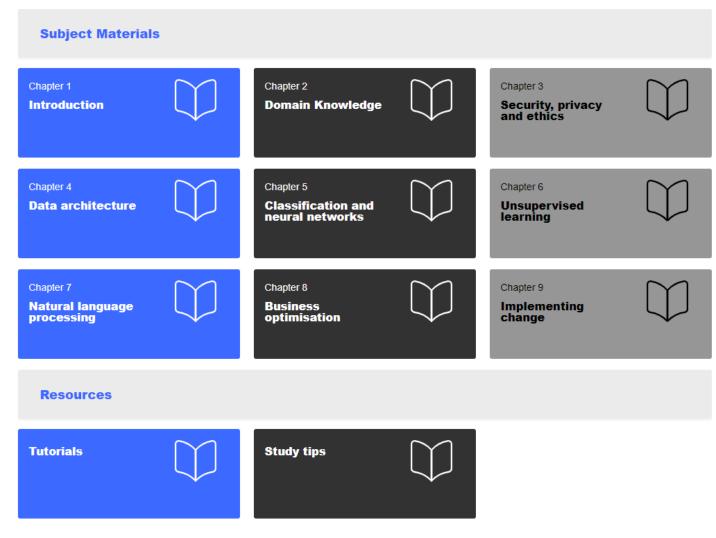
Can experts escape fundamental change in early knowledge?

Microcredentials – formal subjects





Micro credential: Data Science Applications



Overview

The aim of this subject is to teach students how to apply a range of data science skills, such as neural networks, natural language processing, unsupervised learning and optimisation techniques, together with their professional judgement, to solve a variety of complex and challenging business problems. The business problems used as examples in this subject are drawn from a wide range of industries.

Subject pre-requisites

Please note this subject has the following pre-requisites that you may wish to revise before the start of the semester:

- knowledge of the syllabus items for the Actuary program subject 'Data Science Principles' (DSP);
 and
- · a basic understanding of Python.

More information about the pre-requisites and useful resources that may assist you meet these requirements can be found here.

For microcredential students: The above subject pre-requisites are your recommended background knowledge. For further information, read the Recommended Background Knowledge document.

Note: Any questions posted on the discussion forum will receive replies when the Semester starts from 22 January 2024.

Further information on tutorials can be found on the tutorials page

About your Educator

Amanda Aitken

Amanda has over 20 years' experience as an Actuary including in general insurance and workers' compensation schemes. She was previously a member of the General Insurance Practice Committee and the Code of Conduct Review Team. Amanda joined the Institute Education team in 2018 to develop and teach the Communication, Modelling and Professionalism subject. She has a special interest in data science and is a member of the Data Science Practice Committee and the Data Science Education Faculty. Amanda brings her passion for teaching and years of actuarial experience to her role



Member curated subjects





Member curated example: IFRS 17



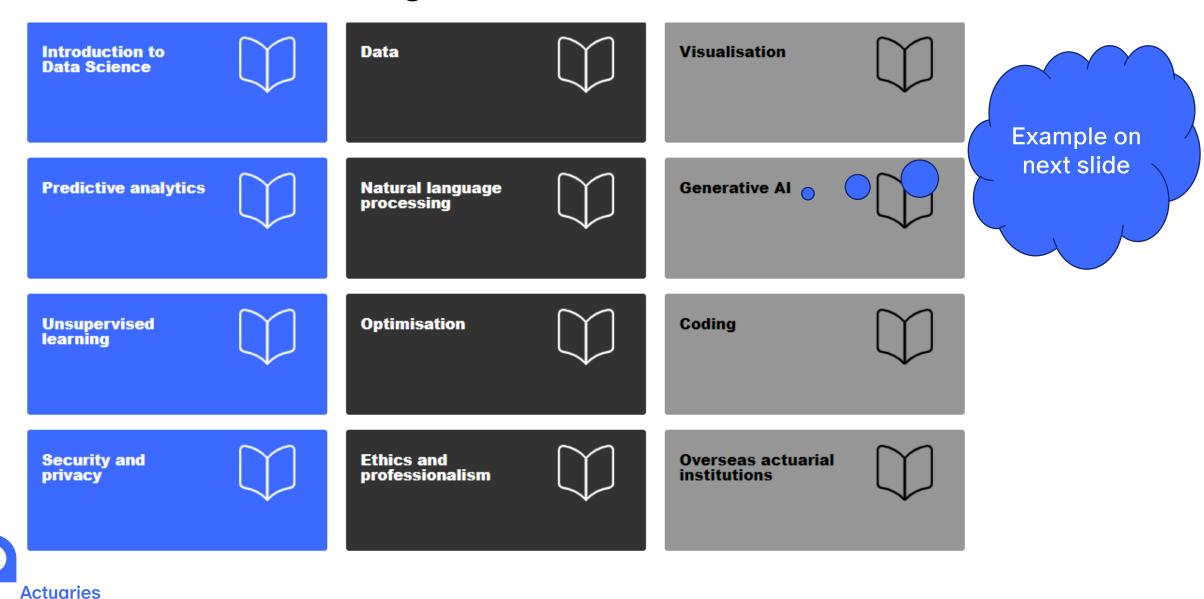
- •Senior managers who require an overview of the standards and practical implications on balance sheet management and future product development
- Valuation personnel who require a deep understanding of the practicalities of the new standard
- •Actuaries who are not directly involved in valuation and reporting but want to keep up-to-date on the changed legislation



Subject closed (as working group disbanded) – 700 enrolments. Developed by Matthew Buckle and Brett Pickett.

Data Science Knowledge Hub - under construction

Institute.



Example – Generative Al



This is a fast-paced, continually evolving space. The content will change but covers approximately:

- two hours of technical content such as transformer architecture, diffusion models, multi-modal models, risk and ethical frameworks for implementing GenAl.
- six case studies of around 30 minutes duration that cover a variety of industry domains. The case studies discuss issues ranging across ethical concerns, societal expectations, and commercial challenges with a focus on practical applications.
- Links to additional resources:
 - MOOCs and papers for technical content
 - Selected paper and presentations produced by members and stored on the CPD Knowledge Hub.



Proposition on Climate Change – now outdated

Overview

This subject is a repackaging of climate related material that may be useful to actuaries who want to gain a quick overview of the published material related to actuarial work.

Contents

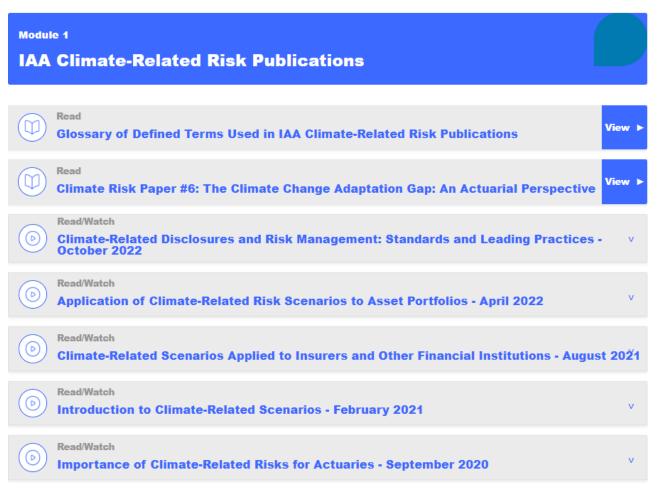
Module 1 - IAA Climate Related Risk Publications

Module 2 - Past Insight Sessions

Module 3 - Suggested Reading Lists / Official Publications etc.,

About the Climate and Sustainability Working Group

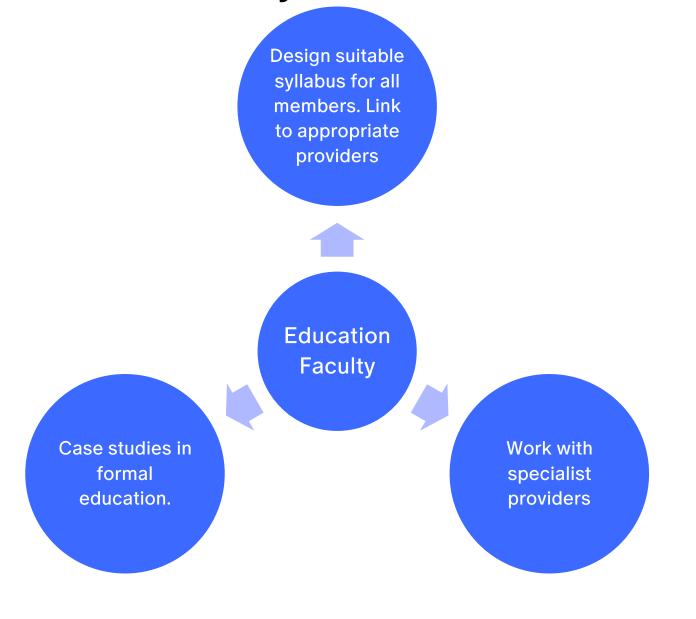
The Climate and Sustainability Working Group (CSWG) actively supports actuaries working in climate risk and closely related sustainability roles to share best practice within the profession and contribute to public policy discussions of climate risk and sustainability issues. Where climate and sustainability issues are current and specific to an individual practice area, the CSWG can support the relevant Practice Committee. Given the multidisciplinary nature of climate-related and sustainability issues, the CSWG also liaises with various external groups and professions.



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Climate and Sustainability Practice Committee

Actuaries Institute.



GIPC – early stages

LMS – Institute is setting up the LMS as a repository to help improve accessibility of resources. Looking to identify the resources that we want in the LMS, working within the LMS structure, identifying an owner for each topic area who can also provide an introductory overview for the area



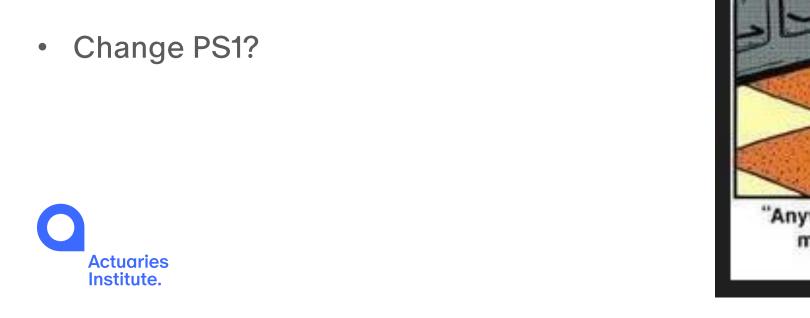
Conclusion

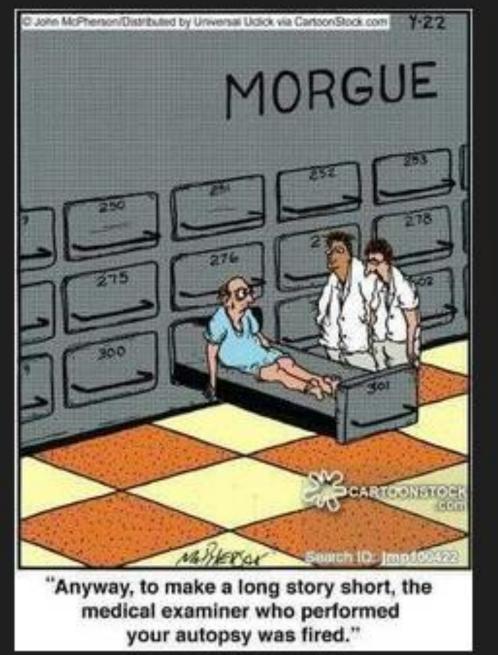




Create learning culture, not compliance

- Credential is the start of the journey
- Mastery takes many years
- Explosion in information how to guide
- Toolkits change all need awareness





About the Actuaries Institute

The Actuaries 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, superannuation and retirement income policy, enterprise risk management and prudential regulation, the digital economy, finance and investment and wider health issues.

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Thank you

Actuaries Institute actuaries.asn.au





2023 Member generated content - Data Science

Events

 Launched the Data Science Actuary nomenclature to 96 attendees at the Sydney Modern Project Building in August.

Held 3 Fireside Chats with leading experts including: Lee
 Yearsley Founder and CEO of aKin; Dimitry Tran, Cofounder

nalise.ai, and franklin.ai and Wendy Stops, irector of Coles Group, Deputy Chancellor of Melbourne.

nts for the Fireside Chats, of which 236 were 8 were virtual.

uTube livestreams have 1,515 total views.
paid Data Science Masterclass with 23 in-

nly Data Meetups with Data Science Sydney.

05



Digital campaign engagement

- Sent 30 segmented Data Science campaign emails. Average Open Rate was 63% and average Click Through Rate was 23%.
- Overall LinkedIn paid campaigns achieved 237,941 impressions, 1,756 clicks and 11 transactions. The strongest campaign CTR was 1.43% for the Fireside Chats, which is +155% above LinkedIn average.
- 24 organic Data Science social posts achieved 61,697 impressions, 3,184 clicks and an average CTR of 5.16%.



Example of Member generated content & interaction

ICA2023 achievements

- 1200+ visits to the Institute booth at ICA2023.
- 83% delegate voted feeling part of the overall sense of community.
- 187,000+ page views of the ICA website.
- Abstract campaign attracted 384 abstracts from 57 countries.
- 2,000,000 sets of eyeballs and 17 transactions from paid social media.

- 53 events promoted to members and non-members (excludes ICA2023, DS monthly meet ups, education events and ds fireside chats).
- Summit call for abstract campaign achieved a new record (101 received).

Thought Leadership

eDM Open Rate 52.69% (+7.59pp) and Click Through 6.91% (+2.51pp) - far above industry average

Published 7 major Reports and Papers

Member EDMs

Open Rate 51.23% (+2.6 pp) and Click Through 5.63% (-1.75pp) - above industry average

- New content structure, highlighting key strategic priorities for key EDMs, limiting word length and editing for impact, including:
 - The Bulletin
 - The Digest
 - Practice Committee Newsletters

Asia Program – add Asian lens to campaigns

Digital campaign engagement

- 190 email campaigns sent with a 10% YoY increase in open rate and an 83% increase YoY in click through rate.
- 133,614 impressions, 8.01% average engagement rate,
 15,456 click achieved by event social media campaigns.
- 50,000+ visits to the events calendar on the website.



Year	Pageviews	No. Articles	Avg View / Article	Users	Sessions	Page / session		Total Engaged Hour	Organic Search	Direct	Email	Organic Social	Referral
2022	249,083	219	1,137	123,864	178,778	1.39	84.03	3,029	57,185	30,165	13,852	17,433	8,006
2023	278,335	217	1,283	136,358	189,993	1.46	78.71	2,898	54,476	36,376	17,748	21,854	9,577
%Change	11.7%	-0.9%	12.8%	10.1%	6.3%	5.4%	-6.3%	-4.3%	-4.7%	20.6%	28.1%	25.4%	19.6%

Analysis of CPD Knowledge Hub





CPD Knowledge Hub

Work underway by Stewart McCarthy

Transactions

of

The Actuarial Society of Australasia

38th and 39th Sessions 1933 and 1934

THE INSTITUTE OF ACTUARIES OF AUSTRALIA AND NEW ZEALAND

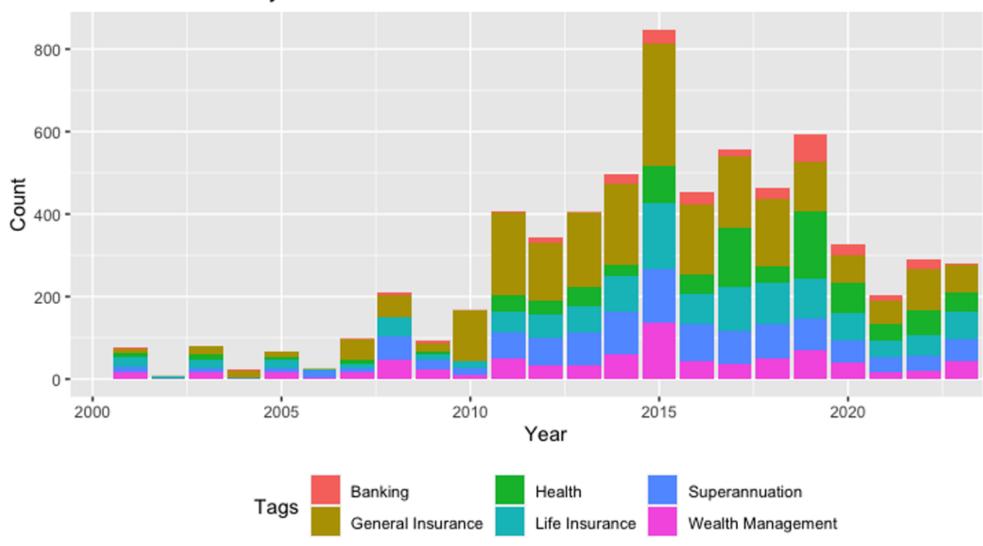


- Over 8,000 assets
- Searchable database
- Includes suggested CPD points
- Range from journals, Sessional recordings, conferences, Insights, magazine articles
- Original investigation outline changes over time (and identify topics overdue for focus?)
- Further investigations
 - Deeper investigation of material using Generative Al
 - Improve descriptions and tagging
 - Disaggregate Journal entries
 - Identify missing assets
- Only local content access other material e.g. Open-Athens portal

Practice Areas over time – counts

Work underway by Stewart McCarthy (2023 not complete at time of data extraction)

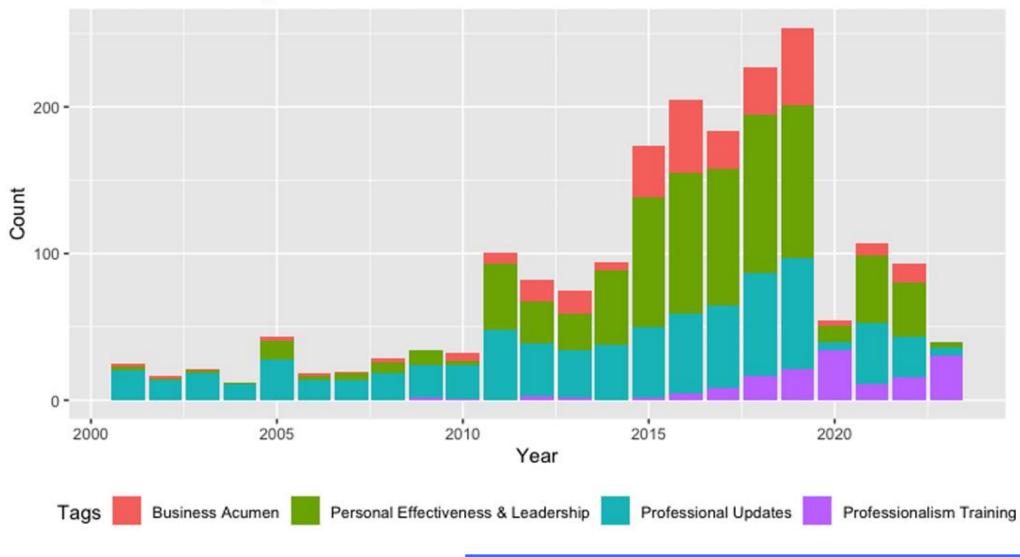






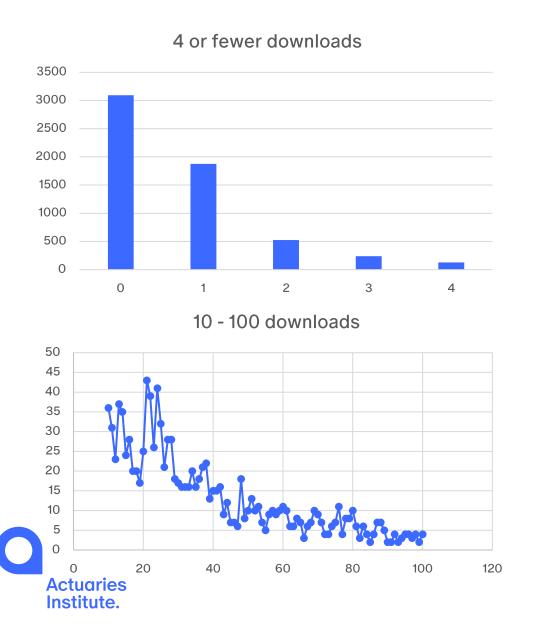
Professional development over time - counts

Number of Items by Year

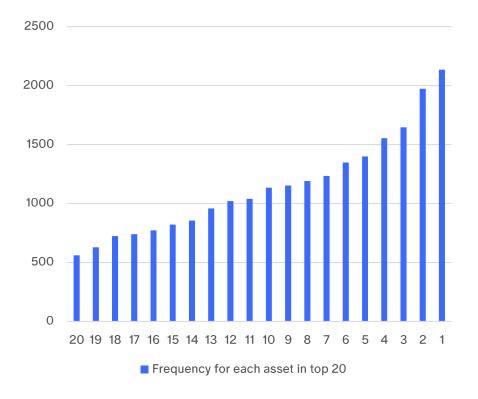




Usage of database (since 2018)



Top 20 downloads



Disaggregate old Journals

The Economist, contacted the Institute seeking to access "An Option Approach to Balance Sheet Management", which was apparently published in the 90s.

Not picked up in CPD Knowledge Hub.

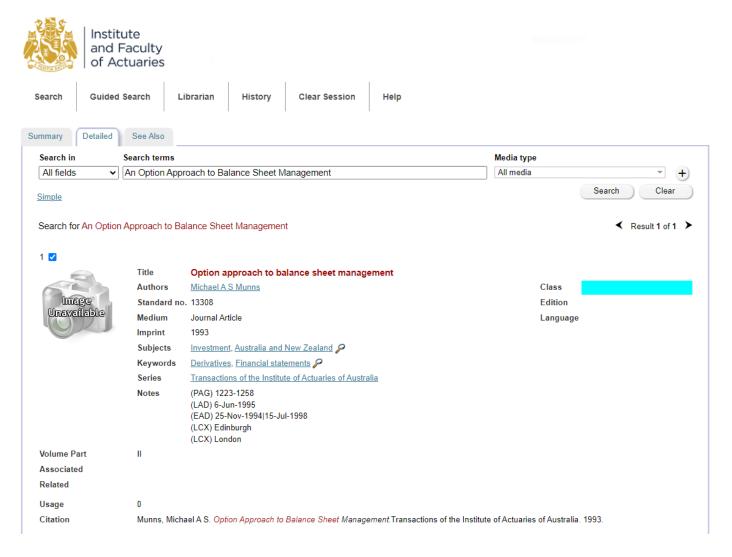
Used UK IFoA online library catalogue

Identify relevant Transactions volume

Retrieve Transactions

Identify relevant paper





Expand Knowledge Hub

- Widen Journals hosted on Hub.
- New areas but so broad!
- Point to other associations e.g., IAA website
- (Re)creation of Australian Journal
 - Finding stakeholders to agree

Is this:

- Useful?
- Efficient?

eJournals (member login access)

- , eLibrary: A-Z Publications finder (select 'Journals only')
- Annals of Actuarial Science
- ASTIN Bulletin
- > British Actuarial Journal
- > European Actuarial Journal
- > Geneva Papers on Risk and Insurance
- Geneva Risk and Insurance Review
- Insurance: Mathematics and Economics
- Journal of Asset Management
- > Journal of Finance
- Journal of Financial and Quantitative Analysis
- Journal of Pension Economics & Finance
- > Journal of Population Ageing
- Journal of Risk and Insurance
- > Journal of the Institute of Actuaries (1851-1992)
- Journal of the Institute of Actuaries Students Society (1911-1993, 1998)
- JSTOR (journal archives)
- North American Actuarial Journal
- > Population Studies
- Risk Management and Insurance Review
- Risk.net: Journals (Institution sign-in: Find 'Institute' and Faculty of Actuaries)
- Scandinavian Actuarial Journal
- Significance
- South African Actuarial Journal
- Transactions of the Faculty of Actuaries (1903-1992)

eBooks (member login access)

- eLibrary: A-Z Publications finder (select 'Books only')
- > EBSCO: eBooks Collection (IFoA eLibrary)
- > ProQuest: eBook Central
- Risk.net: Risk books (Institutional sign-in: Find 'Institute and Faculty of Actuaries')
- Encyclopedia of actuarial science (via Wiley StatsRef)
- International Series on Actuarial Science (via Cambridge Core)
- Claims reserving in general insurance (DJ Hindley) (SP7)
- Financial enterprise risk management, 2nd edition (PJ Sweeting) (SP9)
- Modelling mortality with actuarial implications (AS Macdonald et al.) (CS2)
- > Economics, 11th edition (J Sloman et al.) (CB2)
- Enterprise risk management: from incentives to controls, 2nd edition (J Lam) (SP9)
- Financial calculus: an introduction to derivative pricing (M Baxter & A Rennie) (SP6, CM2)
- An introduction to the mathematics of finance: a deterministic approach, 2nd edition (SJ Garrett) (CM1)
- Options, futures and other derivatives: global edition, 11th edition (JC Hull) (SP6, CM2)
- Pricing in general insurance, 2nd edition (P Parodi) (SP8)



Speed of information increase

1825 – Commutation Columns

1844 – Jones – Annuities

Life contingencies

1887: King

1922: Spurgeon

1953: Hooker & Longley-Cook

1977: Neill

Refocused:

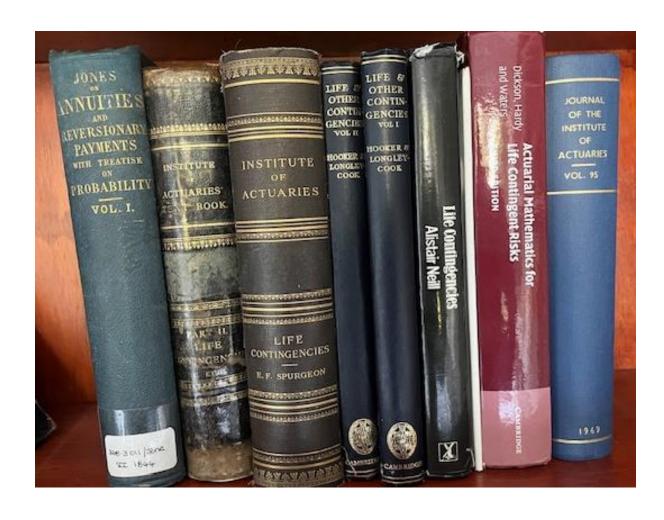
2009: Dickson et al

(1969 – A Pollard & J Pollard.

Stochastic approach to actuarial

functions.)





PRINCIPLES-BASED CPD FOR SOUTH AFRICAN ACTUARIES(1)

(A) Professional development is complex, work-based and intrinsic to being a professional

Many professions recognise the need for work-based development at the intern stage, but this need actually lasts throughout the professional's career, especially in the less-structured business professions. Professional development does not only take place in discrete off-the-job CPD events, but is an on-going process where professionals collectively construct knowledge within the complex dilemmas of everyday work.

(B) Effective professional development must develop the capability to practice

To be effective, planned learning needs to move through a cycle, such as that described below. Workbased development is challenging to plan, but may be prompted through applying strategies and by avoiding barriers.

(C) CPD requirements of a delivery-focussed profession should promote effective professional development.



Our Scheme

Obligations

Member satisfaction

Evidence it is working?

Actuaries

Institute.

Professional Standard 1

Time/cost & benefit to change

Audit Process & non-compliance

Change over career



PROFESSIONAL STANDARD 1 CONTINUING PROFESSIONAL DEVELOPMENT January 2020

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