Actuarial Specialist in Data Science

High-level training to master state-of-the art artificial intelligence techniques for insurance and finance.

The training in Actuarial Specialist in Data Science, taught in English aims to train students on the principal data science techniques used in actuarial mathematics, with a focus on recent developments and evolutions linked to artificial intelligence. It is adapted for actuaries needing to understand new methods from machine learning, and for data scientists wanting to understand how to adapt these techniques in the context of insurance and finance.

Practical examples from various fields in insurance and finance (health insurance, reinsurance, portfolio management...) will provide direct operational methodologies to respond to the rising of the digital age.

The training consists of four Teaching Modules. Each module is scheduled to be delivered over a 5-week period, one day perweek, to enable participants to work online and assimilate the concepts at their own pace.

Module 1

Modern methods for pricing and reserving in insurance 1/2

- Introduction: mutualisation vs. individual pricing.
- Pricing in non-life insurance: from generalised linear model to machine learning.
- Neural networks and random forests applied to pricing.
- Reserving with artificial intelligence.
- Emerging risk (example in cyber insurance).

Module 2

Finance

- Introduction to finance mathematics.
- Description of the main products.
- Derived products.
- Counterparty risk.
- Portfolio management.

Module 3

Modern methods for pricing and reserving in insurance 2/2

- Life insurance: pricing depending on the financial rate of return.
- Incapacity, invalidity and dependence.
- Extreme value analysis.
- Risk theory and risk measures.
- Examples of extreme behaviours.

Module 4

Risk Management

- Asset Liability Management (ALM).
- Enterprise Risk Management (ERM).
- Risk transfer mechanisms.
- Reinsurance.

Provisional calendar

Crash Course " R "	Day	Thursday 29th October

Module 1	Week 1	Thursday 5th November
	Week 2	Thursday 12th November
	Week 3	Wednesday 18th and Thursday 19th November
	Week 4	Thursday 26th November
	Week 5	Thursday 10th December

Module 2	Week 1	Thursday 14th January
	Week 2	Thursday 21st January
	Week 3	Wednesday 27th and Thursday 28th January
	Week 4	Thursday 4th February
	Week 5	Thursday 1st February

Module 3	Week 1	Thursday 18th February
	Week 2	Thursday 25th February
	Week 3	Wednesday 3rd and Thursday 4th March
	Week 4	Thursday 11th March
	Week 5	Thursday 18th March

Module 4	Week 1	Thursday 25th March
	Week 2	Thursday 1st April
	Week 3	Wednesday 7th and Thursday 8th April
	Week 4	Wednesday 14th April
	Week 5	Thursday 15th April

Final Session	Wrap up/feedback	Thursday 22nd April

Online - 5 hours + self study (2 hours)	@SUAD, in presence. Compatibly with the constraints imposed by the COVID-19 situation	Online sessions — timings to be adapted for Ramadan

Course instructors

The teaching staff is composed of a carefully devised blend of renowned professors from Sorbonne University in Insurance and Finance Mathematics and acknowledged experts in the Actuarial professional field. Each member of the the teaching staff combines a strong theoretical background and an extensive practical expertise in integrating Data Science into the world of Insurance and Finance.

Admission Requirements

The audience is expected to be familiar with some basic to intermediate-level notions of Statistics and Programming (Python or R) as well as with relevant issues in Insurance and Finance.

Furthermore a "crash course" on the coding platform "R" which will be also used during the program will be offered free of charge to the participants one week before the start of the course.

Programme outcomes

At the end of the training, participants will be able to:

- Implement machine learning algorithms in actuarial or financial problems.
- Manage artificial intelligence projects related to insurance and finance.
- Integrate machine-learning techniques in the conception and management of insurance products.
- Understand the opportunities and limits of machine learning procedures in risk analysis.

**Tuition Fees
AED 54,000**

Why Sorbonne University Abu Dhabi?

In today's world, it has become a necessity to broaden possibilities, improve capacities and develop leadership skills. The Department of Continuing & Executive Education at Sorbonne University Abu Dhabi offers specialised programmes that are designed for individuals and entities to enhance professional development and career growth. These programmes are tailored to the current market needs and can be also developed upon the request of private and public entities.

All programmes are prepared in collaboration with the academic teams of the Sorbonne University in Paris in order to meet the standards of excellence offered by Sorbonne University Abu Dhabi.

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