

# A Career As



# An Actuary?

## A CAREER AS AN ACTUARY?

Choosing a career will likely be one of the most important decisions of your life. To make a wise choice, you will need much careful thought and a good appreciation of your own abilities, potential and interests. To help you with this process, consider whether you have good mathematical ability, creativity, and a desire to help solve complicated financial and social problems. If so, perhaps you should become an actuary.

The following pages outline the scope of a career as an actuary. If you would like more information on how to become an actuary, or about the profession itself, please refer to the end of this document. We hope that this guide will help you make a sound choice about your future.

## WHY BECOME AN ACTUARY?

The Jobs Rated Almanac, which ranks professions and occupations, has rated a career as an actuary as one of the best jobs in North America. Today's actuary practises as a self-employed consultant, or as a salaried employee in a small or large firm. Actuaries have risen to top management positions in large corporations, particularly in the insurance and consulting industries.

## WHAT ARE ACTUARIES, AND WHAT DO THEY DO?

Actuaries are business professionals who apply their knowledge of mathematics – particularly of probability, statistics and risk theory – to real-life financial problems involving future uncertainty. These uncertainties are usually associated with life insurance, property and casualty insurance, annuities, pension or other employee benefit plans, or providing evidence in courts of law on the value of lost future earnings.

By applying skills to these situations, actuaries help people to plan better for the future by reducing risk.

Much of life is very uncertain. There are the risks of sickness, disability, unemployment, property damage and loss, and dying young or unexpectedly. Even longevity has its risks, such as potential chronic illness or problems with sustainable financial welfare. While the risks are unpredictable for any one individual, actuaries can, for example, analyze statistics to design and price insurance policies and benefit plans for a group of individuals to spread individual risks among members of the group.

## WHERE DO ACTUARIES WORK?

As of May 2003, there were 2,572 fully-qualified actuaries, called Fellows of the Canadian Institute of Actuaries (FCIAs), practising in Canada and elsewhere. There were also 961 others enrolled as Associates who had completed at least half of the professional examinations required for Fellowship. As the chart on the next page shows, most Fellows are employed by consulting firms or life insurance companies, while the remainder work in reinsurance, property and casualty insurance, universities, government and industry.

In life insurance companies, actuaries are involved in almost every aspect of the business including development of new products and services, investment management, marketing, administration, and a wide range of general management responsibilities. Because their judgment is heavily relied upon, a significant percentage of actuaries employed with insurance companies achieve senior management positions. Under the 1991 Insurance Companies Act, actuaries have a legal obligation to ensure the solvency of insurance companies.

Actuaries are also involved in a wide range of activities in the consulting field. The consulting pension actuary's basic work is to assist employers, labour unions and trustees in the design, funding, and administration of private pension plans and other employee benefit plans.

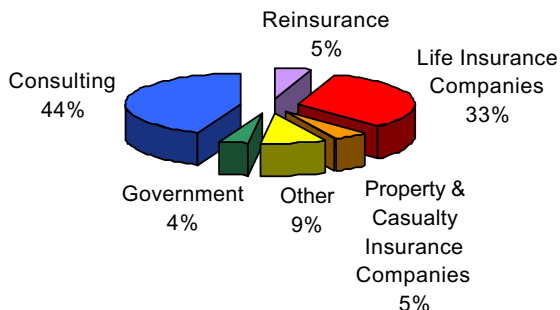
Some actuaries specialize in the probabilities of loss arising from events such as sickness, disability and casualties caused by fire, theft, windstorm, or automobile accident. These casualty actuaries are employed by insurance companies, consulting firms, government organizations, and universities.

Actuaries' skills have long been recognized by the Canadian justice system. Actuaries are routinely called upon to give evidence in court as expert witnesses on issues such as lost future earnings. For example, an actuary was hired to calculate the lost future earnings of the victims in the civil case seeking damages on behalf of surviving relatives of the 329 people who died in the 1985 Air India bombing.

The explosive growth in medical insurance, employee benefits, private pension plans, RRSPs, and mutual funds has posed new challenges for actuaries, especially in the expanding area of managing risk. Actuaries help investment fund managers maximize their returns.

In other emerging areas of professional activity, actuaries are working to improve medical insurance plans by showing the long-term savings possible through alternative treatments or the introduction of new drugs. In the emerging field of environmental damage costs, actuaries are advising companies on how to set up trust funds to cover the expenses decades from now.

## Distribution of FCIA's by Type of Work



The above chart shows the distribution of Fellows by type of work as of August 1, 2002.

## WHAT SPECIAL ABILITIES, APTITUDES OR INTERESTS DO I NEED TO SUCCESSFULLY PURSUE A CAREER AS AN ACTUARY?

As well as having a sound knowledge and definite liking of mathematics, a successful actuary must have practical business sense, the creativity to come up with innovative solutions to new problems, effective communication skills, and the ability to work with a wide variety of people. Many actuaries are skilled in areas such as computers, economics, investments, marketing, and general management.

## WHAT FORMAL EDUCATION OR SPECIALIZED TRAINING DO I NEED TO BECOME AN ACTUARY?

There are three basic requirements - education, experience, and the successful completion of a series of qualifying examinations supervised by various professional bodies. A good grounding at the high school level in mathematics, particularly algebra and calculus, is important. Exposure to economics, commerce, business administration and computer applications is also useful. While it is not a formal requirement to have a university degree to become an actuary, most actuaries are university graduates and have taken courses in either mathematics, economics, commerce, accounting, business administration, computer science or marketing. Some Canadian universities offer specialized courses in Actuarial Science that help students prepare for professional exams. A list is available from the Canadian Institute of Actuaries.

The professional examinations in the area of life insurance, investment and pension practice are jointly sponsored by the Canadian Institute of Actuaries (CIA) and the Society of Actuaries (SOA). For the property and casualty practice, exams are offered by the Casualty Actuarial Society (CAS) in consultation with the CIA. The examinations comprise two levels and cover a wide range of topics, from general and actuarial mathematics to the design and pricing of financial security systems (life insurance, pensions, and property and casualty insurance).

Most candidates complete the first half of the examinations within two years of graduating from university. It generally takes seven to ten years to complete all of the examinations and attain Fellowship in the CIA, SOA and/or CAS. Details of the current exam syllabus can be obtained from the Canadian Institute of Actuaries.

It is recommended that students write the first level of professional examinations while still at university as it will help them gauge their interest, aptitude and probability of future success. Completing the first phase of exams also enables students to find employment in the actuarial field, an opportunity that is facilitated at some Canadian universities by cooperative programs that allow students to combine work and study during the school year.

In fact, one of the attractions of the actuarial profession is that you can work toward professional qualification while earning a salary. After graduating, actuarial students typically join a company that offers employment in the field – a list is available from the Canadian Institute of Actuaries – and prepare for their remaining professional examinations through correspondence courses, self-study or special tutorials.

## WHAT IS THE PRESENT DEMAND FOR ACTUARIES?

## WHAT MIGHT IT BE IN THE FUTURE?

There has been substantial growth in the consulting area in the past decade. It now employs 44% of active FCIAAs compared to 40% in 1990. While the insurance business is a mature industry that is undergoing consolidation, it remains a major employer of actuaries. As well, there is an increasing demand for actuaries in non-traditional roles such as: compensation consulting, workers' compensation, health care management, financial planning, investments, environmental liability, and information systems.

## WHAT WILL I EARN AS AN ACTUARY?

The high standards of professional education needed to become an actuary has meant relatively high standards of compensation for the profession. Naturally, salaries vary according to qualifications, ability, responsibility, experience, type of employer, geographical area of employment, and the supply and demand situation.

The following are some typical salary ranges applicable in 2000:

- Associate status (at least 200 credits completed): \$48,000 - \$55,000
- A newly-qualified Fellow of the Canadian Institute Actuaries: \$65,000 - \$89,000
- Ten or more years as a CIA Fellow: \$104,000 - \$168,000 and up

## WHAT IS THE CANADIAN INSTITUTE OF ACTUARIES?

The CIA is the professional membership organization for all actuaries practising in Canada, and its code of conduct demands the highest standards of personal integrity from its members. Fellowship in the CIA is the qualification required to perform actuarial functions described by several federal and provincial legislative Acts. Actuaries have a duty to balance their role in business management while safeguarding specific financial interests of the public, such as protecting benefits promised by insurance companies and pension plans. The Institute's overall mandate is to:

- Set educational and professional standards for its members, and provide them with continuing education
- Review the work of its members, and administer a disciplinary system that regulates professional conduct
- Act as the profession's liaison with federal and provincial governments and agencies, and with actuarial organizations outside of Canada, as well as other professions
- Promote the advancement of actuarial science

## WHERE CAN I GET FURTHER INFORMATION ON BECOMING AN ACTUARY AND ENROLLING AS AN ASSOCIATE?

Information on the actuarial profession and enrollment forms can be obtained by contacting the Canadian Institute of Actuaries:

Canadian Institute of Actuaries  
800 – 150 Metcalfe Street  
Ottawa, Ontario  
K2P 1P1

Telephone: (613) 236-8196

Fax: (613) 233-4552

E-mail address: <[secretariat@actuaries.ca](mailto:secretariat@actuaries.ca)>

To obtain information from an actuary over the Internet, send your question to the following e-mail address:

<[actuary@actuaries.ca](mailto:actuary@actuaries.ca)>.

The CIA also has its own website on the Internet at:

<[www.actuaries.ca](http://www.actuaries.ca)>.

