# BACHELOR OF ACTUARIAL SCIENCE

## Admission to Program

Admission to the program is explained in the HCT Admission Policy described in the Academic Policies section of this Catalog.

## Program Mission

The Bachelor of Actuarial Sciences aims to develop professionally competent, industry ready graduates with strong analytical, quantitative, technological, and ethical capabilities aligned with the competency framework and professional expectations of the Institute and Faculty of Actuaries (IFoA). The program provides a rigorous and applied education that integrates actuarial foundations, data science, business intelligence, and emerging technologies, with a strong emphasis on the practical application of AI based techniques relevant to contemporary actuarial practice.

A distinctive feature of the Bachelor of Actuarial Sciences is the active involvement of practising actuaries in the UAE in the design, delivery, review, and continuous improvement of courses, ensuring that curriculum content, assessments, and learning experiences remain current, professionally relevant, and responsive to regional and global industry needs.

The program embeds industry recognised micro credentials within coursework to strengthen students' digital and analytical skills, promote lifelong learning, and enhance graduate employability. Through experiential learning, real world case studies, ethical and governance-focused instruction, and the development of strong communication and business awareness, the graduates will be able to exercise sound professional judgement and to contribute effectively to actuarial and risk related roles across insurance, pensions, finance, and emerging data driven domains.

Graduates are well positioned to pursue further professional development and progression along IFoA professional pathways, while supporting the evolving needs of the UAE and international actuarial profession.

## Program Description

The Bachelor of Actuarial Sciences is designed to prepare students for employment in actuarial, risk, insurance, finance, and data driven analytical roles. The program delivers a rigorous and applied curriculum that integrates actuarial foundations with business knowledge, data analytics, and emerging AI enabled technologies. Students develop strong analytical thinking, practical data interpretation skills, and professional communication capabilities through hands on learning, real world case studies, and the completion of industry recognised micro credentials that enhance their digital skills and employability.

The program is developed and delivered in alignment with the competency framework and professional requirements of the Institute and Faculty of Actuaries (IFoA). Curriculum content, learning outcomes, and assessment methods are designed to support students' progression toward IFoA professional qualifications by strengthening core actuarial knowledge, data literacy, ethical awareness, and professional judgement. Emphasis is placed on professionalism, governance, and responsible use of analytics and AI, ensuring graduates are well prepared for the expectations of the actuarial profession and for continued professional development along IFoA pathways.

A distinctive feature of the Bachelor of Actuarial Sciences is its strong engagement with the local actuarial and financial services industry in the UAE. Practising actuaries and industry professionals contribute to the creation, delivery, and ongoing review of courses, ensuring relevance to current industry practice and regulatory environments. Students benefit from guest lectures, industry informed projects, exposure to real and live data, and insights into contemporary actuarial challenges, strengthening their readiness for employment and supporting meaningful connections with the regional and international actuarial community.

## Program Goals

1. Innovative and ready to assume today's Actuarial roles, with the foresight and adaptability to become tomorrow's industry leaders.
2. Entrepreneurial-minded and skilled at integrating theoretical knowledge and applied learning, fostering effective problem-solving skills in Actuarial Science.
3. Critical thinkers who can develop practical, applied Actuarial solutions for real-world problems, leveraging technology.
4. Ethical decision-makers in a diverse business environment with an emphasis on sustainability

## Program Learning Outcomes

1. Apply interdisciplinary business knowledge and regulations to solve business problems.
2. Collaborate in teams, demonstrating leadership skills and commitment to the professional development of others.
3. Evaluate ethical and professional responsibilities in complex business situations, exhibiting autonomy and dedication to self-improvement.
4. Employ advanced computing tools, programming languages, and specialized actuarial software to design, implement, and communicate actuarial models and outcomes.
5. Formulate actuarial strategies using finance, economics, and risk theory to make evidence-based decisions across varied professional and organizational contexts.
6. Synthesize actuarial mathematics, probability theory, and economic modelling to evaluate, optimize, and innovate financial and risk management strategies.
7. Apply statistical and actuarial modelling techniques by drawing on current research, cross-disciplinary methods and professional judgment to design, validate and interpret.

## Requirements

## Completion Requirements

Bachelor of Actuarial Science

*Students must successfully complete a minimum of 120 credits, including:*

| Code | Title | Credit Hours |
|---|---|---|
| Business Core Courses | | 18 |
| Actuarial Specialization courses | | 84 |
| General Studies | | 18 |
| Total Credits | | 120 |

To qualify for the bachelor's degree, a student is required to:

- Successfully complete the required number of credits and courses specific to the program with a minimum cumulative GPA of 2.0.
- Complete 100 hours of volunteering.

- Meet the residency requirement that a minimum of 50% of the program credit requirements have been completed at the HCT.

**Diploma Exit Options**

- **Diploma in Business and Quantitative Studies**: Awarded upon completion of **60 credit hours** (typically after Year 2). DP Program Code : DPBQS and Major Code: BQS
- **Higher Diploma in Actuarial Science:** Awarded upon completion of **90 credit hours**, including **18 credits** in General Studies, **6 credits** in Apprenticeship, and **48 credits** in the specialization (typically after Year 3). HD Program Code: HDACS and Major Code : ACS

| Code | Title | Credit Hours |
|---|---|---|
| **Business Core Courses** | | |
| Required Credits : 18 | | |
| ACC 1003 | Fundamentals of Financial Accounting | 3 |
| BUS 1023 | Applied Mathematics for Business | 3 |
| BUS 3123 | Business Research Methods | 3 |
| ECO 1003 | Microeconomics | 3 |
| ECO 1103 | Macroeconomics | 3 |
| MGT 1003 | Principles of Management | 3 |
| **Actuarial Science Specialization Courses** | | |
| Required Credit : 72 | | |
| ACS 1103 | Calculus I | 3 |
| ACS 2003 | Computer Programming I | 3 |
| ACS 2013 | Probability Theory and Distributions | 3 |
| ACS 2023 | Calculus II | 3 |
| ACS 2033 | Financial Math for Actuaries I | 3 |
| ACS 2103 | Introduction to Actuarial Science | 3 |
| ACS 2113 | Financial Math for Actuaries II | 3 |
| ACS 3003 | Mathematical Statistics | 3 |
| ACS 3013 | Computer Programming II | 3 |
| ACS 3023 | Loss Models I | 3 |
| ACS 3033 | Corporate Finance | 3 |
| ACS 3043 | Life Contingencies I | 3 |
| ACS 3103 | Portfolio Theory and Financial Derivatives | 3 |
| ACS 3113 | Fintech & InsurTech | 3 |
| ACS 3123 | Ethics and Professionalism for Actuaries | 3 |
| ACS 4003 | Stochastic Models | 3 |
| ACS 4013 | Life Contingencies II | 3 |
| ACS 4023 | Linear Models and Forecasting | 3 |
| ACS 4033 | Loss Models II | 3 |
| ACS 4043 | Actuarial Risk Modelling | 3 |
| ACS 4113 | Actuarial Practice | 3 |
| ACS 4103 | Artificial Intelligence and Machine Learning in Finance | 3 |
| ACS 4213 | Actuarial Capstone Project | 3 |
| BUS 2113 | Business and Corporate Law | 3 |
| **Apprenticeship** | | |
| Required Credits : 12 | | |
| ACS 3716 | ACS Apprenticeship I | 6 |
| ACS 4716 | ACS Apprenticeship II | 6 |
| **General Studies** | | |
| Required Credits : 18 | | |
| AES 1003 | Emirati Studies | 3 |
| ACS 2123 | Linear Algebra | 3 |
| BUS 1123 | Introduction to Statistics | 3 |
| BUS 1133 | Introduction to Data Science and AI | 3 |
| BUS 2403 | Innovation and Entrepreneurship | 3 |
| LSC 1103 | Professional Written Communication | 3 |

| Description | Data |
|---|---|
| Total Required Credits | 120 |
| Maximum Duration of Study | 6 years |
| Minimum Duration of Study | 4 years |
| Cost Recovery Program | No |
| Program Code | BUACS |
| Major Code | ACS |

# Ideal Study Plan

## Recommended Sequence of Study

| Year 1 | | |
|---|---|---|
| **Semester 1** | | **Credit Hours** |
| MGT 1003 | Principles of Management | 3 |
| ECO 1003 | Microeconomics | 3 |
| ACC 1003 | Fundamentals of Financial Accounting | 3 |
| BUS 1023 | Applied Mathematics for Business | 3 |
| LSC 1103 | Professional Written Communication | 3 |
| | **Credit Hours** | **15** |
| **Semester 2** | | |
| ECO 1103 | Macroeconomics | 3 |
| BUS 1123 | Introduction to Statistics | 3 |
| ACS 1103 | Calculus I | 3 |
| BUS 1133 | Introduction to Data Science and AI | 3 |
| AES 1003 | Emirati Studies | 3 |
| | **Credit Hours** | **15** |
| **Year 2** | | |
| **Semester 3** | | |
| BUS 2403 | Innovation and Entrepreneurship | 3 |
| ACS 2003 | Computer Programming I | 3 |
| ACS 2013 | Probability Theory and Distributions | 3 |
| ACS 2023 | Calculus II | 3 |
| ACS 2033 | Financial Math for Actuaries I | 3 |
| | **Credit Hours** | **15** |
| **Semester 4** | | |
| BUS 3123 | Business Research Methods | 3 |
| ACS 2103 | Introduction to Actuarial Science | 3 |
| ACS 2113 | Financial Math for Actuaries II | 3 |
| ACS 2123 | Linear Algebra | 3 |
| BUS 2113 | Business and Corporate Law | 3 |
| | **Credit Hours** | **15** |
| **Year 3** | | |
| **Semester 5** | | |
| ACS 3003 | Mathematical Statistics | 3 |
| ACS 3013 | Computer Programming II | 3 |
| ACS 3023 | Loss Models I | 3 |
| ACS 3033 | Corporate Finance | 3 |
| ACS 3043 | Life Contingencies I | 3 |
| | **Credit Hours** | **15** |
| **Semester 6** | | |
| ACS 3103 | Portfolio Theory and Financial Derivatives | 3 |

| | | |
|---|---|---|
| ACS 3113 | Fintech & InsurTech | 3 |
| ACS 3123 | Ethics and Professionalism for Actuaries | 3 |
| ACS 3716 | ACS Apprenticeship I | 6 |
| | **Credit Hours** | **15** |
| **Year 4** | | |
| **Semester 7** | | |
| ACS 4003 | Stochastic Models | 3 |
| ACS 4013 | Life Contingencies II | 3 |
| ACS 4023 | Linear Models and Forecasting | 3 |
| ACS 4033 | Loss Models II | 3 |
| ACS 4043 | Actuarial Risk Modelling | 3 |
| | **Credit Hours** | **15** |
| **Semester 8** | | |
| ACS 4103 | Artificial Intelligence and Machine Learning in Finance | 3 |
| ACS 4113 | Actuarial Practice | 3 |
| ACS 4213 | Actuarial Capstone Project | 3 |
| ACS 4716 | ACS Apprenticeship II | 6 |
| | **Credit Hours** | **15** |
| | **Total Credit Hours** | **120** |

# Faculty and Academic Staff

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