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Thanks

The ASNA would like to thank all the authors that contributed for this year’s magazine.

We also want to thank all the companies that year after year gives support to our association. Without you, this magazine would not be that good!

Thank you all for your support!!!
It is with great pleasure that I invite each and every one of you to read the 2004 edition of the Actuarial Students’ National Association (ASNA) magazine! For about a year now, our magazine committee, consisting of students from the Université du Québec à Montréal (UQÀM), has been working on this 15th edition. Together, they have assembled a great collection of articles that will concern and be useful to all actuarial students. I am certain that each and every one of you can benefit in some way from the articles discussing the various careers awaiting a grad, the possibility of exploring a teaching career and the laws governing retirement plans. Furthermore, I am sure that more than one of you will identify with “Confessions of a Workaholic” !!!

That being said, I hope you take pleasure in this magazine. Remember that it was put together for you and by your peers. This magazine should entertain, inform and maybe even enlighten you! (I hope it does all three!) If you have any comments and/or questions about this publication, feel free to contact us at info@anea-asna.ca or talk to your ASNA delegates (they are present in ten Canadian universities and counting!), visit our website www.anea-asna.ca to obtain their contact information.

Céline Ng Tong
2003-2004 ASNA/ANÉA President
Concordia University/Université
Laws governing pension plans in Canada impose too many requirements that are also too complex. These requirements have caused an unreasonable increase in pension plan administration costs.

The result is that pension plans, especially defined benefits plans, will have difficulty surviving much longer. More and more employers opt for group RRSPs that are perceived to be a more efficient way to offer retirement benefits to their employees. The adverse consequences of this movement on people's ability to enjoy an adequate and secure retirement income are worrying.

Governments must react. And quick!

**But what are these laws?**

First, it should be mentioned that pension plans sponsored by employers are provincially regulated. Of course, there exist some exceptions. Banks, telecommunication companies and naval, aerial and inter-provincial transportation, among others, must comply with federal laws.

Laws regulating pension plans have been adopted by the federal and all provincial governments, with the exception of Prince Edward Island. Although similar in terms of basic principles, these laws have significant differences. And these differences have important consequences on pension plans’ administrative costs. For example, every one of these laws requires the continuation of the member's pension to his/her spouse after the member's death. However, the definition of “spouse” is different in each of them.

These laws impose some minimum standards designed to provide some protection of the rights of plan members and their beneficiaries. The standards may be summarized under the following themes:

- **eligibility for plan membership**: criteria (e.g. length of service, number of hours worked) which, if satisfied, make the employee eligible to join the plan;
- **vesting in benefits**: principle under which the member has a vested right to the benefits he/she has accrued even if his/her employment ceases before retirement;
- **locking-in**: principle under which the member cannot liquidate his/her rights; in other words, the accumulated pension monies must be used to provide the member with a retirement income;
- **plan administration**: rules dictating who is allowed to administer the plan, as well as the duties and obligations of the administrator;
- **members' information**: rules requiring the transmission of information to the members, including an annual statement of their benefits;
- **retirement age**: the plan must determine an age at which the participant has the right to receive an unreduced pension and the conditions applicable to early or postponed retirement;
- **funding**: rules aiming at the accumulation of sufficient assets in the pension fund to guarantee the promised benefits, including the requirement for periodic actuarial valuations for defined benefit plans;
- **plan termination**: members’ minimum rights and distribution of surplus assets when the plan is terminated.

The rules indicated above may seem relatively simple. The difficulty arises from the fact that these rules comprise an enormous amount of details, of which many are not easily understandable.

Furthermore, the plans must comply with tax legislation. Under this legislation, the amounts deposited in a pension plan are tax-deductible. These amounts will not be taxable until the moment they are paid in the form of benefits. Net government tax losses result from this tax deferral. In order to contain the amount of these losses, the tax legislation has many requirements that limit the contributions as well as the benefits paid out.

Moreover, it requires the application of a complex mechanism aimed at limiting the total tax-deferred amounts contributed to retirement savings vehicles on behalf of a tax payer. According to this mechanism, an individual's RRSP contribution room is reduced to account for any accrual of benefits under a pension plan.

Fortunately, there is only one tax law, the federal *Income Tax Act*, 1985. It is a single administration mechanism.

**Jacques Lafrance, F.I.C.A**

Principal, Towers Perrin
Pension plans suffocate under legislation. Please, give us a break!

*Tax Act*, governing all pension plans in Canada. Unfortunately, this law, along with the regulations adopted under its authority, constitute an enormous amount of rules and details.

Imagine for instance, a company maintaining business activities in every province and offering the same pension plan to all its employees. The plan administrator must ensure compliance with nine different provincial laws and with the complex rules of the *Income Tax Act*. What a headache!

**Recent trends**

Over time, governments have modified the laws governing pension plans. In some provinces, Quebec for example, the modifications have been more numerous, but rarely have they meant a simpler legal environment.

Among the recent changes in pension legislation, the following trends can be noted:

- **Relaxation of locking-in requirements**: Many people complain about the lack of flexibility brought about by locking-in rules for using retirement savings. In response to these requests, some provinces have modified their laws in order to add exceptions to the general locking-in rules. For example: increases in the maximum amount of small benefits that can be liquidated, and unlocking in cases of out-of-country transfers, financial hardship or shortened life expectancy. Saskatchewan has been the most progressive province, allowing full unlocking once the member has retired.

- **Earlier vesting**: Quebec is unique by requiring immediate vesting.

- **More information to plan members**: As an example, the number of elements to be included in annual statements provided to active members is increasing. Many jurisdictions consider following Quebec in requiring that annual statements be produced for retired and terminated vested members.

- **Accommodating phased retirement**: More and more workers, as well as employers, do not consider retirement as an abrupt cessation of their employment anymore. They tend to opt for a gradual reduction in their working hours. Unfortunately, laws, especially the federal tax legislation, are not designed to allow partial pension payments to compensate the decrease in employment income. Quebec and Alberta modified their laws to allow for partial withdrawals. It is expected that other jurisdictions will do the same. Let’s hope that the tax legislation will also be modified to better accommodate phased retirement.

**Harmonisation of laws: the impossible dream?**

As I mentioned, the lack of uniformity between laws causes important complications for people administering pension plans covering members from different provinces.

In the last few years, laws have become less and less uniform, as each government finds what they see as a superior solution to similar problems. Recent amendments in British Columbia, Alberta, Ontario and Quebec pension legislation have unfortunately contributed to increase disparities between pension standards in Canada. That in spite of the governments’ claim that the harmonisation of pension legislation was one of the goals of these changes.

Good news: The association representing different organisations responsible for supervising conformity to the Canadian pension laws, known as CAPSA, has issued a document that proposes principles of a model law aimed at harmonising pension standards. This project brings new hope and constitutes a step in the right direction.

CAPSA must be congratulated for the work accomplished in the preparation of these principles. However, in order to really motivate employers to maintain or implement pension plans, the project will have to undergo certain important changes.

The project in its current format aims at the development of a model law to which governments will be able to refer upon modifying their laws. It does not impose any obligation for them to align their laws with the provisions that will be found in the contemplated model law. In fact, the consultation document implies that some provinces might want to maintain some particularities of their laws. Moreover, the principles proposed are, with few exceptions, a collection of the strictest rules in Canada. They also include some new rules about plan administration that would impose heavy obligations on the plan administrators. Without modifications, the principles will most probably lead to changes in the laws that will make the environment even more hostile towards maintaining pension plans.

Many organisations, the Canadian Institute of Actuaries among others, have expressed to CAPSA the need to modify the proposed principles. Let’s hope that CAPSA will readjust accordingly.

**Other problems?**

That’s not the end of it. Solutions will be needed for other important problems that darken the future of pension plans, notably:
Pension plans suffocate under legislation. Please, give us a break!

* negative consequences of the Monsanto decision about plan partial wind ups;

* uncertainty about ownership of surplus assets; this uncertainty does not encourage employers to build margins into the funding of their plans, which has contributed to most plans being under-funded following the poor investment returns in 2001 and 2002;

* uncertainty about the legality of plan mergers, in jurisdictions outside Quebec;

* damages that people administering the plans will eventually suffer, upon being sued.

A necessary turn

The proportion of Canadian workers covered by a pension plan is disappointing, especially in the private sector.

Demographics suggest that the social security offered to the aging population will continue to decrease, hence increasing the dependency on pension plans offered by employers. In this context, it is important that our governments take a big turn.

The current legal setting does not support pension plans. In fact, trying to comply with the current laws is a much bigger problem than the problems that these same laws were attempting to solve. A remodeled setting must be adopted, that will make the creation and maintenance of pension plans its priority.

In some areas, governments have been adopting the deregulation concept. Such a concept could easily be applied to pension plans, while preserving satisfactory participants’ rights protection. A simple, reasonable and harmonised legislative frame is imperative.

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Following many good years for hiring young actuarial students, we now observe a slowing down from traditional employers in their recruiting. This brings an important question for every student: what prospective careers await them upon graduation? Is the movement towards non-traditional employments a significant one?

In an attempt to answer these interrogations, I analysed data from the Canadian Institute of Actuaries (CIA) on members (Fellow and Associate) working in Quebec concerning the different types of company they work in. You will find in Table 1 below these data as of July 2004.

These data give us information about types of companies, but not on the different fields the CIA members work in. For example, most consulting actuarial societies offer services in pension, group insurance, benefits, life or property and casualty insurance, compensation and asset administration. Furthermore, we observe a huge difference between employers in and outside Montreal. In Montreal, most actuaries work in consulting actuarial firms. Life insurance, once the main employer is still an important field, but hires less actuaries than consultation. Reinsurance also offers some highly technical jobs in Montreal. However, outside Montreal, financial groups offering mainly life insurance represent the main job source.

Emerging fields

* table 2 next page *

Property and casualty insurance is an important emerging field. While on table 1 we saw that 38 actuaries work for property and casualty companies, on table 2 we show that 79 people, almost 10% of active actuaries in Quebec, said their main working field is property and casualty insurance. A lot of them are employed by financial groups offering both life and property and casualty insurance, or by consulting firms. The increasing number of actuaries in this field will allow them to occupy other jobs than the traditional jobs of evaluation and ratemaking. The same phenomenon happened in life insurance.

Asset administration represents another emerging field. 22 actuaries work directly for investment management societies. Furthermore, each actuarial consulting firm has created a consulting team specialized in asset administration. We can estimate the number of full time actuaries in this field at over 50. Notice that many actuarial graduates quit writing actuarial exams when they work for an investment management society.

Administrative jobs are increasing a lot. In table 1, we reveal that 123 actuaries work for “other employers”. These employers are spread between government jobs and other companies. At the government, there are opportunities at the Conseil du Trésor, the Régie des rentes du Québec, the Société d’assurance automobile, the Commission administratives des régimes de retraite, the Commission de la santé et sécurité au travail, at the Ministère de la santé et des services sociaux, at the Autorité des marchés financiers, and in other organizations. These jobs are mostly available in Quebec city.

More than 40 non-governmental companies hire actuaries to work mainly in pension, human resources management, compensation and benefits. Also, several actuaries occupy general function of corporate management,

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Actuaries by type of company they work for</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Montreal</td>
</tr>
<tr>
<td>Actuarial Consulting</td>
<td>305</td>
</tr>
<tr>
<td>Financial group offering life insurance and Property and Casualty insurance</td>
<td>132</td>
</tr>
<tr>
<td>Reinsurance</td>
<td>34</td>
</tr>
<tr>
<td>Property and Casualty insurance</td>
<td>21</td>
</tr>
<tr>
<td>Investment Management</td>
<td>22</td>
</tr>
<tr>
<td>Financial planning</td>
<td>6</td>
</tr>
<tr>
<td>Other employers</td>
<td>59</td>
</tr>
<tr>
<td>Not specified (mostly retirees)</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>598</td>
</tr>
</tbody>
</table>
An Actuarial Career in 2004 – More Opportunities than Ever

and some of them act as president or first vice-president in many companies. These administrative jobs require actuaries’ experience and skills. Most of actuaries working in these jobs started working in a traditional field, and seize the opportunity of a career change after acquiring specific skills.

The future

Traditional jobs in life insurance society and consultation will still be the main source of career entry. Property and casualty insurance jobs should gradually increase. Peripheral fields like asset administration will attract graduates upon their graduation or a little bit later in their career. However, the companies’ requirements are changing, both in traditional work and emerging fields. Technical skills are still required, but are not enough anymore. We now need to bring more skills.

For example: a complementary specialization, like computer skill or asset management, marketing or administrative knowledge, etc. Although our career requires a lot of formation, it brings us great satisfactions and offers us many professional opportunities. However, we have to be well aware of the requirements to fully enjoy our career.

At the Université du Québec à Montréal, our objective is not only to give students all the technical skills required for professional requirements of the Society of Actuaries, the Casualty Actuarial society, and the Canadian Institute of Actuaries, but also to show the different career sides, to help students communicate with actuaries working in different fields and to help them acquire the skills which are important for our profession.

René Delsanne is a professor at l’Université du Québec à Montréal. Sir Delsanne worked for a life insurance company, a consulting firm and an investment management company.

Table 2 shows the working field declared by Quebec actuaries. The total is different from the previous one since some actuaries mentioned more than one activity field.

<table>
<thead>
<tr>
<th>Activity field in Quebec</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Life insurance</td>
<td>336</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property and Casualty insurance</td>
<td>79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pension</td>
<td>410</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non traditional</td>
<td>88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non actuarial work</td>
<td>44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not working</td>
<td>44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1001</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2
The Academic Career as an Alternative in Actuarial Science

Frédéric Michaud, D.Sc, A.S.A., C.F.A.
Teacher, UQAM

During a Bachelor’s degree, a student must choose a field in which to specialize. Pension plans? Life insurance? Casualty insurance? There are also other options, but amongst them one is often forgotten: the academic alternative. The academic world is one of the most interesting for those who wish to share their knowledge with students and contribute to the development of the actuarial science. The following is a quick overview of the main responsibilities of an actuarial professor and of the skills required to become one.

What are the responsibilities of a professor?

The main duties of a professor are to teach and to do research. A professor is also involved in the administration of his department and the university. These responsibilities can vary however with one’s interests and experience. For example, young professors sometimes benefit from a lighter load of responsibilities related to administration so that they can concentrate more on teaching and research.

Teaching requires somewhat different skills from those we usually develop during a bachelor’s degree in actuarial science. One has to enjoy speaking in front of a class. Of course one must also totally master the subject he teaches, which is easier if one likes learning. But even more important, one must be able to capture the students’ interest by making the subject come to life. In other words, one has to master some pedagogy.

No! Summer is not all a holiday for a professor! Instead, this period is used to make progress in his research projects. Essentially, research consists in any kind contribution to the body of knowledge of the actuarial science. It can take different forms. Some try to develop or improve some actuarial or mathematics models used in valuation and/or management. Some others focus instead on legal or practical issues. Some very specific questions are sometimes even rather philosophical than technical. A current example of this problem is the lack of consensus right now on the correct way to value pension fund liabilities.

How can I find out if I would like being a professor?

Frédéric Michaud, D.Sc, A.S.A., C.F.A.
Teacher, UQAM

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How can I find out if I would like being a professor?
The Academic Career as an Alternative in Actuarial Science

It is difficult for someone to find out if teaching and research in interesting only by attending classes at the bachelor’s degree. Fortunately, students can sometimes work as teaching assistants. This is a good way for one to find out about his interest and/or ability for teaching. Moreover, a teaching assistant often has the opportunity to participate in some tasks that professors are usually responsible for.

As far as research is concerned, one’s interest for it lies in avid curiosity and motivation to look for answers. Looking for answers can mean anything from reading books or articles to writing a sequence of equations to get to an unexpected solution. This kind of curiosity of motivation is not everyone’s cup of tea, but those for whom it is will find much gratification in the academic career. Those working on a Master’s thesis usually face a research project sufficiently challenging to get a good idea of their interest in research.

What path to follow to become professor?

Some professors were admitted to university at the bachelor’s level never to leave university afterwards. Most of them went on to the Master’s degree and then the Ph.D. The Ph.D. thesis consists in research work with original results that add to the existing body of knowledge in a specific area.

Some professors have worked in the private sector before returning to university to try an academic career. Even if it isn’t necessary, this step is for some people a catalyst in their interest for research and/or teaching. Experience in the profession is a very good school by itself, even for an academic carrier.

Unlike some other areas where postdoctoral experience is required, a Ph.D. is usually sufficient for most professor positions in actuarial science. Moreover, some universities also hire Fellow actuaries who are not doctors. The hiring conditions vary from one university to another according to the department’s needs and philosophy.

Conclusion

Obviously, professorship is not open to everyone. Just as a matter of fact, professors count for a very small portion of the actuarial profession. Graduate studies impose their lot of sacrifices in such a way that few have enough interest in teaching and research to undergo them. However, the few who have that interest will find in the academic career excellent working conditions and a very stimulating environment both from the intellectual and the human point of view. This is why I invite you not to forget about the academic alternative!
A Workaholic ?? Me?? Never!!

Without using this term, it is in this way that a newspaper representative asked me to write an article on my career development and my daily life. « Like you, many students in the actuarial domain are fighting to overcome many obstacles » he told me. That made me think…

It is true that the school-exams-work combination is an enormous part of an actuarial student’s life. Sorry to disappoint you, but the rhythm does not slow down once the bachelor’s degree is obtained. You will have to deal with exams for a few years, but to that will be added a job and possibly a family to take care of. When I see my old classmates, I realise that we all have a very filled life.

I remember well my bachelor’s degree studies when I was really interested by the career development of the different teachers and speakers. During this period, I was so discouraged by all the efforts exams could demand, that I had the impression that by the time actuaries reached their Fellow title, they would be so tired professionally that they could not be motivated by any other project.

I heard about actuarial science when I was about 15 years old. Since I was pretty good in mathematics, the guidance counsellor of my school encouraged me to pursue in engineering. But engineering did not interest me at all. On the other hand, the actuarial domain was a good alternative. In fact, I was really intrigued by this mysterious profession which was unknown at the time. By doing some research, I quickly realised that becoming an actuary was a huge challenge and that I had very little chances of becoming a fellow. That was enough to motivate me!

While I was living in the Ottawa region, I found an interesting and well paying student job in the administration of pension funds for former militaries. That is why I decided to study at the Ottawa University. Since there were no actuarial program, I registered in the mathematics bachelor’s degree. My goal was to finish it as soon as possible and get my master’s degree in the actuarial domain at l’Université Laval. By taking 6 to 8 courses per session, and by doing some summer classes, I finished my bachelor’s degree in mathematics in only two and a half years. Since I had taken some optional courses in computer science, I realised that it was possible to obtain a second diploma quickly in computer science. Therefore, I completed this second diploma in 2 years. In short, I completed 2 bachelor’s degrees in 4 years.

As planned, I went to l’Université Laval for a master’s degree in the actuarial domain. Wow! I quickly realised the difficulty of this science and especially of the SOA exams. To make it easier to succeed in my exams, I decided to put aside my master’s degree to complete my bachelor’s degree. Two years later, I obtained my third bachelor’s degree in science. By the way, for people who are interested, the number of bachelor’s degree does not influence your salary. It is better to have a master’s degree for that.

At the end of my actuarial studies, I did an internship at Mercer in Montreal, in the administration of retirement plans. However, my first real job was in pension at Towers Perrin in Toronto. I worked there for 2 years and I asked for a transfer to the Los Angeles office. It is at this time that I obtained my ASA title and that I started to make my CFA exams. After 4 years at Towers Perrin, I found a job at PriceWaterhouseCoopers in New York which was a good combination between actuarial science and computer system development.

During my stay in the United States, I realised that Canadian schools have really good actuarial programs. I
My career development...

remember my first day at the LA office when I was introduced to two new employees. With my 2 years of experience, I had to lend them a hand in their training. One of them had a master’s degree in economy at Berkeley and the other had a doctor’s degree in mathematics at UCLA. I could not believe that I had the aptitudes to do that. Surprisingly, the technical abilities of Canadians seems to be higher than that of Americans. Also, I noticed that there are fewer fellows in the United States that in Canada, which made me appreciate the value of the Fellow title.

After 2 years at PwC, and after the death of my father, I decided to come back to Canada. The same year, I obtained my CFA and my Fellow title. After a little while in the corporate finance domain, I went back in the actuarial domain at Buck Montreal, but in assets management.

Recently, I joined UBS assets management where I am offering customer services which combines actuarial science and finance. I am also finishing a master’s degree in finance at l’Université de Montréal and I have begun to teach bachelor courses at UQÀM in the actuarial domain simply to keep in touch with this field… As of last year, I am now involved with different organisations : I am a speaker for the ICA and producer/corrector of SOA exams.

Now, at 32 and a new father, I can assure you that it is not once your exams are completed or your bachelor finished that your rhythm slows down. The fact that the exams are done has obviously many good sides : one of them is that we can enjoy Halloween!!

I might be finishing with a cliché, but what I think is most important is to enjoy what we do and to keep a good equilibrium between professional and social life.
Our programs...

Université Laval

The actuarial science program at Université Laval gives a great academic training in those following field of activities: personal risk, damage risk, financial risk, collective risk and retirement plans. It's a three year bachelor that offers the opportunity of a paid and credited stage at the end of the second year. Furthermore, our classes cover most of the topics treated in the first four exams of the SOA and CAS.

Université de Montréal

The actuarial science program at Université de Montréal is a 90 credit long program that offers the possibility to do a Co-op program. The bachelor contains preparation classes for some of the actuarial exams, mathematics classes, probability classes, statistics classes, computer science classes, and option courses useful to actuaries such as economy and demography classes. It is also possible to get two stages credited. Those stage can be taken in any semesters even if you are not in the co-op program. Always concerned about being able to give to their future graduates a good education which reflects the needs of the environment in which they will grow, the mathematics and statistics department of the Université de Montréal constantly work as a team with the teachers and students. That is why the program is getting better year after year, and is able to satisfy the needs of each and every one.

University of Calgary

The Actuarial Science program at the University of Calgary is one of the fastest growing in the country. Students pursuing a degree in Actuarial Science can follow paths towards a Four-Year Major Program, a Four-Year Honours Program, a Five-Year CO-OP Program, or a Five-Year Joint BSc/BComm. Graduate study is also available at the University of Calgary in the department of Mathematics and Statistics. A student’s graduate research may proceed in any area of Actuarial Science, as well as Financial Mathematics, Applied Statistics, Bayesian Inference, Mathematical Statistics, or Probability.

The University of Calgary Actuarial Society is a student run club representing the majority of Actuarial Science Majors. Throughout the year the club plans many social events to bring Actuarial Science students together outside of the classroom. As well, the club houses a comprehensive study bank for students to study from, and has office hours for students to ask questions, whether about school, SOA/CAS exams, or employment. In January of 2004, all seven members of the executive board attended the annual ANEA-ASNA conference, and agreed it was a very valuable experience.

University of Quebec in Montreal

Our Actuarial science program is a 3 year program of 90 credits. It has evolved a lot in the past 6 years to become very oriented towards the SOA-CAS Exams. We have courses like Actuariat 1, 2 and 3 that are a review of all the textbooks for the course 1, 2 and 3 respectively. We also have courses in the master’s degree that prepare us for the exam 4, 5 and 6. Although we do not have a coop program, we can get 3 credits if we manage to find an internship, which a lot of us do.

University of Manitoba's

The University of Manitoba's Actuarial Program is the second oldest of its kind in North America, allowing students to obtain their Bachelor’s degree through either the Faculty of Science or the I.H. Asper School of Business. When taken with the maximum recommended course load, the degree can be completed in four years (the first of which typically contains only general courses). The Post-Baccalaureate Diploma in Actuarial Studies, which requires one to two years to complete, is also available for students who already have another undergraduate degree but wish to pursue actuarial studies. Classes are provided through the Warren Centre for Actuarial Studies and Research and cover most of the material required for SOA Exams 1 through 4, as well as some topics for Course 5. Although there is no formal co-op program, many students will find summer positions with actuarial companies, most of which are outside of Winnipeg.
University of Waterloo

The actuarial science program at the University of Waterloo is one of the most renowned in the world. It is also the largest English language program in North America. The program provides a solid foundation in statistics, numerical analysis, life contingencies, risk theory, finance and other disciplines of value to prospective actuaries, as well as a strong core of mathematics. The regular degree requires eight academic semesters. However, most students are enrolled through co-operative education and also acquire six semesters of work experience.

Concordia

Concordia University offers a Honours and a Specialization programs in Actuarial Mathematics leading to a Bachelor of Science or a Bachelor of Arts degree. Both programs are also offered as Co-operative Education programs. In addition, a new program in Actuarial Mathematics and Finance is also offered. The programs typically take 3 years to complete, 3.5 for students doing co-op.

As their names indicate, Concordia programs differ from programs in Actuarial Science by their strong mathematical orientation. While providing a thorough background in Mathematics, Probability & Statistics, Concordia programs prepare students for the Associateship Examination Course 1 to 4 of the Society of Actuaries and the Casualty Actuarial Society.

University of Toronto

Actuarial Science students in University of Toronto have a choice between a 4 year Actuarial Science Specialist Program and a 3 year Actuarial Science Major Program. The Specialist Program contains more higher year actuarial science courses as well as statistics courses that prepares students better for SoA / CAS exams up to course 4 / exam 4 while the Major Program prepares students up to SoA course 3 / CAS exam 3.

In the fourth year of the actuarial science program, students can choose between a Pension Mathematics course as well as a Finance course which are offered alternately each year. The Pension Mathematics course prepares students for SoA course 5 as well as SoA course 8 Retirement Benefits exam while the Finance course prepares students for SoA course 6 as well as SoA course 8 Finance exam. These courses are given by instructors from different actuarial science companies who have actual industrial experience.

Students in University of Toronto tend to write their first actuarial exam in the second semester of their second year and usually have a high pass rate. Although University of Toronto does not offer a co-op program, many students who are determined to enter the actuarial science industry are able to obtain industrial experience in their penultimate year as well as a full-time offer before graduation from various actuarial science fields mainly in either Toronto or the US.