



AAE

ACTUARIAL
ASSOCIATION
OF EUROPE

AI education for actuaries: from machine learning to generative AI

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CPD Guidelines for Data Science & Artificial Intelligence

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ADVISING • ACHIEVING • ENGAGING

Aim, Scope and Framework

- IAA WG on AI– Education Workstream
- Several big associations have developed their own programs/credentials on DS&AI
- The AAE Education Committee produced this paper to support actuarial associations and individual actuaries in identifying topics in the field of Data Science (DS) to enhance corresponding knowledge and skills.
- Applied by associations in the development of CPD activities for their members.
- Understood as a “living” document.

Aim, Scope and Framework

- The starting point for all presented Data Science techniques is the AAE Core Syllabus and Guidelines for Actuarial Training in Europe

Descriptive statistics	Probability, Statistical inference and Econometrics	Machine Learning and simulation	Ethics and professional standards
Data as a resource for problem solving (6.1)	Random variables (1.1)	Simulation (1.7)	Professional and risk management issues (6.4)
Data analysis (6.2)	Statistical Inference (1.2)	Statistical learning (6.3)	Professional standards (9.3)
Visualizing data and reporting (6.5)	Graduation and Statistical tests (1.3)		Professionalism in practice (9.4)
	Regression (1.4)		International and institutional awareness of professional standards (9.5)
	Bayesian statistics and credibility theory (1.5)		

A) Data science techniques and data ethics

1. Clustering
2. Regression - Prediction
3. Interpretability
4. Natural Language Processing
5. Further advanced topics
6. Data ethics and fairness

B) Professional foundation

- Considerations primarily aimed at the data scientists who wish to apply their professional skills to actuarial issues and problems in the insurance industry.
- In order to be able to deal with specific issues in an actuarial environment with the means of data analysis, it is necessary to understand the context (business environment).
- Basic knowledge of insurance, legal and regulatory framework, QRM and, in general, key actuarial concepts and models.
- It refers -again- to the AAE Core Syllabus