



introduction to the actuarial profession and the fields that actuaries work in, along with basic examples of actuarial work in practice. We see the course as being of interest to students considering an actuarial career as well as those who are interested in the work of actuaries.

This was obviously received positively as I received funding to develop a MOOC titled “An Introduction to Actuarial Science”. After much hard (and continuing) work developing the course, [enrollments are open](#) and the course is scheduled to go live on 19 October 2015. As at the time of writing (22 July 2015), enrollment has been open for 10 days, with a total of 865 enrollments already (and this without any marketing as of yet beyond the course simply being listed on edX!). The median student age is 28, although a sizeable minority of 23% have yet to complete their high school education. Enrollments come from 101 different countries, with one student each from 38 different countries, including for example Afghanistan, Maldives and Uganda. The most represented countries are the United States (22%), India (13%) and Australia (7%). The reach of MOOCs is huge!

Our target market for the course is late high school students who are looking to make upcoming university/college degree choices, as well as those with quantitative backgrounds who are making career decisions. However, as can be seen by the above statistics, MOOCs are taken by such a wide variety of people that we can be sure that many outside the target market will join as well.

This breadth of background has made for some challenging decisions when it comes to designing the course. We didn’t want the course to simply consist of a lesson or two on each of mathematics, statistics, finance, economics, etc. that didn’t come together in any coherent way. We wanted to give students an experience (at least at a simplified level) of what an actuary does in practice. Hence we decided to centre the course around a specific example of actuarial practice, namely Life Insurance, not just because it is an area where a large number of actuaries work, but because it is an area that lends itself to the sorts of simplified examples of actuarial work we will consider in the course. Students will start from the very basics of cash flow valuation at the beginning of the course, and by the end of the course they will be making premium and investment decisions and performing simulation analysis of a (much simplified) life insurance company.

Accessibility was a key criteria in our course design decisions. There is some complicated mathematics on transition intensities of mortality (we didn’t want to sell the profession without the mathematics!), but if students don’t have sufficient background they can skip past the most complicated mathematics and not affect their progression in the course. Extension exercises target those with stronger backgrounds to think beyond the relatively narrow scope of the course.

Students engage in the course through a series of short 3-8 minute videos, interspersed with questions that examine what has been learned during the videos. Many of the questions involve creating and adjusting cash flow models in Excel. We have been fortunate to recruit a number of senior actuaries from a wide variety of backgrounds to be involved in the videos so students will see the breadth of the profession. The majority of student-student and student-teacher interaction occurs in discussion forums, along with other social media elements. The course will run live for 8 weeks from 19 October 2015; after which we expect to make the course available in an asynchronous mode from early 2016. This asynchronous mode, whilst lacking the level of interaction of the synchronous version, is likely to be beneficial to small groups (such as high school classes) that may want to take the course together at a timing more appropriate to them.



There's much more I could write, but only limited words to write it in. I'll be writing much more about the MOOC on [my blog](#). In the meantime if you would like to know more please feel free to [send me an email](#). In particular if you would like to discuss with me how you might use the MOOC with your current or future students I'd be happy to hear from you. In any case I see this MOOC as a great opportunity to "capture" the best and the brightest into the profession, so please spread the word!

A plain analysis of grupo Mexico's spills out from a point of view of a risk manager.

Author: María Fernanda Jiménez Méndez

Grupo México is formed by 13 mines in operation, 10 exploration projects in Chile, Peru and Mexico and 67 years' experience in infrastructure projects. Their ticker symbol is GMEXICOB.

From their official website we can read their philosophy: "It is very important for us, as a public company that lists on the Mexican Stock Exchange to generate value for our stockholders. With our financial reports, conference calls, press releases, and an executive team that is committed to investors, we manage to maintain transparency in our information through the use of high ethical standards."

On 7 August, 2014, around 40,000 cubic meters of copper sulphate and heavy metals originated from "Buena Vista" copper mine a subsidiary of Grupo Mexico located in Cananea, were poured into the rivers Sonora and Bacanuchi.

Buenavista del Cobre mine reported that there was no second discharge of toxic substances as a consequence of hurricane Odil, Tinajas 1 and Tinajas 2 dams filled up with rainwater, situation that was timely notified on September 18 to the corresponding authorities. Mexican Environmental Protection Agency (PROFEPA) informed that such discharge derives from rainwater containing some ferrous substances below hazardous levels considered a risk to human health

On September 20th, water measurements conducted by PROFEPA, CONAGUA and the Company, reported normal acidity levels in the Bacanuchi and Sonora rivers.

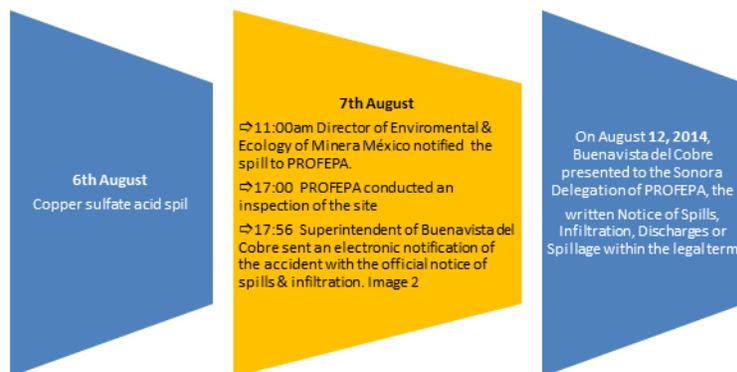


Image 1



Risk management and internal controls

Any organization should have a risk management function (including a chief risk officer (CRO) or equivalent for large organizations and internationally active ones), a compliance function and an internal audit function, each with sufficient authority, stature, independence, resources and access to the board. Grupo Mexico should have identified, assessed and monitored the spill of toxic substances into the river Sonora and Bacanuchi on an ongoing firm-wide and individual entity basis. They also should identify the risk of their gases expelled from their exploration and mine projects.

An internal controls system which is effective in design and operation should be in place. We can see from Image 1 that they have a compliance system but there is no evidence of a Risk Management Corporate program. Maybe the risk management, compliance and internal control infrastructures weren't able to keep pace with all the changes to its risk profile including its growth in Peru and Chile and also to the external risk landscape. Effective risk management requires frank and timely internal communication, both across the organization, and through reporting to the board and senior management.

Compensation

The organization should fully implement the Financial Stability Board's (FSB - Financial Stability Forum) Principles for Sound Compensation Practices (FSB Principles) and accompanying Implementation Standards (FSB Standards) and the set of principles and guidelines that regulate the operation of the company. Good Corporate Governance protects the interests of the company and its stockholders, creates value, and uses the company's resources efficiently.

The political regulations that Grupo México's broken for this accident were: Federal Water law and Environmental responsibility; Grupo Mexico was fined with 3 tickets for these causes: \$3,000,000, \$1,500,000 and \$40,000,000 and it wasn't enough to repair the damages. The total damages were over 800 million of Mexican pesos.

NEW IAA EDUCATION SYLLABUS

Since the [proposed new IAA syllabus](#) was unveiled and discussed in Zurich there have been several developments. To facilitate feedback on the new syllabus the Syllabus Review Task Force distributed two documents:

- [a comparison of the existing syllabus and the draft new syllabus](#)
- [a summary of what is new in the draft syllabus](#)

The Task Force has also been reviewing extensive feedback received in Zurich and in subsequent submissions from member associations, IAA committees, other interested bodies and individual actuaries and educators. A revised syllabus will be presented to the Education Committee in Vancouver, together with proposals for implementation of the syllabus (including timeframe) and for accreditation of the education programs of member associations.

In all of this work, the Task Force is looking to achieve a balance between ensuring that actuaries will continue to be sought after, effective and trusted in future decades and allowing member associations time to adjust to the new syllabus and flexibility to shape it to their local conditions and needs.



SOA Teaching Conference Draws Actuarial Educators

Author: Gena Long, Society of Actuaries Manager of Stakeholder Relations

In June 2015 the Society of Actuaries (SOA) sponsored the Actuarial Teaching Conference (ATC) with a goal of providing an opportunity for faculty members engaged in actuarial education to come together, learn and connect. Seventy-five attendees from 56 universities and colleges participated in the inaugural event held in Indianapolis, IN. Faculty participated in learning sessions, shared ideas, networked, and gained a better understanding of the SOA and the actuarial profession. The conference included a [variety of sessions](#) including SOA exam preparation, best practices for actuarial programs, innovative teaching methods, supporting international students, and a discussion by an employer panel regarding the current job market and industry needs.

“Great networking and community building opportunity!” - Post-event survey respondent

The ATC provided actuarial faculty members with an opportunity to network and build connections that will enhance their own programs. This opened a much-needed avenue for actuarial faculty with limited ways to connect. The sold-out event was well received by the faculty members in attendance and will help support the faculty community as they endeavor to educate developing actuaries. Planning will begin soon for an ATC the summer of 2017.



50th Annual Actuarial Research Conference: University of Toronto

By Sam Broverman

The University of Toronto is proud to have hosted the 50th annual Actuarial Research Conference (ARC). The conference took place from Wednesday, August 5 through Saturday, August 8 at historic Victoria College on the U of Toronto campus. In 2015, the Canadian Institute of Actuaries also celebrates 50 years since its founding. In addition, the University of Toronto celebrates (at least) 130 years of actuarial education.

Almost 250 people registered for this year's ARC. This is the largest attendance that the ARC has had to date. There were almost 120 papers presented in the 35 parallel sessions of contributed papers and special sessions. The parallel sessions covered over a dozen topics from Actuarial Education to Statistical Methods (almost A to Z), most with multiple parallel sessions. In addition, there were several sessions on special topics including one



on Software Innovation for High Performance Actuarial Modelling, an SOA Entrepreneur Section panel and a session on Emerging Trends in P&C Insurance.

There were two invited plenary speakers. Prof. Rob Tibshirani of Stanford University, a world renowned expert in statistical learning, spoke on Thursday, August 6. On Friday, August 7, the plenary lecture was given by Prof. Mogens Steffensen of the University of Copenhagen, a world leading expert in the mathematics of life insurance.

The conference organizers extend their deep gratitude to the various sponsors who so generously contributed support for the conference. The three professional societies, CIA, SOA and CAS were sponsors along with Munich Re, Manulife Financial, RSA, Sun Life, Canada/Great West Life, Coaching Actuaries, and Towers Watson. In addition, at the CIA sponsored reception on Thursday, the CIA presented to the University of Toronto Actuarial Science Program a plaque commemorating 130 year so actuarial education at the University of Toronto.

Additional information about the conference, including a detailed program and a list of conference participants can be found at the conference website www.arc2015.ca. We are looking forward to a great ARC next year in Minneapolis-St. Paul, jointly hosted by the University of Minnesota and the University of St. Thomas.



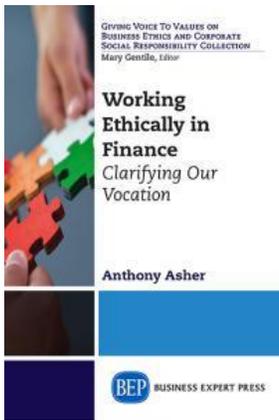
Future Meetings of Actuarial Educators

Country	Event	Dates	Host
Germany	1st EAA Risk Management Summit	29 October	Airport Conference Center in Frankfurt.
Colombia	5 th Colombian Actuarial Symposium	12-13 November, 2015	TBA, Bogota
Australia	7th Australian Actuarial Education and Research Symposium	7-8 December, 2015	Bond University, Gold Coast, Queensland



Short Courses			
United Kingdom	Dependence modelling using multivariate copulas with applications	14-16 September	University of East Anglia
Austria	Actuarial Modelling, with special consideration of Solvency II	30 September – 03 October	Salzburg University

Recent Publications



[Working Ethically in Finance: Clarifying Our Vocation](#)

Author: Anthony Asher

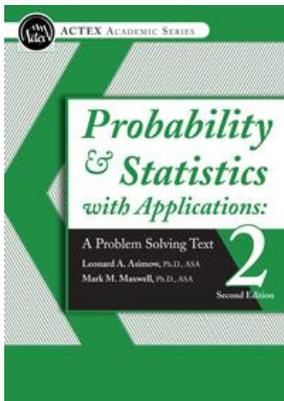
Edition: 1st Edition

Publisher: Business Expert Press

Date: 2015

Description: To develop a vocation we ask: what do I want to be remembered for? It involves aspiring to personal integrity and a life well lived. Those of us working in the financial sector fulfil our vocations by finding ways to serve its social purposes, which is to allocate resources efficiently and to provide financial security—not forgetting the needy. This means contributing to institutions, where people can flourish personally, and create appropriate products and services. The ethics of those working on finding their vocation do not flow from rules and obligations, but from a personal commitment to seeking what is good. This life is based on the fundamental personal virtue, integrity.

The book is written for those who aspire to the cultivation of the virtues of wisdom, self-control, and courage—to develop ourselves and protect ourselves from the intrusion of others—and justice, the social virtue that underlies flourishing communities based on mutual respect.



[Probability & Statistics with Applications: A problem Solving Text](#)

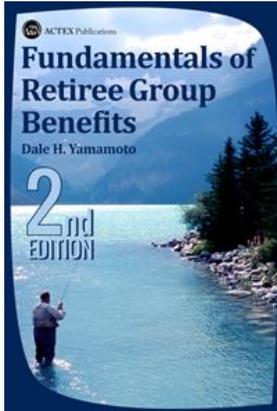
Authors: Leonard A. Asimow, Ph.D., ASA and Mark M. Maxwell, Ph. D., ASA

Edition: 2nd Edition

Publisher: ACTEX Publications

Date: June 2015

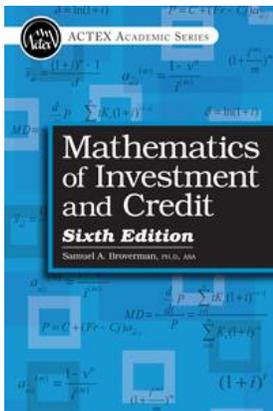
Description: *Probability & Statistics with Applications* provides the content to serve as the primary text for a standard two-semester advanced undergraduate course in mathematical probability and statistics. It is an introductory textbook designed to make the subject accessible to college freshmen and sophomores concurrent with Calculus II and III, with a prerequisite of just one semester of calculus. It is organized specifically to meet the needs of students who are preparing for the Society of Actuaries qualifying Examination P and Casualty Actuarial Society's new Exam S



Fundamentals of Retiree Group Benefits

Authors: Dale H. Yamamoto
Edition: 2nd Edition
Publisher: ACTEX Publications
Date: June 2015

Description: Retiree group benefits have earned a reputation for being difficult to understand. Half retirement benefit and half group insurance – few professionals have mastered both fields. Complex finances blend the world of pension mathematics and health plan pricing. The purpose of this textbook is to provide the fundamental basics of all aspects of retiree group benefits— from goals and objectives of providing the benefit to the actuarial considerations of accounting and funding the programs. This one book contains everything pertaining to the subject of retiree group benefits. Its chapters cover the prevalence of the benefit, Medicare, plan design, funding and legal issues, accounting rules and actuarial methods and assumptions.



Mathematics of Investment and Credit

Authors: Samuel A. Broverman, Ph.D., ASA
Edition: 6th Edition
Publisher: ACTEX Publications
Date: August 2015

Description: Mathematics of Investment and Credit is a leading textbook covering the topic of interest theory. It is the required or recommended text in many college and university courses on this topic, as well as for Exam FM. This text provides a thorough treatment of the theory of interest, and its application to a wide variety of financial instruments. It emphasizes a direct-calculation approach to reaching numerical results, and uses a gentle, thorough pedagogic style. This text includes detailed treatments of the term structure of interest rates, forward contracts of various types, interest rate swaps, financial options, and option strategies. Key formulas and definitions are highlighted. Real world current events are included to demonstrate key concepts. The text contains a large number of worked examples and end-of-chapter exercises.

The New Sixth Edition includes updates driven by the upcoming changes for the learning objectives for Exam FM, updated examples and exercises and some exposition improvements. The topic of duration has been revamped in Chapter 7 and expanded treatment of determinants of interest rates in Chapter 8.

Opportunities around the World

Dublin University: Lecturer/Senior lecturer in Actuarial Mathematics

The School of Mathematical Sciences in Dublin City University is seeking to develop and expand its provision of actuarial and financial mathematics through the appointment of a full-time Lecturer or Senior Lecturer who will lead the School’s efforts in Actuarial Mathematics.

All applicants must hold an honours degree and be Fellows of the Institute & Faculty of Actuaries or an equivalent national body. Appointment at Lecturer above bar or higher must have completed a PhD in Mathematics or in a related field. They must also be recognized researchers (having a record of original high-impact research supported by publications in internationally-leading journals) or, depending on their career stage, show exceptional potential and ability in an area relevant to Actuarial Mathematics.

Application forms are available directly at <http://www.dcu.ie/hr/vacancies/current.shtml>



[Assistant/ Associate/ Full Processor in Actuarial Science and/or Financial Mathematics.](#)

The Department of Mathematics at the University of Connecticut invites applications for a full-time, 9 months tenure-track faculty position at the rank of Assistance, Associate, or Full Professor in Actuarial Science and/or Financial Mathematics beginning in Fall 2016.

To apply, submit a cover letter, curriculum vitae, teaching statement (including teaching philosophy, teaching experience, commitment to effective learning, concepts for new course development, etc.); research and scholarship statement (innovative concepts that will form the basis of academic career, experience in proposal development, mentorship of graduate students, etc.); commitment to diversity statement (including broadening participation, integrating multicultural experiences in instruction and research and pedagogical techniques to meet the needs of diverse learning styles, etc.); sample journal articles or books online at <http://www.mathjobs.org/jobs>, including at least four letters of reference, one of which addresses the applicant's teaching. Questions or requests for further information should be sent to the Hiring Committee at mathhiring@uconn.edu.

Final Comments

We are currently welcoming any education news article, information on future education conferences, lecturing opportunities around the world, or publications on actuarial science. Should you have any such information, please do not hesitate to forward it to Karla Zuniga (karla.zuniga@actuaries.org) for consideration on future newsletters. We are looking forward to receiving your material.

If you know of any educators, or people interested in actuarial education, who would be interested in the network, please encourage them to join by filling out this online form (<http://www.actuaries.org/AEN/Membership.cfm>)

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