

YEATES SCHOOL OF GRADUATE STUDIES

REPORT TO SENATE, MAY 7, 2013

- 1. Program Changes: MBA Specialization in Mining Management (for information)***

- 2. New Programs: Professional Master's Diplomas (for approval)***

Motion:

“That Senate approve the Proposed Professional Master's Diplomas as approved by YSGS Council at its April 18, 2013 meeting.”

Submitted by:

A handwritten signature in blue ink, appearing to read "J Mactavish", with a large, sweeping underline that extends to the right.

Jennifer Mactavish, Dean

Chair, Yeates School of Graduate Studies Council

1. MBA SPECIALIZATION IN MINING MANAGEMENT:

The Yeates School of Graduate Studies submits the proposal for a proposal for a MBA Specialization in Mining Management for information.

SUMMARY OF CHANGES

TRSM proposes to establish a new specialization in Mining Management within the existing Global MBA. The specialization involves both in-class knowledge-based learning as well as outside classroom experiential learning. Although part of an existing MBA degree program where the majority of the courses are based on the management foundation courses of that program, the specialization is prepared to respond to the industry's demand for business management skills with a mining sector focus. On that basis, the specialization curriculum has a strong focus on the application of the prior learning from these foundation courses to specific mining sector needs.

The specialization faculty team will be comprised of existing full-time TRSM faculty members supported by qualified adjunct instructors (the level of qualifications to be consistent with Association of Accredited Colleges and Schools of Business "AACSB" accreditation standards) to administer and teach the specialization courses. Our full-time and adjunct instructors will have a strong combination of graduate level academic knowledge in a related field, as well as rich private and public sector experience.

2. PROFESSIONAL MASTER'S DIPLOMAS.

Motion

That Senate approve the *Proposed Professional Master's Diplomas* as approved by YSGS Council at its April 18, 2013 meeting.

Proposal for Professional Master's Diploma in Aerospace Design Management

Submitted by:

Dr. Mohamed Lachemi, Dean, Faculty of Engineering and Architectural Science

Dr. Paul Walsh

EXECUTIVE SUMMARY

Introduction

The Professional Master's Diploma in Aerospace Design Management is intended to provide knowledge of aircraft certification as demanded by Transport Canada and the American FAA (Federal Aviation Administration). Both of these organizations working in conjunction are responsible for the certification of every aircraft legally entitled to fly in North America. Aircraft manufacturers and their suppliers must possess a detailed knowledge of processes and regulations pertaining to certification and how these requirements will impact the design of an aircraft.

The proposed certificate is intended to meet the needs of engineering professionals with several years' work experience in aircraft manufacturing environment or aerospace component manufacturing facility. Engineers working in the aerospace industry will find such a professional master's diploma program immediately useful in that repeated referral to lengthy certification documentation may no longer be required or may be less labour intensive. Courses that provide this type of background are being offered by industry leaders such as Bombardier Aerospace to their employees. However, they are finding that it is not cost effective to do so and are exploring the possibility of discontinuing doing so. The proposed diploma program in Aerospace Design Management would offer this training to any individual with an engineering background. In addition, diploma graduates will find that their new knowledge and perspective can facilitate communication between senior management and the engineers that implement manufacturing practices.

Societal Need

The societal need for this diploma arises in part from these identified needs for aircraft manufacturers and their suppliers to conform to strict government guidelines on manufacturing, design, and materials of commercial aircraft in order to ensure passenger safety. Failure to observe the certification guidelines set down by Transport Canada and the FAA can result in de-certification and grounding of an aircraft.

Curriculum Structure

The program consists of four mandatory courses and a design project. Once the program is up and running with all courses fully developed, the first two courses can be taken concurrently in the Fall semester while the third and fourth can be taken in the winter along with the project.

Ideal participants will have an undergraduate engineering degree (in aerospace engineering, mechanical engineering or electrical engineering). Good communications skills are also highly desirable.

Fall Semester
Aircraft Design for Certification
Airworthiness
Winter Semester
Manufacturing for Airworthiness and Certification
Engineering Management (AER 818) OR Advanced Aerospace Manufacturing (AE 8141)
Project

It is anticipated that first three courses will be developed from existing industry program requirements for professionals in an aerospace manufacturing environment. These courses will be developed in alignment with Ryerson academic rigor and industry currency.

Curriculum Rationale

The need for this diploma arises from the need for aircraft manufacturers and their suppliers to conform to strict guidelines on manufacturing, design, and materials of commercial aircraft. Failure to observe the certification guidelines set down by Transport Canada and the FAA can result in de-certification and grounding of an aircraft. In February of 2013 the new Boeing 787 was grounded due to operational performance of its lithium-ion batteries, which were fundamental to the aircraft design. The subsequent losses experienced by airlines flying this new aircraft could be significant. The risk and safety-related costs to the public, of any grounding, is always of great concern. In truth, the curricula of this diploma are traditionally not taught in an applied manner in most undergraduate aerospace programs. Most especially, the competencies, knowledge and skills required in design, manufacturing and testing to have aircraft certified for flight are not central to undergraduate or graduate degree programs.

Graduates from the Professional Master's Diploma in Aerospace Design Management will be equipped to deal with the demands of certification. The program will provide knowledge of certification practices from audits by regulatory agencies to documentation requirements and to investigation procedures when issues arise. Graduates will be given additional knowledge on design and certification in addition to their own field of expertise, which will make them more valuable and flexible professionals. Since the commercial aircraft manufacturing sector is the most heavily regulated and scrutinized, any professional with advanced knowledge of design for certification will be an asset.

Admissions Policy

Participants must hold:

- A 4-year university undergraduate Bachelor's degree (or equivalent from an international institution of higher education).
- The admission grade point average (GPA) will be set at 3.0.

Proposal for Professional Master's Diploma in Dietetics

Submitted by:

Dr. Usha George, Dean, Faculty of Community Services

Dr. Judy Paisley, Director, Graduate Program, School of Nutrition

Dr. Cecilia Rocha, Director, School of Nutrition

EXECUTIVE SUMMARY

Background

As regulated health professionals, dietitians are highly trained experts in nutrition and food who provide services to support Canadians' health. To become a dietitian in Ontario, one must complete an accredited undergraduate degree, a post-graduation internship/practicum, and pass a registration exam administered by the College of Dietitians of Ontario. A recent survey reported that 50% of existing dietitians intend to retire within the next eight years. The number of Canadians over age 65 years increased by 57% in the past 20 years; Statistics Canada predicts that this trend will increase as baby boomers age. More dietitians will be required to meet the nutritional care and food service management needs of our aging population.

Across Canada, an ongoing shortage of post-graduation internship positions poses a barrier to those who wish to become dietitians. In 2011, Dietitians of Canada estimated that there were 2.5 qualified applicants for every available internship position. As of 2013, there were fewer positions available and the number of applicants vying for those positions increased. In our 2012 Periodic Program Review Student Satisfaction survey our BASc students' greatest concern was the lack of post-graduation internship positions. The PMD Dietetics will help address this concern. Our immediate goal is to help satisfy the demand for post-graduation internships that enables graduates of accredited undergraduate programs, such as our own BASc, to become dietitians. The PMD Dietetics is targeted to graduates of Dietitians of Canada accredited undergraduate nutrition programs who wish to complete the post-graduation practical training required to qualify to write the registration examination and become dietitians.

Goals

We propose to create a type 3 stand-alone Professional Master's Diploma (PMD) in Dietetics based in the School of Nutrition. Our School's excellent reputation as a leader in the undergraduate education of future dietitians is based, in part, on our ability to merge theory and practice through experiential learning. This program will draw on faculty members in the School of Nutrition who have the academic backgrounds and expertise to provide the leadership and guidance needed for program success, five of whom are registered dietitians.

The PMD in Dietetics will:

1. Provide graduates with high-quality education and practical experiences to prepare them for success in entry-level dietetic practice.
2. Enable graduates to qualify to write the Canadian Dietetic Registration Exam.

3. Implement the Integrated Competencies for Dietetic Practice and Education (ICDEP) through course- and internship –based experiences and support students in achieving entry-level competency as defined by the ICDEP.
4. Engage students, external partners, and the School of Nutrition in ongoing evaluation and quality improvement activities.
5. Engage the University and external partners in collaborations that provide a student-centred model of dietetic practical education.

Curriculum

The PMD Dietetics will engage students in experiential learning in classroom and practice settings that will enable them to demonstrate their competence with respect to the Integrated Competencies for Dietetic Education and Practice (ICDEP). Successful completion of our PMD will qualify students to write the registration exam and become dietitians. As such, the curriculum will be developed to ensure that students have multiple opportunities in diverse settings to demonstrate their competence in each of the areas designated by the ICDEP: professional practice, communication and collaboration, nutrition care, management and administration, and health promotion. The detailed ICDEP framework identifies practice competencies for the entry-level dietitian, performance indicators, and enabling learning outcomes. Competence will be achieved in a progressive manner as students engage in observation, simulation, guided activities, and supervised practice.

The four course PMD Dietetics program will use the alternate two 6-week/term structure for semester one with the Professional Practice course (NC8300) starting in September followed by the Internship Unit 1 course in mid-October. Semesters two and three will use the traditional 12-week semester structure for Internship Units 2 and 3 respectively. Each internship unit course will use a pass/fail grading structure. Students must pass each unit to progress to the next.

Evaluation

In 2013, a standardized process for competence assessment with respect to the ICDEP will be adopted by all accredited internship programs in Ontario. This protocol includes formative and summative assessments of learners' achievements, definitions of levels of competence, standardized competency documentation, training, and assessment tools.

Resources

The PMD Dietetics will operate in synergy with the accredited practicum option of the MHSc program in Nutrition Communication, in that the internship rotations in both programs will be created by drawing on existing and new partnerships with external agencies. The vital internship coordination function will be provided by a soon-to-be filled OPSEU staff position.

Partnerships

This PMD is a means through which Ryerson's School of Nutrition can provide leadership that may help address the crisis in dietetic training in Ontario. We believe that we can construct a PMD that will serve as a model of collaboration between Ryerson and community-based

partners. In part, the severe shortage of practicum positions in Canada reflects the tremendous financial pressure that hospitals and public health units have experienced in recent years. In 2013, dietetic internship programs in Kingston and Whitehorse were closed due to budget constraints. The preceptorship capacity that supported these internship experiences still exists but the administrative support needed to operate these programs is no longer funded. We believe that the PMD Dietetics can offer a partial solution to this problem, in that it may provide a platform through which future dietitians can benefit from being university students (e.g., WSIB coverage, OSAP eligibility, professional liability insurance, health insurance, access to academic resources, etc.) while being engaged in practicum rotations with external partners who have invested years to construct outstanding practical training opportunities. With the time consuming administrative functions (e.g., recruitment, admissions, internship coordination, competency-attainment documentation, etc.) provided by the University, the burden carried by external practicum preceptors may be reduced. Our PMD Dietetics may be a vehicle for collaboration with external agencies that recognizes and preserves their unique identities and strengths. Ideally, the PMD Dietetics will offer students the best of both worlds.

This proposal represents the fundamentals of a PMD in Dietetics which we hope to implement through existing and future partnerships with external agencies. Each such partnership will be defined by a unique Memorandum of Understanding, but the pedagogical basis will be the same, as defined by the Integrated Competencies for Dietetic Education and Practice.

Admissions

Requirements for admission to the PMD Dietetics include: a four-year Bachelor of Applied Science (BASc) or Bachelor of Science (BSc) degree in Nutrition and Food from a Dietitians of Canada accredited undergraduate program with a minimum B average (3.0/4.33) in the last two years of study (20 courses) and minimum of B (or equivalent) final grade in the following courses (or equivalents): intermediate or senior level research methods, public health policy, interpersonal/professional communications, senior nutritional management of disease, and physiology.

We anticipate that we can accommodate 10 to 15 students in the initial offering of the PMD Dietetics. Identification of additional external partners with whom to collaborate in offering the PMD Dietetics will enable us to increase enrolment targets.

The Professional Masters Diploma in Dietetics presents a unique opportunity for Ryerson's School of Nutrition to provide leadership in the evolution of practical dietetic training in Canada by drawing on our expertise in experiential learning through innovative partnerships with external agencies. We anticipate that this diploma will be highly sought after and we are committed to ensuring that it is an outstanding experiential learning experience for students.

Proposal for Professional Master's Diploma in Enterprise Information Security, Privacy and Data Protection

Submitted by:

Dr. Imogen Coe, Dean, Faculty of Science

Dr. Alex Ferworn

Mr. Jerrard Gaertner, CPA, CA•CISA/IT, CISSP, CGEIT, CIPP/IT, CIA, CFI, I.S.P., ITCP

EXECUTIVE SUMMARY

Introduction

The Professional Master's Diploma in Enterprise Information Security, Privacy and Data Protection is intended to provide participants with the knowledge and skill required to function competently as enterprise information security, privacy and data protection officers, administrators, technicians, analysts. Those wishing to seek external certification in security or privacy should be well advanced along these respective paths, as well. In addition to providing diverse, meaningful and lucrative career options to participants, the diploma program addresses recognized and pressing needs within the public and private sector, for individuals qualified in these areas to assume a variety of operational, administrative and managerial roles. Representative job titles might include security administrator, privacy officer, data librarian, security auditor, CISO (Chief Information Security Officer), privacy impact assessor and manager of technical risk.

Societal Need

If the maximum social benefit is to be obtained from enterprise information technology and its entire concomitant features, then users must have a credibly-based, yet unshakeable belief in the integrity, authenticity, accuracy and completeness of processed information. The rise of computer-based industrial espionage, exponentially increasing malware, and targeted computer attacks for purposes of extortion or cyber warfare make this unlikely. As a consequence, the past two decades have seen a tremendous growth in the fields of information security and data privacy/protection. Literally tens of thousands of individuals have been "certified" globally by organizations mandated by statute or otherwise recognized and credible, in the technical and administrative skills required to identify, evaluate, protect, remediate and investigate security and privacy. However, only a small subset of these professionals has also been trained in the management, integration and organization/delivery of these services within the enterprise.

Enter the enterprise information security management specialist – well trained, mature, multi-disciplinary in approach and versed not only in technicalities, but in business processes, legal matters, law enforcement and even psychology. Add privacy skills and data protection expertise and this well rounded professional becomes a critical component not only in addressing the problems of security and privacy, but in re-establishing the broadly based trust which ultimately fuels so much of the internet and e- commerce.

Curriculum Structure

The program consists of four (4) mandatory courses, the first of which is an intensive technical foundations course, titled *Technical Foundation for Managers – Security, Privacy, Operations and Controls*. The second course, *Security and Privacy management Fundamentals*, addresses the organization, delivery and management of enterprise security and privacy functions; course three, *Advanced Topics – Law, Compliance, Audit & Certification, Computer Crime*, presents legal, compliance, regulatory and criminal investigation topics; course four, *Best Practices – Managing for Maximum Benefit and Effectiveness*, is a compendium of best practices and advanced topics, with the possibility of a semester-long real-world project. Because of the anticipated workload and progressive nature of the courses, participants will normally take only one course per semester. However, courses #2 and #3 may be taken concurrently should participants so desire.

Curriculum Rationale

The need for this diploma arises from society's increasing reliance on information technology and resultant vulnerability to its disruption, the exponential growth of electronically stored and processed information/data, the metastasis of simple hacking into cyber extortion, organized cybercrime and cyber warfare, the increasingly complex legal and regulatory regimes surrounding privacy and data protection, and the realisation by corporations that the costs of failing to adequately enforce security and protect data can be catastrophic. Areas which had previously been technically complex but not core to business functions are now recognized as being integral to the enterprises' strategy and operations – and there is an acute shortage of those capable of filling intermediary and interdisciplinary roles related to information security, privacy and data protection.

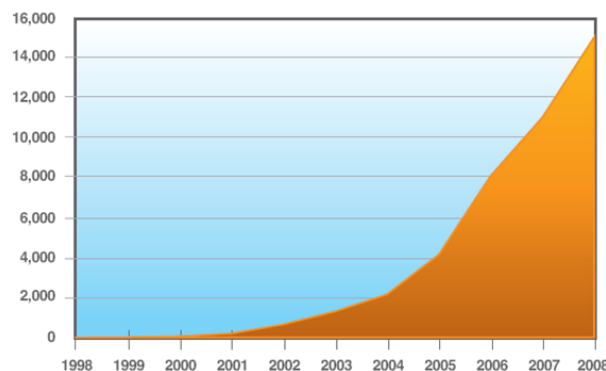


Figure 1 Cumulative Count of Web Application Vulnerabilities, 1998 – 2008¹

The failure to understand the estimates of the numbers of enterprise information attacks or how to cope with any of the issues that may arise concerning enterprise information systems and

¹ IBM Internet Security Systems X-Force® 2008 Trend & Risk Report accessed 26 Oct 2011 at <http://www-935.ibm.com/services/us/iss/xforce/trendreports/xforce-2008-annual-report.pdf>

security can cost companies and governments millions of dollars and make them vulnerable to litigation.

Graduates from the Professional Master's Diploma in Enterprise Information Security, Privacy and Data Protection will be in a strong position to effectively operate with, administer, oversee, manage, evaluate and staff these functions. In addition, they will be well positioned to ensure that the functions are properly aligned and integrated within the greater corporate governance structure and that synergies are realized, where possible. With a broad, encompassing understanding of the underlying technologies, technical risks and limitations, as well as the legal, social and compliance environments, graduates will find that their new knowledge and perspective can facilitate communication between senior management and IT staff, provide new opportunities for leadership and championship within their organizations and enable them to articulate budgetary, training and staff needs in security, privacy and data protection in a professional and highly articulate fashion.

Admissions Policy

Participants must hold:

- A 4-year university undergraduate Bachelor's degree (or equivalent from an international institution of higher education).
- The admission grade point average (GPA) will be set at 3.0.

Ideal participants will have an undergraduate or college/business school degree, a minimum of 3 years of work experience and a good familiarity with information technology. Maturity and good communications skills are also highly desirable.

Proposal for Professional Master's Diploma in Geomatics Engineering

Submitted by:

Dr. Mohamed Lachemi, Dean, Faculty of Engineering and Architectural Science

Dr. Ahmed El-Rabbany

EXECUTIVE SUMMARY

Introduction

The objective of the program is to offer quality geomatics education leading to a Professional Master's Diploma (PMD) in geomatics engineering. The PMD in geomatics engineering is intended to provide core geomatics such as geodesy, geospatial information science, photogrammetry and digital mapping, remote sensing, satellite positioning, and estimation and data modeling.

According to the definition of Geomatics Canada, geomatics is the science and technology of gathering, analyzing, interpreting, distributing and using geospatial information. Geomatics engineering encompasses a broad range of disciplines that can be brought together to create a detailed but understandable picture of the physical world and our place in it. Geomatics engineering integrates general engineering principles with geomatics science and technology to design, develop, test and implement hardware and software tools as well as databases necessary to create and manage spatial data infrastructure at global, national and local levels.

The Geomatics Engineering professional master's diploma program at Ryerson, built on the basis of existing geomatics engineering curricula within the Civil Engineering Program, is designed to meet the rapidly growing needs of the next-generation geomatics professionals with a sound education. A major advantage of the geomatics engineering master's diploma is that the university can promote as postgraduate professional education, which helps in recruiting graduates from any relevant four-year degree undergraduate program. Applicants to the master's diploma may come from any relevant academic discipline and previous experience in the field is not required.

The overall intention of the proposed professional master's diploma program is to provide high-quality geomatics engineering education that enables the graduands to apply to professional societies such as the Association of Ontario Land Surveyors (AOLS) and the Association of Canada Lands Surveyors (ACLS) for licensure. More specifically, the professional master's diploma program's mission is to provide innovative curriculum design components that address some of the gaps present in the geomatics profession. The long-term vision is to stimulate the master's diploma program as a leader in central Canada for educating geomatics engineers and as a leader in Canada for unique, more relevant applied education in geomatics.

Societal Need

Geomatics engineering has generated essential tools for everyday life as we see the general public routinely using products such as Mapquest, Google Earth and various vehicle navigation systems. As a rapidly evolving technology sector, geomatics engineering is one of the fastest-growing technology sectors since the 1990s and Canada is at its forefront. Canada's geomatics

engineering community is a recognized world leader in providing the software, hardware and value-added services that can help clients address problems and opportunities in a wide spectrum of application areas such as: transportation, land management, development planning, infrastructure management, natural resource monitoring, sustainable development, and mapping. Furthermore, the geomatics engineering industry and “business” is highly competitive in Canada and abroad. In 2004 in Canada, there were about 23,199 geomatics employees across the country and about 79% of these employees are under the North American Industry Classification System (NAICS) classification of ‘Surveying and Mapping’ NAICS 54136 and ‘Geophysical Surveying and Mapping’ NAICS 54137. The Geomatics sector generated industry revenue of \$2.8 billion in 2004 in Canada, with total Geomatics exports of \$442 million.

Curriculum Structure

The program consists of six mandatory courses. Once the program is up and running with all courses fully developed, the first three courses can be taken concurrently in the Fall semester while the remaining three courses can be taken in the Winter semester. The structure of the program is presented in the table below.

Fall Semester
<ol style="list-style-type: none"> 1) Data Modelling and Estimation, 2) Geodesy and Satellite Positioning, 3) Geospatial Information Systems
Winter Semester
<ol style="list-style-type: none"> 4) Photogrammetry and Digital Mapping, 5) Remote Sensing and Image Analysis, 6) Geomatics Network Design and Analysis

All six required proposed courses to be delivered in this master’s diploma program will be evaluated at the graduate level. Implementation of the program is anticipated for Fall 2014 delivery.

Curriculum Rationale

With the high demand for geomatics graduates and the extremely healthy geomatics job market, a number of university graduates from other disciplines change their careers to the geomatics field. To do so, they may enrol in a geomatics program at a community college for two years and obtain a degree as a geomatics technician. Alternatively, they take courses at universities offering the geomatics program (either full or optional) as special students, which can take several years to complete. The ultimate goal of those graduates is to obtain a professional license from, for example, the Association of Ontario Land Surveyors (AOLS) and the Association of Canada Lands Surveyors (ACLS). Similarly, internationally-educated geomatics engineers and professionals follow the same paths to a large extent. Ryerson University has

been receiving special students in geomatics for many years, although York University has also been attracting those students in recent years. The proposed PMD program offers an opportunity to those students to complete most of the academic license requirements in only 8 months, and perhaps the full academic requirements in only one year. As such, it is expected that the program will attract a large number of applicants and will generate revenue to the Department of Civil Engineering and Ryerson University.

Admissions Policy

Participants must hold:

- A 4-year university undergraduate Bachelor's degree (or equivalent from an international institution of higher education).
- The admission grade point average (GPA) will be set at 3.0.

Ideal participants will have an undergraduate degree in any relevant academic field. Good communications skills are also highly desirable.

Proposal for Professional Master's Diploma in International Disaster Studies²

Submitted by:

Dr. Imogen Coe, Dean, Faculty of Science

Dr. Alex Ferworn

EXECUTIVE SUMMARY

Introduction

A hazard is any biological, chemical, mechanical, environmental or physical agent or actor that is reasonably likely to cause harm or damage to humans, other organisms, or the environment in the absence of its control. Hazards are either naturally occurring (e.g., earthquakes, floods) or human-made (e.g., liquified petroleum gas fires, fertilizer factory explosions). Risk, essentially, is the probability that a hazard will result in an unfavorable outcome called an “event” or “incidence”.

When events overwhelm the resources of a society to respond, when vulnerability and hazards interact to replace risk with certainty, we are faced with disaster. Disasters require extra-societal intervention--if intervention is even possible—and they are anything but routine. Disasters cause substantial physical damage or destruction, loss of life, or drastic changes to an environment in a relatively short period of time and threaten the very fabric of a society³. While there is considerable debate about the relative frequency of disaster events, their cost is always high and rising.

Disasters in Japan (2011)⁴, Pakistan (2012)⁵, Canada (2012)⁶, and the United States (2012)⁷ are stark reminders that events can occur which test our ability to cooperate, understand, and respond in ways that make sense and benefit societies in general.

The need for a sound understanding of all aspects of disasters in our world grows as our population and the risk from vulnerability to hazards increase and their costs continue an unrestrained growth. Consequently, the need for effective disaster education also grows. The proposed program is intended to contribute to the education of those who would protect our society from calamity by studying disaster itself.

² In the rest of this document, the subject diploma will be referred to as simply “the diploma”.

³ The January 2010 Haitian Earthquake disaster is estimated to have killed 200,000 people in a very small geographical area. This is like every resident of Barrie, Ontario (population 190400 in 2009) suddenly dying

⁴ 2011 Tōhoku earthquake and tsunami, see http://en.wikipedia.org/wiki/2011_T%C5%8Dhoku_earthquake_and_tsunami

⁵ 2012 Siachen Glacier avalanche, see http://en.wikipedia.org/wiki/2012_Siachen_Glacier_avalanche

⁶ 2012 Elliot Lake mall collapse, see <http://www.cbc.ca/news/canada/story/2012/06/27/elliott-lake-mall-search-found.html>

⁷ 2012 Hurricane Sandy, see <http://www.torontosun.com/2012/11/03/us-disaster-relief-in-a-race-against-cold-snap>

The focus of the proposed diploma program is to deliver pertinent, timely and effective education in the areas of international disaster studies including a volunteer placement where theory may be used in practice. Obtaining this diploma may be accomplished in a flexible manner, taking into account the diverse interests of participants who need alternative forms of program delivery, including both on-line and in-class options. When the curriculum is finalized, the program will provide professionals with mid- and high-level responder and management responsibilities the opportunity to complete graduate course assignments that closely address their needs and interests.

Curriculum Structure

This diploma requires the completion of four (4) graduate courses and one (1) (inter)national volunteer placement. The volunteer placement semester will be available to students who have completed all other graduate course requirements for the diploma. A risk assessment must be completed six months prior to a proposed placement. The suggested sequence of the courses is provided in the table below.

Semester	Course
1	<ul style="list-style-type: none"> • Understanding Disasters • Research Methods for Disaster Studies
2	<ul style="list-style-type: none"> • Vulnerability and Risk in the International Context • Science and Technology for Risk Reduction
3	<ul style="list-style-type: none"> • (Inter)national Placement

The courses are all new graduate courses. The Academic Home for these courses and the (Inter)national Volunteer Placement will be the Department of Computer Science (CS) in the Faculty of Science (FoS). The affinity programs will be the Masters and Doctoral programs in Computer Science.

Admissions Policy

Participants must hold:

- A 4-year university undergraduate Bachelor's degree (or equivalent from an international institution of higher education).
- The admission grade point average (GPA) will be set at 3.0.

Societal Need

Given the increasing number, complexity, areas of impact and novelty of disasters around the world, caused by natural, accidental, deliberate, unintended and chaotic means, it is rather surprising that more timely and effective education in disaster studies is not available in Canada. This proposed diploma program addresses this need directly.

The creation of this diploma program is a response to the glaring need for graduate education in this field. With growing peril comes the need for professionals that are aware of vulnerability to hazards that have a risk of causing a disaster and can work to minimize the risk and mitigate the effects of a disaster.