

A Career as an  
**Actuary**



# What is an Actuary?



## What does an Actuary do?

Actuaries pride themselves on their ability to make financial sense of the future. This expertise gives the actuarial profession an unrivalled appreciation of financial risk management. Being skilled mathematicians, actuaries are able to analyse past events, assess the present risks involved, and model what could happen in the future. Actuaries may then forecast the long term financial implications of business decisions to assess the most likely outcomes and the chances of more or less favourable outcomes occurring.

## Areas of Work

Actuaries are in demand in many different types of organisation, but these are the main areas of work:

### **Life Assurance**

These companies provide life assurance, savings, pensions, and other financial services to enable customers to safeguard their long-term financial security. This includes maintaining an income after retirement or providing for dependants if they die prematurely. Actuaries design, price and value these products. Actuaries are also vital to financial management and in developing strategies which ensure customers get a fair deal.

### **Actuarial Consultancy**

This involves advising organisations on all aspects of employee benefits, especially designing, calculating contributions and developing an investment strategy to meet payments in pension schemes. Actuarial consultants also have to explain these complex issues clearly.

**Actuarial consultants also advise insurance companies on all aspects of their business and especially mergers and acquisitions.**

Actuaries put a price tag on future risks. Actuaries have been called financial engineers and social mathematicians because their unique combination of analytical and business skills helps to solve a growing variety of financial and social problems.

Actuaries make financial sense of the future. How? An actuary applies mathematical models to problems of insurance and finance. To be more specific, actuaries improve financial decision making by developing models to evaluate the current financial implications of uncertain future events. If you've never met an actuary, that's not unusual. The actuarial profession numbers only about 35,000 people throughout the world. But don't let that small number mislead you. Actuaries put their special problem-solving skills to work in many different business situations, and their work has had an immense influence on people's lives for more than a century.

Actuaries make a difference. Their calculations and projections are the backbone of the insurance and financial services industries. Actuarial work involves lots of mathematics, but actuaries must also be up-to-date on business issues and trends, social science, law and economics. In other words, actuaries have a well-rounded business approach to problem solving. And they must be good communicators to explain things to others. Actuaries are key players on a company's management team. They are well paid, and they like what they do for a living.

### **General Insurance**

A feature of the general insurance business today - fire, accident, motor vehicle, workers' compensation - is the growing contribution made by actuaries. Their analytical and statistical training enables the application of sound theory to the assessment of the impact of changing conditions on the financial viability of general insurance products and the reserves to be held for future claims.

### **Investment - Financial Services - Risk Management - Health Insurance - Business**

In addition to the major traditional work areas, there is a growing demand for actuarial services in health insurance, risk management and the financial services industry, of which banking is just one part. Opportunities for actuaries are also opening up in such diverse areas as education, the environment and climate change, e-commerce, public infrastructure and genetics. The Hong Kong Government also employs actuaries in order to supervise the financial services industry. As we move to an increasingly globalised society, more non-traditional roles are likely to open up to the actuarial profession.

# A High-flying and Thriving Profession

Being an actuary is a profession, not simply a job. It's elite, and small enough for you to get to know colleagues in other companies. There's a thriving professional life outside work, including conferences, courses and working groups. You might have a chance to travel.

Actuaries enjoy high status and respect from other financial professions. On two occasions in recent years, the job "actuary" has been rated the best job in the Jobs Rated Almanac in the USA in terms of environment, income, prospects, security and stress. Actuaries are in demand throughout the world because of their all round skills. Your training will enable you not only to assess the financial impact of future events, but also to advise on business strategy. Actuaries are moving from the back room to the boardroom, managing companies as well as advising them.

It's an ethical profession with the highest standards of behaviour, integrity, competence and professional judgement, and it's also a profession where you can make your mark. Actuaries balance their role in business management with a responsibility to safeguarding the financial interests of the public.

An actuarial career can offer you considerable rewards in terms



of intellectual challenge, professional status, job satisfaction and high earnings. Both the route to qualification and the job itself are demanding. Meeting the demands involved provides great potential for job satisfaction and a head start to a successful career. On top of these great rewards, there are also significant financial incentives. An actuarial student is likely to start on around HK\$12,000 to HK\$15,000 per month with newly qualified actuaries earning in excess of HK\$40,000 per month and senior actuaries in excess of HK\$100,000 per month. Both salary and advancement for actuaries depend on experience, after progress through a series of actuarial examinations in order to qualify as an Actuary.

## Demand for Actuaries in Asia

Throughout the developed economies of Japan, Hong Kong, Singapore and the emerging markets of China, India and elsewhere in South East Asia, actuaries are creating innovative solutions to business problems. Given that Asia is facing rapid change and development in the financial economy, demand for qualified or part-qualified actuaries is set to increase. China has established an actuarial examination system with a view to nurturing more Chinese actuaries. The demand for actuaries in Asia will cover all areas of work, ranging from life insurance to general insurance, actuarial consultancy and investment management. There is also an increasing demand for actuaries in governments, especially in developing financial services regulation and social security systems.



# Who should consider an Actuarial Profession?

## Skills and Talents

Prospective students need advanced mathematical skills and normally have a university degree qualification which could be in any discipline. Whilst everyone who qualifies as an actuary has his or her own qualities and characteristics, most will possess several of the following skills and talents:

- Strong mathematical skills
- Self-motivation, determination and commitment
- Keen analytical and project management skills
- Ability to solve problems
- Solid communication skills (oral and written)
- Good business sense

# Education: How to become an Actuary?

## The Best Training

Actuaries receive excellent training. Your hard-earned professional qualification and achievement is recognised throughout the business world.

You need to pass a series of professional examinations to qualify as an actuary. You will be studying subjects like Financial Mathematics, Stochastic Modelling, Investment and Asset Management, Life Insurance, etc. It will usually require four to

seven years to qualify as an actuary. Your employer will support you in some or all of the following ways - paying for correspondence courses, providing study leave and providing you with a mentor. An increasingly popular option is to take an actuarial science degree course (for example, at the University of Hong Kong or the Chinese University of Hong Kong) that gives exemption from some of the examination subjects in particular organisations before joining an employer to complete the remaining examinations.

**Students can take actuarial professional examinations with one of the following examining organizations:**

## The Society of Actuaries (US)

The Society of Actuaries (SOA) is an international research, education and membership organization for actuaries in the life insurance, retirement and health benefits systems, financial, investment and enterprise risk management. It administers examinations leading to three possible designations: Associateship (ASA); Chartered Enterprise Risk Analyst (CERA) and Fellowship (FSA). A continuing education program is provided through seminars, symposia and membership meetings.

The SOA offers a series of examinations and other educational experiences. In addition to passing our exams, the successful candidate should also have a good background in Calculus, Linear Algebra, Introductory Accounting, Business Law and Mathematical Statistics.

**Candidates earn the Associateship designation by completing the following requirements for Associateship:**

- Validation by Educational Experience (VEE) for three subjects: economics, corporate finance and applied statistics.
- Preliminary Education Exams P, FM, M (both segments) and C
- Fundamentals of Actuarial Practice (FAP) Modules 1- 8
- Associateship Professionalism Course (APC)

**To become a Fellow of the SOA (FSA), students must be an ASA in good standing and complete these educational requirements, in a single chosen specialty track, followed by the Fellowship Admissions Course:**



- Three FSA Modules
- Examination Company/Sponsor Perspective (CSP)
- Examination Design & Pricing (DP)
- Decision Making and Communication (DMAC) Module

**To earn the globally recognized CERA credential, a successful candidate must complete the following:**

- Validation by Educational Experience (VEE) for Economics
- Preliminary Education Exams P, FM, M (Segment MFE) and C
- Operational Risk Module
- Advanced Finance/ERM examination
- Associateship Professionalism Course (APC)

Individuals who earn the CERA credential via the SOA's pathway are also eligible for membership with the SOA.

**For more information on the education and examination system, please visit the SOA website at [www.soa.org](http://www.soa.org).**

[www.BeAnActuary.org](http://www.BeAnActuary.org)



## Casualty Actuarial Society (US)

The Casualty Actuarial Society (CAS) is a professional organization whose purpose is to advance the body of knowledge of actuarial science applied to general insurance, including property, casualty and similar risk exposures, to expand the application of actuarial science to enterprise risks and systemic risks, to establish and maintain standards of qualification for membership, to promote and maintain high standards of conduct and competence for the members, to increase the awareness of actuarial science, and to contribute to the well being of society as a whole.

**To become an Associate (ACAS), candidates must successfully complete:**

- Exams 1-6
- Validation by Educational Experience (VEE) credits for the required topics of economics, corporate finance, and applied statistical methods
- CAS Online Courses 1 and 2
- The Course on Professionalism

**To become a Fellow (FCAS), candidates must successfully complete the ACAS requirements as well as:**

- Exams 7, 8 and 9

**Please visit the CAS website at [www.casact.org](http://www.casact.org) for more information.**

[www.BeAnActuary.org](http://www.BeAnActuary.org)

## Institute and Faculty of Actuaries (UK)

The UK actuarial profession was formally established in 1848 when the Institute of Actuaries in London was founded. This was followed in 1856 by the founding of the Faculty of Actuaries in Edinburgh. Members of these bodies took their skills to other countries and were responsible for establishing actuarial practice in many corners of the world. On 1 August 2010 the two bodies merged to become the Institute and Faculty of Actuaries, still known as the UK Actuarial Profession. The Institute and Faculty of Actuaries works with other countries to help them establish and maintain their own actuarial profession and in the training of students.

**The Institute and Faculty of Actuaries has an education and examination system, which is structured in 4 stages currently:**

- Stage 1 : Nine subjects of Core Technical - on successful completion of these subjects students will be awarded a Diploma in Actuarial Techniques
- Stage 2 : Three subjects of Core Applications
- Stage 3 : Two subjects (from a choice of eight) of Specialist Technical
- Stage 4 : One subject (from a choice of six) of Specialist Application

Students also need to maintain a learning log in order to complete the Work Based Skills requirement.

## The Actuarial Profession

making financial sense of the future

The Institute and Faculty of Actuaries offers students exemptions from some of the examinations if they have studied equivalent subjects in their university degree and achieved a good level of pass in that subject.

Members of the Institute and Faculty of Actuaries who qualify as an Associate or a Fellow are eligible for the Chartered Enterprise Risk Actuary (CERA) credential on passing subject ST9 on Enterprise Risk Management.

**Further information on the Institute and Faculty of Actuaries can be obtained from its website: [www.actuaries.org.uk](http://www.actuaries.org.uk).**

## The Institute of Actuaries of Australia

The Institute of Actuaries of Australia (Institute) represents the actuarial profession in Australia by creating, expanding and maintaining an environment where the skills of actuaries are widely used and valued.

The Institute establishes and maintains professional standards for the protection of the public, provides pre-qualification and continuing professional education, creates forums for discussion about contemporary and relevant issues, promotes research and the development of actuarial science, and contributes to and informs the debate on public policy.

From 1 January 2011, the Institute is introducing the Part II 2011 subject. This is comprised of Part IIA the Actuarial Control Cycle and a new subject Part IIB Investment and Asset Modeling. Students who have not completed Part II the Actuarial Control Cycle to the exemption standard by the end of 2010, must complete Part II 2011.

**To become an Associate (AIAA), students must successfully complete:**

- Part I Actuarial Studies (foundation courses). This can be undertaken through an accredited Australian university or through the UK Institute
- Part II through an accredited Australian university (either Part II the Actuarial Control Cycle [pre-2011], or Part II 2011 (Part IIA Actuarial Control Cycle + Part IIB Investment and Asset Modeling)
- Investments Bridging Course (online)\*
- 3-year Practical Experience Requirement (PER)
- Professionalism Course

\* Students who complete Part II 2011 will not be required to complete the Investments Bridging Course to become Associates

**To become a Fellow (FIAA), students must also successfully complete:**

- Part III Actuarial Studies (specialist courses). This comprises a choice between Course 1 Investments or Course 7A Enterprise Risk Management for Module 1 (students who choose Course 7A ERM must also complete the Investments Bridging Course)\*; and two subjects from one specialist area (Part A & B) from either Life Insurance, General Insurance, Global Retirement Income Systems or Investment Management & Finance; and one compulsory subject (Commercial Actuarial Practice). Students who complete Course 7A ERM will be eligible to receive the globally recognized Chartered Enterprise Risk Actuary (CERA) qualification if they have already obtained Associate (AIAA) status
- Professionalism Course

\* Students who complete Part II 2011 will not be required to complete the Investments Bridging Course to become Fellows

**For more information, visit the Institute website at [www.actuaries.asn.au](http://www.actuaries.asn.au).**



Institute of Actuaries of Australia

# Career Options

Asset / Investment Consultant      Management Consultant  
Chief Actuary      Pensions Actuary  
Chief Financial Officer      Risk Manager  
Life Insurance Actuary

# Actuarial Employers

Accounting Firms      Health Insurance Companies  
Actuarial Consulting Firms      Life Insurance Companies  
Banks, Investment Banks and      Universities  
Fund Managers  
Government

## Other Organizations representing Actuaries

American Academy of Actuaries, [www.actuary.org](http://www.actuary.org)  
Canadian Institute of Actuaries, [www.actuaries.ca](http://www.actuaries.ca)  
International Actuarial Association, [www.actuaries.org](http://www.actuaries.org)

In addition there are actuarial societies in most of the countries in the Asia Region.



### Actuarial Society of Hong Kong

The Actuarial Society of Hong Kong (ASHK) represents the actuarial profession in Hong Kong. It has a mandate to increase the value of the actuarial profession to the community. Activities and services provided include organising membership meetings and seminars, and issuing regular newsletters and job advertisements. For more information on the ASHK, please visit the website at [www.actuaries.org.hk](http://www.actuaries.org.hk) or contact the Actuaries Office in Hong Kong.

### Actuaries Office in Hong Kong

The Actuaries Office in Hong Kong is a joint representative office set up to serve the members and students in East Asia of the Society of Actuaries, Casualty Actuarial Society, the Institute and Faculty of Actuaries, the Actuarial Society of Hong Kong and the Institute of Actuaries of Australia. The Actuaries Office in Hong Kong helps to promote the actuarial profession and education through the combined and co-ordinated efforts of these organizations. For enquiries on actuarial education and the actuarial profession, please contact:

### Actuaries Office in Hong Kong

2202 Tower Two, Lippo Centre  
89 Queensway  
Hong Kong  
Tel : (852) 2147 9418, 2147 9419 and 2147 9420  
Fax : (852) 2147 2497  
Email: [patkum@netvigator.com](mailto:patkum@netvigator.com), [actsoff@netvigator.com](mailto:actsoff@netvigator.com) and [actuaries@biznetvigator.com](mailto:actuaries@biznetvigator.com)



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