Yeates SCHOOL OF GRADUATE STUDIES

MASTERS IN DIGITAL MEDIA

VOL I - PROPOSAL BRIEF

September 25, 2012

RYERSON UNIVERSITY

Table of Contents	Page #

1. Overview

1.1. Introduction

The digital economy is rapidly changing our society. Globally, the Information and Communication Technologies (ICTs) industry grew 3-4% in 2010 and the trend is expected to continue. Exceptional growth is projected for such areas as cloud computing, green Information and Communication Technologies, and "smart" applications. Trends in ICT and broadband uptake are clearly stimulating the development of digital content. OECD statistics show that most areas of digital content are growing at "double-digit rates."[1]

Digital media is a growth industry. The Canadian entertainment software industry alone is growing annually at a rate of 29% and is ranked third in the world. Video game development, while employing 14,000 Canadians in highly skilled jobs, also drives Canadian innovation in science, research, and technology.[2] Digital media sectors offer Canadians new and well-paid jobs in programming, game design, mobile applications, special effects, 3-D animation, sound design, computer graphics, and many other fields.

Digital media, most broadly defined as the digital production of multimedia content and tools, has a large compass. Many traditional sectors – in art, education, science, health, engineering, and design – now collaborate using these emerging digital media technologies. R&D in digital media is notably convergent. Besides the rapidly growing digital entertainment sector, which includes video games, digital film and animation and special FX, non-gaming examples include medical visualization, archive development, social networking, online advertising, and virtual environments and simulations for education and training. Digital media professionals are in great demand, and many digital media companies show robust health, at a time when manufacturing industries falter.

The digital economy is vital to Canada's future. Last year, the Canadian government launched a national consultation to develop a digital economy strategy. Digital media – a key driver of innovation – has a prominent role in Canada, where economic growth is largely advanced by small and medium enterprises (SMEs),[3] where over 11% of Canadians recently indicated a desire to start their own business, and where active ventures have doubled in the last year.[4]

---

[1] OECD *Information Technology Outlook (Highlights) 2010,* http://www.oecd.org/dataoecd/60/21/46444955.pdf

[2] "Game On, Canada! Playing to win in the digital economy," prepared by the Entertainment Software Association of Canada (ESAC), April 2010.

[3] "The success of SMEs affects the well-being of the Canadian economy and society as engines of job creation, economic growth and innovation. SMEs account for 45% of GDP, much of the economy's growth, 60% of all jobs in the economy, and 75% of net employment growth." Public Works and Government Services Canada website: www.tpsgc-pwgsc.gc.ca/app-acq/pme-sme/importance-eng.html, accessed February 20, 2011.

[4] *Canadian Entrepreneurship Status 2010*, prepared by the Fondation de l'entrepreneurship for the Business Development Bank of Canada, http://www.bdc.ca/Resources%20Manager/misc/CES_2010_EN%20Final.pdf, accessed February 20, 2011.

Ryerson University is located in downtown Toronto – a city that has been named a "hotbed" of digital media for its cluster of development companies.[5] Ryerson has core strengths in applied technology, interdisciplinary research, and industry partnerships. We are committed, by a long-standing mandate, to helping our students take the lead in emerging job and innovation sectors. That is why three core faculties at Ryerson are proposing a masters degree program in Digital Media. The Masters in Digital Media will strengthen Ryerson's position as an educator in key areas of societal need, as a research hub, and as a nexus of industry collaboration. The proposed program will be offered as a professional Master's degree in a full cost recovery mode.

1.2.   Master's Degree in Digital Media (MDM) at Ryerson

The proposed Master's degree in digital media is an intensive, project-focused program that offers a degree in twelve months for a premium fee.

Courses will bring together three strands of art/design, technology, and entrepreneurship/business into a program of applied learning in the digital media sector. Four faculties at Ryerson – the Faculty of Communication and Design (FCAD), the Faculty of Engineering and Architectural Science (FEAS), the Faculty of Science (FOS), and the Ted Rogers School of Management (TRSM) – will work together to ensure coverage of all three areas. The program itself will be based in Ryerson's Yeates School of Graduate Studies.

Digital media is inherently innovative as it brings diverse fields of knowledge and expertise together to create new products and services, and to add value to current industries. The proposed MDM reflects the reality of industry practice. An Advisory Board will be developed to ensure a flow of dialogue between the Ryerson MDM, the venture capital community, and a variety of contributing industries such as film, television and publishing media, video games, advertising, design, and engineering. *Interactive Ontario*, the digital media trade organization, will hold a seat on the Board and will bring a very wide network and a membership of over 300 businesses. The Advisory Board will ensure that the MDM course content meets the needs of industry. Furthermore, Board members may serve as instructors who, as adjunct faculty appointments, can offer first-hand, practical, and current industry experience.

The structure of the proposed MDM program reflects industry norms in its focus on team based collaboration, agile project management, and hands-on development. Highly skilled and experienced Ryerson and adjunct faculty will be engaged to teach in hot-topic areas such as video game design and high end animation. Students will make

---

[5] March 2011 report on Toronto as Canada's high-tech hub (City of Toronto): www.toronto.ca/business_publications/pdf/ICT-Report_March2011.pdf, accessed April 7, 2011.

strong links with industry. They also will be given the option of taking their own ideas from concept to product or service launch in a supportive, mentor rich environment.

The Ryerson MDM recognizes that the ability to work with, and integrate all three strands – art/design, technology, and entrepreneurship/business – is the hallmark of the digital media professional. Students in the MDM program will gain exposure to each strand over the course of the year. To this end, Ryerson's MDM program will be a very unique offering. While Ryerson already has the means to prepare students for the digital economy, the MDM program will provide a new and more focused structure.

1.3.   Goals of the Ryerson MDM

➢ Digital media and related industries are of ever increasing importance to Canada – especially to the SMEs that drive our country's economic growth. The Ryerson MDM will supply talent both to existing SMEs in Ontario and to larger companies in digital media sectors.

➢ The MDM will both generate and support start up companies in which digital media play a major role.

➢ Existing companies are in great need of people with a broad background in digital media and team building skills. The MDM will help students become highly qualified personnel, team leaders, and managers in a field that demands diverse skills and experiences. Sectors include gaming, entertainment, health care, education, environment, business and marketing.

➢ A close relationship between the MDM and Ryerson's Digital Media Zone (DMZ at http://digitalmediazone.ryerson.ca/) will give added support and a venue to student entrepreneurs in the digital media field.

➢ The MDM will foster research partnerships and interdisciplinary projects among faculties.

➢ The MDM will increase Ryerson's role as a nexus of academic/industry partnerships.

1.4.   Four Faculties and the Digital Media Zone (DMZ)

Faculty members from four of Ryerson's six faculties – the Faculty of Communication and Design (FCAD), the Faculty of Engineering and Architectural Science (FEAS), the Faculty of Science (FOS) and the Ted Rogers School of Management (TRSM) – have collaborated to design an MDM program that represents vital areas of digital media: user experience/design, technology, media arts, and business/management. While other digital media programs in Ontario and North America can claim an interdisciplinary approach, few (if any) can support the depth and breadth of the combination here proposed. The MDM program will be run by a leading school of business, a practice-

based centre of art and design research, and a faculty that has strong, existing links with technology-based industries and a reputation for applied development.

TRSM is Canada's largest undergraduate management school. Entrepreneurship is a major TRSM focus. Ryerson's undergraduate program in Business Technology Management and the Management of Technology and Innovation, all housed at the TRSM, are unique in Canada. The MDM curriculum is built upon a close relationship with the technology-focused MBA degrees.

FCAD is the site of many disciplines that embrace digital media and design. FCAD has eight graduate programs and three privately endowed research chairs. FCAD also houses the **Rogers Communication Centre** (RCC) – Ryerson's "flagship" for studies in communications and interactive media. The RCC is Canada's leading facility for digital media education, and draws on the expertise of seven schools in FCAD as well as the G. Raymond Chang School of Continuing Education (The Chang School).

FEAS has 8 graduate programs and 6 federally funded research chairs. Faculty in the FEAS are renowned for their drive to focus research on industry challenges. Research gets translated quickly into a product or service, in a climate that welcomes partnership and collaboration. The FEAS-based Centre for Urban Energy, for example, is committed to the discovery and commercialization of innovative, practical solutions to urban energy issues. FEAS sees digital media as a significant opportunity to meet challenges of this nature.

FOS is Ryerson's newest Faculty, established officially on July 1, 2012. It is home to many academic/industry collaborations, such as the Ubiquitous Computing Group whose work in context aware devices is globally ground breaking. FOS has a long history of outstanding, nationally and internationally recognized research and is home to 2 Government of Canada Research Chairs. FOS researchers are actively engaged in exploratory activities with local community partners in Toronto and with many organizations and institutions beyond the city.

FCAD, FEAS, FOS and TRSM together offer unique coverage and depth. The MDM program will contribute to existing and new synergies.

DMZ

Ryerson's DMZ is built on a unique model designed to respond to the needs of the market. Here, student innovation, energy, and entrepreneurship combine with research strengths across the university to create real solutions for industry challenges as well as commercialized products. Students are supported in digital innovation, entrepreneurship, and the creation of business plans to develop innovative ideas and companies that are judged to have commercial or social value.

The DMZ is the ideal environment to support MDM/SME/industry collaborations. Since it opened its doors in 2010, student and alumni-owned companies such as Flybits,

TeamSave, Burstn, and Phosphorus Media have launched successfully and raised the public image of Ryerson as a centre for digital media studies, research, and entrepreneurship.

TeamSave, a founding DMZ company and the first graduate of the DMZ, is a leading success story. In twelve short months, this start-up expanded from Toronto to twelve different cities in Canada and the United States, increased its staff by 700%, and partnered with Canada's largest classified site Kijiji to offer a white label (i.e., unbranded) version of the TeamSave platform: Kijiji Daily Deals (KijijiDeals.ca). TeamSave was founded by two Ryerson alumni, Chris Nguyen and Lee Liu, and now employs 38 people.

The DMZ enables Ryerson to create synergies among student entrepreneurs and propel Canadian SMEs into the global marketplace.[6] Young entrepreneurs receive an unequalled range of support in the form of equipment, mentoring, and exposure to industry, and share a development space with other innovators who are passionate about launching new ideas. From April 2010 to April 2011, the DMZ incubated and accelerated 24 companies and initiated more than 49 projects, while fostering 187 jobs. Over 113 innovators in 28 teams have used the DMZ; four companies have since outgrown the space and leased their own.

The DMZ has a major role to play in the MDM program as an incubator for the entrepreneurial focus stream described below, and as a source of applicants.

Ryerson's current role as a digital media centre is highlighted in sections 5 and 6.4 respectively.

1.5. Graduate student profile

The Ryerson MDM graduate, while demonstrating expertise in one area, will be able to work effectively with all three strands—art/design, technology, and entrepreneurship/business—and speak the language of each. Additionally, graduates will become:

- multidisciplinary
- team focused and collaborative
- industry facing
- highly qualified personnel able to prototype and innovate

---

[6] 98% of Canadian businesses hire fewer than 100 employees, and thus come under the Industry Canada heading of "small business." Small firms account for 37% of jobs created in Canada between 1999-2009, and are responsible for about 21% of Canada's total value of exports. *Key Small Business Statistics (July 2010)*, published by Industry Canada, www.ic.gc.ca, accessed April 7, 2011.

- passionate, confident and disciplined

- able to leverage their real-world experience

Those who follow the entrepreneurial stream of the program will be able to create a commercially viable product or service.

2. MDM curriculum

In the first semester, 5 core graduate level courses will introduce all students to their cohort and build a sense of team. The courses will cover: Foundations, Digital Media Environments, Interaction Design for Digital Media, Digital Media Entrepreneurship, and Interdisciplinary Improvisation, for a total of 5 core credits. (All courses are graduate-level).

Students will choose one of three project streams: Industrial Focus, Entrepreneurial Focus, or Art/Design Focus. This choice will determine options for electives and projects in the second and third semesters.

For the second and third semester, 2 elective credits are available. Students in the Art/Design Focus project stream choose two elective credits from a list of approved courses. Students in the Industrial Focus project stream choose two electives from the following: Business and Management in the Digital Media Industry, Directed Studies, Selected Topics in Digital Media, or a list of approved courses from outside the program. Students in the Entrepreneurial Focus stream must take Business and Management in the Digital Media Industry.

Finally, there are two project modules: Project 1 (Intensive Introduction to Project Management/Team Collaboration, 8 weeks) and Project 2 (a 6 month-long project with an Industrial Focus, Entrepreneurial Focus, or an Art/Design focus). Students will enrol in both Project 1 and Project 2 at the beginning of the second semester but will complete Project 1 prior to starting Project 2. Project 1 will be a 0.5 credit course and project 2 will be a 1.5 credit course.

TOTAL DEGREE CREDITS = 9

3. Courses

3.1. Core courses

Foundations of Digital Media

Business, technological, social, legal and ethical issues and the many forms of digital entertainment are introduced and framed. The emergence and ongoing development of the digital entertainment industry is discussed through a historical exploration and critical analysis of the economics, technical innovations, social demands and ethical constraints that define it. There is a focus on the range of careers and professional

opportunities in this rapidly expanding sector. Outcomes are exploration and a critical perspective on digital entertainment and other fields of digital media such as health, education, advertising, and social media. This exploration will act as a common basis for all subsequent discussion and collaboration between students with artistic, technical or interdisciplinary backgrounds. 3 hours/week, 1 Credit.

Digital Media Environments: Processes & Production

This production-oriented course provides an introduction to the landscape of digital media environments, the audiences they serve, and the platforms through which they are typically delivered. The course then introduces regulations and standards, interaction design and production skills, an exploration of the project development cycle, project management, project evaluation and user testing. Concept design of websites, computer games, and other networked, ambient screen-based and non-screen-based displays, and or mobile applications or appliances, including the general concept of "the internet of things", are explored through a series of brief, hands-on projects. 3 hours/week, 1 Credit.

Interaction Design for Digital Media

This course will introduce students to the fundamental frameworks for the design of popular digital media environments. Specifically, the course will analyze formative elements and strategies adopted in game design, social networking and interactive digital media systems, including interaction design with a variety of devices, platforms and media. Key components explored include user engagement, immersion, visual narrative, interactive storytelling, performance, user cognition and perception. Students will develop a solid understanding of how these environments work, inclusive of alternative design strategies, how users interact, and what is required to create such environments. Students will perform project work in small teams. 3 hours/week, 1 Credit.

Digital Media Entrepreneurship

This course will help students better understand digital media industry sectors, basic competitive strategies and business models, and the process of considering, planning for and gathering resources to launch an entrepreneurial start-up company in the digital media sector. Students will develop an understanding of activities involved in developing, producing and marketing digital media to consumers, components of a company's market and competitive strategic positioning and business model, elements of a viable business plan for a start up company, and how to communicate elements of the business plan to outside parties for support or for provisioning of resources. Students will perform project work in small teams. 3 hours/week, 1 Credit.

Interdisciplinary Innovation

Techniques of improvisational acting are used to develop collaborative and creative skills. Students learn to rapidly develop dramatic themes, narratives, and characters,

engage effectively with challenging situations and build dynamic teams in creative environments. Artists learn how to communicate their vision to engineers and business people, while engineers learn how to communicate technical constraints to artists and marketing moguls. Those with a business background learn how to communicate clearly the economic realities upon which digital media projects must be built. All students also learn how to make pitches, solve workplace issues, and resolve conflict that may occur on the job. 3 hours/week, 1 Credit.

Project 1: Intensive Introduction to Project Management and Team Collaboration

This eight-week long, intensive "boot camp" will introduce students to fundamental concepts and skills required to successfully manage projects in dynamic, agile, multidisciplinary team environments relevant to the digital media industry. Course work will be a mixture of classroom instruction and team projects. 0.5 Credits.

Project 2: Digital Media Project[7]

This 6 month long project will provide students with the team-based opportunity to focus on a major project over the course of one-and-a-half semesters. Students following the Industrial Focus stream will pursue industry relevant projects. Students following the Entrepreneurial Focus stream will work on a project that has the potential to become a commercial product or a service, and that could lead to the development of a stand-alone company. Those students following the Art/Design stream will work on projects with that particular focus. A written project document will also be a required outcome of this course. Prerequisite: Successful completion of Project 1. 1.5 Credits.

3.2.   Elective courses

Students pursuing the Entrepreneurial Focus Stream must select *Business and Management in the Digital Media Industry*. Students pursing the Industrial or Art/Design Focus Stream may choose to take any two of the internal program elective courses OR they may choose to take one of these and one external elective course from the list provided below.

3.2.1. Internal program elective courses

Business and Management in the Digital Media Industry

This course gives students an overview of the interrelated factors making up the business environment including ethics, operations, marketing, management, leadership, accounting, human resources, finances and information technology management. In addition, the student learns about past, present and future trends in business. The

---

[7] Project supervisors can be Ryerson faculty and industrial experts. Each supervising team requires one member of the Yeates School of Graduate Studies.

student develops decision-making and problem-solving skills through case studies, group exercises and presentations. Topics covered also include production, delivery and management of digital media and how games, film and music businesses differ from traditional businesses. 3 hours/week, 1 Credit.

Directed Studies

This course is available to graduate students who wish to gain knowledge in a specific area for which no graduate-level courses are available. The course is taken under the guidance of a faculty member, and students are required to present a formal report, or take a formal examination, at the end of the course. The program of study must be approved by the supervising faculty member and the program director at the beginning of the term of study. 1 Credit

Selected Topics in Digital Media

An in-depth analysis of recent developments and topics of current interest in Digital Media. The topic is selected every year in accordance with industry trends, the interest of students and availability of faculty expertise. The course will focus on strategic and novel topics and concepts in Digital Media which may include, but are not limited to: Ambient and Artificial Intelligence, Social Networking Analysis and Design, Social Media and its Frameworks, Advanced Concepts in 3D Graphics and Visual Effects, Multimedia Syndication and Segmentation and Unified Communications in Multimedia Systems, and Information Security and Privacy. 3 hours/week, 1 Credit.

3.2.2. External elective courses

Potential external electives are listed here.

Computer Science (CPS) Course Cluster: A student may choose *no more than one* of these CPS electives.

CPS630 (CSxxx): Ubiquitous and Cloud Computing

The course introduces the concepts around the participatory and the social Internet. Students will learn how to design platform agnostic applications for variety of connected devices including computers, mobile phone, sensors and information appliances. The course focuses on the concepts of cloud computing and students will learn high level programming skills in addition to architectural and conceptual design models that are used in the advancement of the internet. Lect: 3 hrs./Lab: 1 hr.

CPS 613 (CSxxy): Human-Computer Interaction

This course introduces the concepts of human-computer interaction and usability testing. Topics include: human information processing, usability principles, models of interaction, user interface paradigms, design of user interfaces. Students will also learn how to develop Graphical User Interfaces using a specific User Interface Management system. Lect: 3 hrs./Lab: 1 hr. (2 hr. Lab every other week).

CPS 621 (CSxxz): Introduction to Multimedia Systems

Multimedia data is becoming increasingly important in many scientific and commercial arenas. In this course, students will be introduced to principles and current technologies of multimedia system design. Topics include: multimedia data representation, processing multimedia visual information, video and audio compression, retrieval of multimedia data, such as text, graphics, colour images and video. In addition, issues related to multimedia hardware and software as well as specific applications will be discussed. Lect: 3 hrs./Lab: 1 hr.

CPS 511 **(CSxyx): Computer Graphics**

Software and hardware considerations in computer graphics. Mathematical manipulation of graphical objects; interactive graphics and the user interface; representation of 3-D shapes; fundamental implementation of algorithms. *Lect: 3 hrs./Lab: 1 hr*

MP8102 Media Production I

Lectures/seminars will include modules in aesthetic design, storytelling and communications, emerging technologies and media policy and economics. The elements that are essential for creative practitioners and/or business managers to develop innovative and excellent media material will be explored. In studio sessions, students will select from a series of hands-on media production sessions on a variety of audio, video and new media equipment and complete finished media modules under the supervision of faculty, media experts and technical staff. 1 Credit.

MP8103 Media Production II

This advanced seminar will present case studies from expert media practitioners on a variety of topics including sound, images, new script forms, documentary production, dramatic and comedic shows, pitching production ideas, funding, managing broadcast networks, performing, marketing media products, human resources issues, developing research projects etc. In studio sessions, students will select from a series of hands-on seminars on a variety of pieces of media equipment and research "next generation" technological solutions important to the delivery of their professional project. 1 Credit.

ENT726 Business Planning

The objective of this course is to have the student become familiar with preparing a professional business plan for a new venture. The preparation of the business plan will be built upon everything that has been learned to date and will require the synthesis of this learning. The course will provide the student with the opportunity to explore and investigate a business venture of interest and the preparation of a business plan will provide an opportunity to apply what has been learned in the business program. The student will also develop an appreciation for the requirements of a successful entrepreneurial venture. Antirequisites: BDC 913, ENT 500. 1 Credit.

FIN510 Entrepreneurial Finance

In Canada, the majority of new jobs are created by small, entrepreneurial firms. The financial issues confronting entrepreneurial firms are very different from those that face large established companies. The focus of this course will be on analyzing the unique financial issues that face entrepreneurial firms. Prerequisite: FIN401. 1 Credit

PC8005 The Virtual Organization

This course addresses the Internet's increasing impact as a dynamic platform of professional communication practices. Students will examine how a knowledge environment fused with social networking capabilities creates unprecedented opportunities, challenges and risks for the contemporary organization and its members. Drawing on case grounded theory and hands-on investigation, students will explore the organizational revolution implicit in present and emergent technological innovations and virtual networking trends in order to develop the strategic knowledge and critical practices necessary to communicate in the workplace of today while anticipating the workplace of tomorrow. 1 Credit.

MT8215 Finance and Technology Valuation

Students learn how to interpret financial information to inform managerial decisions within the organization. The course covers concepts related to technology valuation, building business cases, and examining R&D productivity. Particular attention will be focused on risk management, and the course will use current cases as a basis for discussion. Antirequisite MT8207. 1 Credit.

MT8314 Human Factors in Technology Design

User-centred theory and approaches to understanding and designing technologies will be introduced. Emphasis will be placed on the effective application of these approaches in a development and management of technology context to suit all users including those with disabilities. Students must apply the theoretical constructs to a practical design or development project. Antirequisite MT8209. 1 Credit.

MT8408 Advanced Media, Communication Technologies

This course surveys contemporary and emerging communication technologies such as Next Generation Network Technologies, Multimedia and Internet Systems and Services, Broadband Satellite Technologies, Wideband Wireless Communication Technology and Services, and Advanced Intelligent Network Technology and Services, and explores their applications implications for communication and cultural practices. The module encompasses theoretical and applied perspectives. 1 Credit.

MT8409 Legal/Policy Issues in Media Industry

Around the world, rapid changes in the media and communications industries are affecting the legal, regulatory, and policy frameworks within which these industries

operate. Business leaders need to understand how competition, ownership, content, contracts, privacy, intellectual property rights, liability, trade, and taxation issues affect their firms. This course provides an overview of these issues in Canada and internationally. Exclusion MT8420. 1 Credit.

MT8411 Media, Consumers and Markets

This course examines product and service innovation in media industries and investigates trends in consumption of media products and services. It introduces students to ways of understanding consumer behaviour with respect to media products and services. The course examines methods and models that treat consumers as customers, users, and audience members. 1 Credit.

MT8809 Venture Financing and Planning

This course is mainly a case study course and is designed for students who are interested in venture capital (VC) and private equity (PE) investments as well as for prospective entrepreneurs who have an interest in starting a new venture. This course explores the nature and mechanics venture capital and private equity and ways in which companies and prospective entrepreneurs can assess their options and develop business cases to attract needed financing. 1 Credit.

MT8810 Product Development and Commercialization

This module introduces students to entrepreneurial thinking, entrepreneurial processes and the steps in taking a great idea to market. Case studies will be used to demonstrate how entrepreneurs foster innovation within existing businesses and in developing successful new businesses. The principles of entrepreneurship will be outlined, and students will learn how to apply these principles to identify new opportunities, initiatives, and innovations and how to move these innovations to the market place. 1 Credit.

4. Admission requirements

Applicants must have completed a four-year undergraduate degree from an accredited university in North America, or an equivalent recognized degree from an accredited institution outside North America. *Applicants must have an overall average of 3.33 or equivalent* in the last two years of undergraduate studies.

Post secondary education in the areas of engineering, business, multimedia, science, media production, graphics, fine arts, art history, or design will be particularly useful. Previous digital media, programming, and production experiences are strongly recommended. Students admitted to the program without prior programming experience will be required to take a course in technology for non-programmers in addition to the curriculum requirements.

Applicants must demonstrate that they have the necessary background to pursue intensive work in a production oriented Digital Media program, and portfolio evaluation

will be a critical component of the admissions process. Applicants must submit official transcripts from all post-secondary institutions. Three reference letters are required, two of which must be academic letters from instructors at the post-secondary level. Program-specific background information such as a CV, Statement of Interest, and a portfolio of digital media work are also required. The portfolio may include but is not limited to video, film, animation, photography, prototype, design, programming code, business planning. The portfolio may be submitted in text, as a digital media product or a combination of both. Applicants from a business background should list projects they were involved with and must demonstrate a strong expertise in business. Interviews are also required. In cases where distance is prohibitive, the interview may be facilitated by other means such as Skype or teleconference.

5. The MDM and Ryerson's Academic Plan

Ryerson University is founded on a mission to apply knowledge and research to societal need. Our programs offer both theory and application in order to give students the best balance between transferrable knowledge and hands-on experience. We prepare students to thrive in their careers, and to contribute to their communities.

To fulfill our mission, we must be able to respond to changes in our community, workplace, and economy. While Ryerson already provides courses in high demand areas related to digital media – e.g. digital media, communication technologies, product design, commercialization – students increasingly want to focus their skills toward digital media innovation. They also want to take advantage of emerging business models: for example, the shift toward a model that allows SMEs to go straight to the customer, and the use of social media marketing and mobile location-based tools.

In Ryerson's current Academic Plan (2008-13) the creation and transmission of new knowledge are recognized as essential to university life. Some areas of knowledge are highlighted. Digital media is one of seven areas identified in the Plan as having "special opportunities" for growth and for a vital exchange of ideas.

The MDM is designed to strengthen Ryerson's position among leaders in digital media innovation, to build on relationships between Ryerson and the private enterprise sector, to explore new ties with industry, and to give students a solid and versatile set of skills.

The Academic Plan is clear about the impact that transformations in digital media are having (and will have, exponentially) upon learning and research. The Plan speaks of the challenge to take the best advantage of these changes: to support students in new ways of learning; to give faculty the digital resources they need; to adapt to possibilities of a virtual environment. "Arguably," we are told, "the technological revolution of our day will do more to reshape the nature, the rhythms, and the daily habits of students

and faculty than any other changes in a very long time."[8] The MDM will help us keep abreast of change.

The Ryerson MDM will put students in highly skilled jobs, generate companies, and expand Ryerson's culture of innovation. Finally, the alignment of industry expertise and entrepreneurship with a leading management school will boost Ryerson's reputation as an industry-facing university.

6. Evidence of viability

6.1.   Societal need

The Honourable Tony Clement, Minister for Industry Canada, claims that "few areas offer [Canada] greater reason for optimism than the digital economy."[9] Canadian past and present success stories like RIM, Corus Entertainment, and marblemedia show potential for remarkable growth and global competitive edge.

At the same time, start ups can find it hard to get access to trends, market analysis, intellectual property advice, and other types of data that enable companies to compete;[10] and initial funding is often a challenge. Digital media companies get some help through tax relief (e.g. the Ontario Interactive Digital Media Tax Credit) and investments such as the recent $11.5 million toward innovative interactive projects by the Canadian Media Fund. Yet there is clearly a need to support individual entrepreneurs and young start-ups.

Ontario recognizes the wide benefits of digital media. The Ontario Ministry of Education's elementary and secondary school curricula (2009/10) reflect the belief that *all* Canadians will gain from a higher usage of digital media, while the question of "equal access" (to bandwidth, for instance) is now firmly embedded in political thinking.

Projects such as PEBBLES – a collaboration between Ryerson, the University of Toronto, and Telbotics to connect hospitalized children with their schools – point to social value, while digital archives such as the Ryerson-based "1890s Online" increase public access to rare material and enriched content. In fact, digital media and related R&D are creating opportunities in fields that include health care, special education, public broadcasting, green energy, disability services, historical records, adult distance learning, and social networking. A report to the House of Commons notes that

---

[8] *The Academic Plan: Shaping our Future 2008-2013*

[9] Speech, November 2010, www.ic.gc.ca/eic/site/ic1.nsf/eng/06098.html

[10] "Ontario Media Development Corporation: Towards A Strategic Plan" (2008): www.omdc.on.ca/AssetFactory.aspx?did=6346

"everything is converging on the public internet."[11] Legal battles over intellectual property show the monetary stakes. One reflection of this move toward digital media prevalence is the sharp rise in digital media programs at universities across Canada and the United States.

Despite these trends, Canada still faces a challenge. A 2010 "Report Card on Canada" shows that we are lagging behind most of our peer countries in innovation. Yet our students are among the best educated in the world. The Conference Board of Canada recommends that Canadian universities graduate more students in disciplines that support innovation. [12]

While Ontario has a steadily increasing reputation for producing high-quality digital content, with diversified strengths (particularly in the game industry), and while the arrival of Ubisoft Toronto helped move the GTA toward a "critical mass" of developers, the incubation of talent at universities has also been identified as a valuable factor in the creation of digital media clusters and industry success.[13]

Ryerson's MDM program is a response to the need to incubate talent, increase development, and prepare highly qualified personnel for a growth industry.

6.2. Comparison to other graduate programs

Canada

The Ryerson MDM program is partly modeled on the Master of Digital Media program at the Great Northern Way Campus (GNWC) in British Columbia. The GNWC program is jointly credentialed by BCIT, ECIAD, SFU and UBC. Its development was initiated by industry because of the high demand for digital media professionals.

The GNWC program is primarily team-based and industry facing, with a focus on project learning. The backbone of the GNWC program is a sequence of supervised project courses, each placing students in interdisciplinary teams and in close contact with industry professionals and faculty. Management and business issues are addressed in each project as they arise. Students must also interact with leading practitioners in the private and public sectors, via internships, field trips, and a mentoring program with members of industry.

Since 2007 the MDM at the GNWC has trained graduates to be effective creators, practitioners, and senior managers in the digital media industry – meeting the HQP

---

[11] "Emerging and Digital Media: Opportunities and Challenges," an Interim Report of the Standing Committee on Canadian Heritage, House of Commons, June 2010, p. 4.

[12] "A Report Card on Canada: 2009/10," Conference Board of Canada: www.conferenceboard.ca/HCP/Details/Education.aspx

[13] "Ontario 2012: stimulating growth in Ontario's digital game industry" (2008): www.omdc.on.ca/AssetFactory.aspx?did=6290

need that was announced by BC industry leaders. Dr Gerri Sinclair, one of the key developers of the Ryerson MDM, is former Executive Director of the MDM program, GNWC, and CEO of the Centre for Digital Media in BC.

The Ryerson MDM differs in its proposed applicant base, and in its cross-disciplinary, structural engagement of four separate university faculties. While the GNWC program expects the majority of applicants to have degrees in computer science or the creative arts, the Ryerson MDM will likely attract many students from a business/management background.

Closer to home, the University of Toronto offers a collaborative program in knowledge media design (KMD). The purpose is to bring graduate students from different backgrounds together to engage at all levels in media that help us think, communicate and create knowledge. The KMD program, however, does not issue a degree.

The Ontario College of Art and Design University (OCADU) began a new master's degree in "digital futures" in September 2011, pending final approval from OCGS. The Master's is a full-time practice-based program offered over five semesters. Core courses are in digital methods, research, theory, and practice. Foundational courses are offered in computation, business creation, innovation and leadership. Students work on an intensive digital project and prototyping course, and individual research and creation are overseen by a Principal Advisor and Supervisory Committee. While this program builds on OCAD's existing digital media courses, it does not offer a strong entrepreneurial/business component. Nor does it have the strong technology ties that come from having an engineering faculty within the institution, or the business foundation that comes with a business school.

The University of Waterloo offers a Master of Digital Innovation program that combines creativity, technology, and business in one degree (pending approval from OCGS). It is interdisciplinary, project-based, and led by faculty and business partners. Waterloo has also created a new Master of Arts in Experimental Digital Media to support creative and critical enquiries into the new media and to prepare students for research in digital media and/or careers in media industries. The University of Waterloo's MDI is designed after the MDM at the Great Northern Way Campus. Although it claims to be interdisciplinary, it is housed within the Faculty of Arts, and students who complete the program receive an MA degree. Ryerson's proposed MDM is strongly differentiated from the MDI by the fact that three strong Faculties (FCAD, FEAS, TRSM) will give equal support to curriculum, faculty, and resource components.

Note: York University is currently the only school in Toronto to offer a BA in digital media. The York program is shared by the Faculty of Fine Arts and the Faculty of Science and Engineering. Course work draws upon computer science, fine arts, cultural studies, and social sciences. Graduates of the York BA may be interested in pursuing the Ryerson MDM.

United States

Carnegie Mellon University (CMU) offers a two-year Master's of Entertainment Technology (MET) degree through the College of Fine Arts and the School of Computer Science. It is based at the Entertainment Technology Centre and is founded on three pillars: academics, research and innovation, and entrepreneurialism. CMU regards the MET on the same level as an MBA or MFA. Students may take courses at the CMU school of business to gain the background for creating their own entertainment technology business. There is very little course work; it is almost entirely project based. The CMU program was an inspiration for the MDM program in BC--although the focus at CMU is solely on the entertainment industry.

The Rochester Institute of Technology has a Master of Science in Game Design and Development. The emphasis here is on the entertainment technology landscape, with its roots primarily in computer science and an entry requirement of programming experience. Courses focus on game development, and there is no business/management component.

The University of Washington offers a Master of Communication and Digital Media that focuses on Social Media (community and distribution), Storytelling (effective content creation), and the business of digital media in communication (revenue models, marketing and regulation). Students are encouraged to take one of three pathways: communication, business, or emerging trends and markets. The three are not merged into a core.

The University of Southern California offers a Master of Fine Arts in Animation and Digital Arts, and an MFA in Interactive Media. These are three-year degrees that prepare students for creative careers, but the focus is largely research-based and strongly theoretical. The Ryerson MDM, in contrast, is a professional rather than research program.

The University of Michigan's School of Education offers an MA in Education with a focus on Digital Media and Education: e.g. how digital media (e.g., educational software, curriculum materials, gaming, mobile computing, social networks, etc.) impact learning and classroom practices. This program is obviously not in competition with Ryerson's proposed MDM, but is an interesting signal of the impact of digital media on education.

Drexel University, in Pennsylvania, offers a Master of Science degree in Digital Media that is project based, interdisciplinary, and practical. The course work, however, is more technology-focused than Ryerson's MDM, and there is no obvious business component.

The Ryerson MDM stands out by engaging *all* students in the three strands – art/design, technology, and business/management – to ensure that graduates are able to speak the different "languages" in their future leadership roles.

6.3. Digital media in Toronto

Digital media require multifaceted input. Not surprisingly, the greatest developments are happening in cities where diverse, highly-skilled people, universities, studios, and industries collaborate. Toronto is one of the digital media clusters identified by the Canadian government.[14] According to IDC Canada, "the digital media wave in Toronto is being driven in part by the unique intersection of art and technology at the higher education level." IDC predicts that Toronto's interest in digital media will "only increase."[15]

Toronto has a rich history of academic and industry partnerships. Ryerson's DMZ is cited with OCADU's Mobile Enterprise Innovation Centre and York University's 3D FLIC project as key collaborators with industry. For example, the DMZ-based Bright Bunny is considered one of Toronto's "emerging companies to watch."[16]

Meanwhile, The G. Raymond Chang School of Continuing Education at Ryerson is partnering with the trade organization Interactive Ontario to launch a pilot program in digital media and gaming. Interactive Ontario – whose mandate is to grow Ontario's interactive digital content industry – had approached Ryerson for help in bringing business education to the gaming industry in a flexible format. The MDM program will work closely with Interactive Ontario to make sure our program meets industry needs.

6.4. Ryerson strengths

The Ryerson MDM supports both entrepreneurship and industry-led, market-driven research. It builds on a deep, existing foundation of digital media research at Ryerson University.

6.4.1. Critical mass in digital media

Ryerson has a critical mass of research laboratories in the digital media arena. These include the Ryerson Multimedia Lab; Ubiquitous Computing Lab; Digital Cinema and Advanced Visualization Lab; Experiential Design and Gaming Lab; AccessFabrik Lab; Infoscape Research Lab; Human Factors Lab; Robotics and Manufacturing Automation Lab; Digital Value Lab; and the Sound, Mind, Applied Research & Technology (SMART) Lab.

The **Centre for Learning Technologies** (CLT), at the TRSM, is a cluster of labs with a mandate to research, create, and evaluate inclusive media technologies, and to

---

[14] "Invest in Canada Week Digital Media: briefing notes for investment champions and panelists," Oct 2010.

[15] Krista Napier, Senior Analyst, IDC Canada: www.idc.ca/about/html/tentowatchhtml.html, accessed February 18, 2011.

[16] "Canada's High Tech Hub: Toronto," 2010: www.investtoronto.ca, accessed February 18, 2011.

enhance entertainment media. The CLT receives funding from government and financial sectors.

The **Experiential Design and Gaming Environment** (EDGE) Lab is a truly interdisciplinary initiative that spans FEAS, FCAD, and the Faculty of Community Services (FCS) to conduct research on experiential and gaming media in emerging mixed-reality environments. Projects include mobile games that use location and peers to set goals, tasks, and rewards; geo-caching games; applications that remove barriers for disabled people to enhance physical experience. EDGE was recently awarded $1.15 million by the Canadian Foundation for Innovation.

The recently established RTA Transmedia Centre focuses on innovation in the content-producing industries with research projects on transmedia storytelling, business models, and audience behaviour.

6.4.2. Existing courses

Many electives in the Ryerson MDM program draw from graduate courses that are already offered at Ryerson – in particular by the school of Radio and Television Arts (FCAD), the School of Information Technology Management (TRSM), and the Department of Computer Science (FEAS). It must be noted that the Computer Science courses on the electives list are senior undergraduate courses. These courses will be cross-listed as graduate courses (i.e., course codes for the Yeates School of Graduate Studies will be created) and an additional evaluation component introduced for the graduate student participants in order for these courses to be acceptable as program electives.

6.4.3. Support for our student entrepreneurs

Ryerson understands students and entrepreneurs. The DMZ is one example of Ryerson's commitment to student-based entrepreneurial growth. The **Ryerson Entrepreneur Institute** (REI) was created in 2008 to help students and alumni act upon their innovations and start up new businesses, non-profit organizations, or community programs. REI received the 2010 Urban Leadership Award from the Canadian Urban Institute in the Prosperity category. **"Start Me Up"** is a business start-up program run by Ryerson's award-winning Students In Free Enterprise (SIFE) and a committee of industry leaders, faculty experts, peers and mentors. Ryerson is also home to Canada's first university-led investor network, the **Ryerson Angel Network** (RAN), established in 2008 to finance and mentor student- and alumni-initiated innovations. RAN includes more than 40 individuals who have invested $700,000 in early-stage equity financing in SMEs over the last two years. Since 2008 it has helped set up and expand more than 25 new businesses that have created $2,700,000 in new prosperity in the GTA.

6.5. Projected enrolment

The Ryerson MDM will admit 25-35 students in the first year. This selective intake will ensure that students are matched with faculty who are best able to help advance the students' goals and will promote close collaborative, team-based learning. Applicants will be chosen from a variety of backgrounds. Within five years it is expected that upwards of 50% of students will be international. The projected enrolment is for the first 5 years of the program. Steady state enrolment is expected to be reached by the third year.

7. Resources

Ryerson University has very sophisticated and up-to-date computing and digital media facilities. These, combined with a strong faculty and curriculum, will ensure that program learning outcomes and Degree Level Expectations are met. Viability will come through a combination of premium fees and effective resource allocation.

7.1. Faculty

Ryerson faculty typically combine academic credentials with business and professional experience. Ryerson holds several digital industry-focused research chairs, including the Bell Globemedia Chair in the Creative Use of Advanced Technology, the Edward S. Rogers Sr. Chair in Media Management and Entrepreneurship, the Velma Rogers Graham Chair in News Media and Technology, the Ted and Loretta Rogers Chair in Entrepreneurship, and an NSERC Chair in Design Engineering.

Our faculty put an intense focus on digital media. Collaborative and transdisciplinary projects have included cross-platform news and entertainment platforms, mobile applications for policing and security, imaging for health diagnostics, education tools for the financial sector, accessibility applications for entertainment, and measuring and monitoring tools for social media.

The MDM demands a base of highly successful and motivated researchers who want to communicate their ideas and passion to students. They also see their work in an entrepreneurial light. The typical Ryerson MDM faculty member is familiar with industry and has a deep knowledge of content in such areas as computer science, nanotechnology, wireless broadband networks, online identity construction, politics, film studies, rehabilitation engineering, privacy laws, e-commerce, etc.

Ryerson is therefore able to draw on deep and broad faculty expertise in each of the three contributing areas (design, technology, and business) with the necessary connections to industry. Teaching resources will allow for 11 new courses to be offered as part of the program; while existing courses offer a wide breadth of elective choices.

7.1.1. Adjuncts

In order to give our MDM students a rich exposure to industry, we will engage industry experts as adjunct instructors to cover such topics as animation, video game design, special effects (FX), and high-end computer graphics. These highly-skilled adjuncts, acting as instructors and/or project co-supervisors, will complement Ryerson faculty expertise and bring real-world industry experience to the classroom. Ryerson has sufficient links with industry partners to ensure a supply of diverse, highly interesting and relevant instructors.

Faculty CVs can be found in Volume II.

MDM Faculty Members		
Faculty Name & Rank	Home Unit	Degree
Dr. Dimitri Androutsos, Associate Professor and Program Director EE	Dept. of Electrical and Computer Engineering, FEAS	PhD
Dr. Ayse Basar Bener, Professor and Director ITM	Ted Rogers School of Information Technology Management	PhD
Dr. Jeffrey Boase, Assistant Professor	School of Professional Communication, FCAD	PhD
Dr. William Michael Carter	Office of the Vice Provost Academic	PhD
James Robert Caswell	Faculty of Animation, Arts & Design, Sheridan College	MA
Dr. Charles H. Davis, Professor	School of Radio and Television Arts, FCAD	PhD
Dr. Deborah Fels, Professor	Ted Rogers School of Information Technology Management	PhD
Dr. Ling Guan, Professor	Dept. of Electrical and Computer Engineering, FEAS	PhD
Dr. Gerhard Hauck, Dean FCAD	Faculty of Communication and Design	PhD
Jaigris Hodson	Digital Specialization	MA
Dr. Matthew Kyan, Assistant Professor	Dept. of Electrical and Computer Engineering, FEAS	PhD
Dr. Bruno Lessard, Assistant Professor	School of Image Arts, FCAD	PhD
Dr. Timothy J. McInerney, Professor	Dept. of Computer Science, FOS	PhD
Dr. Ali Miri, Professor and Associate Chair	Dept. of Computer Science, FOS	PhD
Dr. Hossein Rahnama,	Digital Media Zone	PhD

Research Director		
Dr. Alireza Sadeghian Associate Professor and Chair	Dept. of Computer Science, FOS	PhD
Dr. Ozgur Turetken, Professor	Ted Rogers School of Information Technology Management	PhD
Dr. Anastasios (Tas) Venetsanopoulos, Professor	Dept. of Electrical and Computer Engineering, FEAS	PhD

Table 1 Proposed MDM Faculty

7.2. Staff

Premium-fee programs raise student expectations. The strength of the MDM program lies in our ability to offer outstanding industry liaison and student service. This will require new staff:

- a Program Director (a Ryerson faculty member partially seconded to this role)

- a Director of Industry Relations

- a 0.5 FTE program administration support position (based in the Yeates School of Graduate Studies)

- an administrative assistant / student support position

- a full-time IT support staff position

Resources currently exist for the staffing requirements described above (refer to *Estimated revenue and expenditure* **Error! Reference source not found.**).

7.3. Physical Resources

7.3.1. Library Resources

The full library report can be found in Appendix.

7.3.2. Physical Space

As a premier program, it is envisioned that the Ryerson MDM will provide students with a dedicated, highly equipped, configurable workspace, which will enable the delivery of both project- and team- based instruction.

Ryerson has already identified a suitable classroom environment that can easily accommodate the MDM students, providing the following features (**Figure 1**):

- 2 projectors and screens
- Smartboard with projector
- 2 whiteboards and 2 blackboards
- easily configurable furniture.

Figure 1 Proposed MDM Classroom Environment

However, the requirement for break-out rooms and a large boardroom has been identified previously and is under consideration. The Digital Media Zone would provide the ideal environment and it is possible that the MDM could be housed in that facility. This is a conceptual idea; an in-depth space audit by Ryerson's Academic Space Planning office will reveal the most suitable accommodation, including laboratory and meeting space. The University is committed to providing the MDM program with the infrastructure required to attract and retain high-quality students.

Offices have been located for the Program Director, Director of Industry Relations and the Administrative support staff.

8. Governance

The Dean of Record for this program will be the Dean of YSGS. A Masters in Digital Media Inter-Faculty Program Council, chaired by the Program Director, will be created which will manage aspects of curriculum, admission decisions, etc. The program budget will reside in YSGS and resource allocations will be determined in a collaborative fashion.

9. Program Development Schedule

As per Ryerson policy (112) on development and approval of new graduate and undergraduate programs, the LOI that preceded this program brief was posted for 30 days in September 2011, with Provost authorization to proceed in October 2011. Feedback from the community has been incorporated into this brief, which YSGS's Program and Planning Committee (PPC) has given initial approval to move to the review process. Deans' support letters, a return to PPC, YSGS Council to be completed in early September 2012, with submission to October 2012 Senate and the Quality Council thereafter. Implementation is planned for January 2013.

10. Concluding Remarks

Ryerson's unparalleled growth as an institution of choice for students seeking distinctive and outstanding graduate programs that embrace innovative, entrepreneurial and creative solutions to real world questions is at the core of the University's mission. It is not enough to teach students how to run a business or design a game; our strong links with industry ensures that we know what the real needs are, anticipate new trends, co-create a network that will support our students "out there" and enrich our collaborations. The industry-facing nature of the proposed MDM supports this dialogue via the interaction amongst students, faculty and industry partnerships that it fosters. The MDM Advisory Board, once established, will add further depth to this dialogue.

Digital media, by its very nature, creates a high level of convergence between public and private sectors. Ryerson understands how that works. The MDM will give a project-based structure to student talent. It will give their innovative ideas a launch pad.

What really makes the Ryerson MDM stand out is the fact that we combine a well-established and diversified school of management with faculty strengths in design and technology. All three strands are woven into the core program – ensuring that all MDM graduates will be able to work effectively in matters of design, technology, and business. This is the value that Ryerson adds.

Finally, our graduates will bring talent, real-world experience, and a set of high qualifications to one of Canada's leading growth industries. Their unique degree will set them apart.

MASTERS IN DIGITAL MEDIA

APPENDICES

July 9, 2012

Professor Jennifer Mactavish
Dean, Yeates School of Graduate Studies
Ryerson University

Re: Proposed Masters Degree Program in Digital Media

Dear Professor Mactavish,

This letter authorizes you and your colleagues to proceed towards the development of a full proposal for a *Masters in Digital Media (MDM) degree program*. For proposal development, your reference point is Senate Policy #112 *Development of New Graduate and Undergraduate Programs.*

In crafting the letter of intent (LOI), the Program Committee has demonstrated commendable creativity, diligence, and foresight. As noted in the LOI, the proposed program will supply students with skills needed to innovate within the context of the digital economy; a sector that continues to grow rapidly and in which the potential for entrepreneurial expression seems limitless. It will serve as a conduit for students from a variety of backgrounds - business, design, and technology - who are interested in advancing their education in digital media relevant areas. I believe the proposed program will provide a strong new offering for Ryerson, one which is firmly in our tradition of career-relevant education.

Work remains to be done on the proposal, as is customary in this process. Below I outline a number of issues to be addressed as next steps, before the proposal can be finalized and the program started. Would you please consider each issue carefully.

- **Curriculum – Heavy Course Load:** The LOI suggests five core courses, two electives and two project modules in this 12-month program. This seems to be a somewhat heavy burden. Please give some thought to whether the number of proposed courses is appropriate.

- **Curriculum – Electives:** The list of proposed elective courses from which students should select two is quite long. I wonder if such an extensive list really adds value to the degree. Perhaps a shorter, more focused list would be more appropriate.
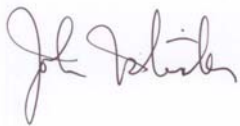
  Many of the proposed electives are courses offered within currently existing graduate degree programs. The full proposal should confirm that those programs agree to open spaces in their courses to students from the MDM program.

- **Faculty Participation:** The program proposes to draw on faculty resources from three different Faculties. The letters of support from the three relevant Deans are reassuring in this context. For the full proposal it is vital that the commitment of faculty members, and of the Deans to collaborate on teaching assignments, are confirmed.

- **University Degree Level Expectations:** Policy 112 requires that new program proposals define and express clear program goals and demonstrate how these relate both to course content and to the University's degree level expectations. For assistance in developing your own program-specific goals, and mapping these to your courses and the University's degree level expectations, please contact Paola Borin, Curriculum Development Consultant, Office of the Vice Provost Academic.

This is an important initiative for Ryerson, and I offer you every encouragement in bringing it to the implementation stage. If you have questions or concerns about developing the proposal, please contact the Vice Provost Academic at your convenience. I will arrange for periodic updates, as I am most interested in seeing this venture move forward smoothly as rapidly as is reasonably possible.

Please extend my thanks and congratulations to the Program Committee for the excellent work to date.

Yours sincerely,

John Isbister
Interim Provost and Vice President Academic

cc.
        C. Evans, Vice Provost Academic
        P. Stenton, Vice Provost University Planning
        P. Borin, Curriculum Development Consultant

RYERSON UNIVERSITY

OFFICE OF THE DEAN
FACULTY OF ENGINEERING, ARCHITECTURE AND SCIENCE

September 23, 2011

Dr. Chris Evans
Vice Provost, Academic
Chair, Academic Standards Council

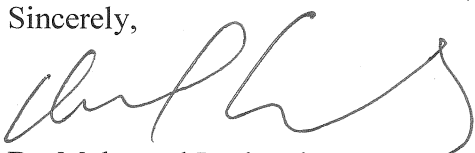**Re: Proposed Master's in Digital Media**

Dear Chris,

I am writing to express my support for the development of a new master's program in digital media, as proposed by the Yeates School of Graduate Studies. Having reviewed the Letter of Intent, I feel that the document makes a strong case for both the societal need and viability of the program. In addition, I believe that the proposed program will be an excellent complement to our current multimedia research and program options.

The Faculty of Engineering, Architecture and Science recognizes the importance of multimedia in today's dynamic world. We offer a multimedia option in the undergraduate electrical engineering program, as well as a variety of technical courses at the graduate level in both the electrical and computer engineering and computer science graduate programs. Furthermore, our Faculty has established the Multimedia Group, comprised of researchers from the Departments of Computer Science and Electrical and Computer Engineering. The Group undertakes research in the areas of content-based retrieval, ubiquitous computing, multimedia security, non-stationary signal processing, color image processing, audio/speech signal processing, intelligent multimedia systems, 3D cinema, financial time-series analysis, and information theory. This group has active research partnerships with IMAX, Epson, Robot Inc., the Faculty of Communication and Design at Ryerson University, Telecom Sud Paris (France), the Wroclaw University of Technology (Poland), and the University of Applied Sciences, Karlsruhe (Germany). The Multimedia Group directly addresses the university's strategic areas on digital media, communication and information technology, and technological innovation, and also indirectly impacts the strategic areas of management, competitiveness and entrepreneurship. The reputation gained by this group will be influential in establishing a Centre in Media Research.

Establishing a master's program in digital media will provide us with more visibility as leaders in digital media education, and increased opportunities for collaboration across Canada and worldwide. Based on the above, I strongly support the development of a new master's program in digital media.

Sincerely,

Dr. Mohamed Lachemi, P.Eng., FCAE, FCSCE
Dean
Faculty of Engineering, Architecture and Science

October 5, 2011
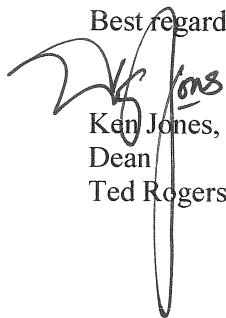
This letter is to confirm my support for the Letter of Intent to offer a Master's degree in Digital Media. The proposed program has a number of attributes that are very appealing. These include:

- the multi-disciplinary nature of the program that integrates courses from three faculties;
- the entrepreneurial focus and relevance of the needs of the burgeoning media sector;
- the close relationship of the program to the Digital Media Zone;
- the development of a program that is linked to one of the major employment clusters in the regional economy
- the commitment to establish a strong advisory committee that will represent stakeholders from a variety of constituencies.

The Ted Rogers School of Management, with its expertise in areas such as information technology management, entrepreneurship, business law, and media management looks forward to working with the program to develop and to support the delivery of these management-related courses.

In addition, given the fact that the MDM development team comprised of members from various faculties has been involved in the development of the proposal provides me confidence that the program will deliver on its objective to deliver a truly integrated program of study.

Best regards

Ken Jones, PhD
Dean
Ted Rogers School of Management

ADDRESS: 575 Bay Street (entrance at 55 Dundas St. West) ROOM: 3-009
MAILING ADDRESS: 350 Victoria Street, Toronto, Ontario, Canada M5B 2K3
WEB: www.ryerson.ca/tedrogersschool

TEL: 416-979-5169
FAX: 416-979-5294

RYERSON
UNIVERSITY

A5

RYERSON UNIVERSITY

fcad | FACULTY OF COMMUNICATION & DESIGN

To: Dr. Jennifer Mactavish, Dean, Yeates School of Graduate Studies

From: Dr. Gerd Hauck, Dean, Faculty of Communication & Design

CC: Dr. Alan Shepard, Vice-President and Provost; Dr. Ken Jones, Dean, TRSM; Dr. Mohamed Lachemi, Dean, FEAS

Date: September 23, 2011

Subject: New Masters degree program in Digital Media (MDM)

I'm writing to lend my full support to the proposed Master degree program in Digital Media (MDM).

This twelve-months, intensively experiential MDM program will provide graduate-level learning opportunities for entrepreneurial students who are interested in pursuing careers in sectors where digital media play a pivotal role. These sectors include: gaming; digital entertainment; health care; education; environment; business/marketing; social media; and mobile media. As part of their training, students will be involved in a major six-months team-based project aimed at creating pre-commercial or commercialized products and services in industries of their choice. In combination with courses in marketing, entrepreneurism, management, and issues in various digital disciplines, they will be prepared extremely well for advanced careers in the digital media environment upon graduation.

Unique in Canada, the trans-disciplinary MDM program offers a combination of distinctive practical and academic courses which utilize resident expertise in three Ryerson faculties: Communication & Design (FCAD), Engineering, Architecture and Science (FEAS), and the Ted Rogers School of Management (TRSM).

I am pleased to support it enthusiastically.

MDM Graduate Degree Level Expectations (GDLEs)

Program Context and Goals
Consistent with Ryerson's unique approach to graduate education with real world relevance and application, the proposed professional master's degree program, establishes an academic parallel to zones of innovation and entrepreneurship that revolve around digital media. ● Digital media and related industries are of ever-increasing importance to Canada - especially to the small and medium sized enterprises that drive our country's economic growth. The Ryerson MDM will supply talent to these enterprises in Ontario and to larger companies in digital media sectors. ● The MDM will generate and support start-up companies in which digital media play a major role. ● Existing companies are in great need of people with a broad background in digital media and team-building skills. The MDM will help students become highly qualified personnel, team leaders, entrepreneurs, product managers, marketers, and managers in a field that demands diverse skills and experiences. Sectors include gaming, entertainment, health care, education, environment, business, and marketing. ● A close relationship between the MDM and Ryerson's Digital Media Zone (DMZ at http://digitalmediazone.ryerson.ca/) will give added support and a venue to student entrepreneurs in the digital media field. ● The MDM will foster research partnerships and interdisciplinary projects among Faculties. ● The MDM will increase Ryerson's role as a nexus of academic/industry partnerships.

MDM		
EXPECTATIONS	*This degree is awarded to students who have demonstrated:*	Appropriateness of course:
1. Depth and Breadth of Knowledge	A systematic understanding of knowledge, and a critical awareness of current problems and/or new insights, much of which is at, or informed by, the forefront of their academic discipline, field of study, or area of professional practice.	The 5 core courses in the MDM curriculum are designed to maximize exposure to the breadth of contemporary knowledge in digital media. The ability to select one of three streams of concentration (Industrial, entrepreneurial, art/design) increases depth, as do the 2 projects, which add a knowledge application

		component to the program. The elective course adds breadth and critical awareness.
2. Research and Scholarship	A conceptual understanding and methodological competence that enables: a. A working comprehension of how established techniques of research and inquiry are used to create and interpret knowledge in the discipline; b. A critical evaluation of current research and advanced research and scholarship in the discipline or area of professional competence; and c. A treatment of complex issues and judgments based on established principles and techniques; and, on the basis of that competence, has shown at least one of the following: a. The development and support of a sustained argument in written form; or b. Originality in the application of knowledge.	As an innovative professional program that infuses multiple approaches and diverse disciplinary traditions to scholarship, research and creativity (SRC), this component of the GDLE demands a more inclusive framework (i.e., more than simply research and scholarship). The combination of core course requirements, elective course work and the two project streams will ensure: ● Comprehension of the iterative influence of SRC in digital media practice, innovation, and knowledge mobilization. ● Critical evaluation of the existing body of knowledge, with an emphasis on advancing entrepreneurial innovation. ● Coverage of complex and diverse issues using the full spectrum of established and emerging principles and techniques in the digital media/economy. ● Demonstration of competence by infusing the course related learning with applications in the two-capstone project modules. ● Originality is central to the innovative and entrepreneurial foundation for the MDM.
3. Level of Application of Knowledge	Competence in the research process by applying an existing body of knowledge in the critical analysis of a new question or of a specific problem or issue in a new setting.	As a professional degree, demonstration of competence will vary by the nature of the stream selected and the focus of application in the 6-month project module. Working familiarity with the three principal confluent knowledge domains underpinning digital media innovation (technology, creative content, and business) is a major pedagogical objective.
4. Professional Capacity/	a. The qualities and transferable skills necessary	Personal responsibility and accountability are key aspects of a

Autonomy	for employment requiring: i. The exercise of initiative and of personal responsibility and accountability; and ii. Decision-making in complex situations; and b. The intellectual independence required for continuing professional development; c. The ethical behaviour consistent with academic integrity and the use of appropriate guidelines and procedures for responsible conduct of research; and d. The ability to appreciate the broader implications of applying knowledge to particular contexts.	professional program, as are skills in complex decision-making. While infused throughout the program these elements will be highlighted in the 1st project module dedicated to intensive development of project management and team collaboration skills. The aim of the program is to create innovative and independent entrepreneurs, which speaks to intellectual independence and valuing of continuous learning and professional development. Appreciation of the importance of broader applications of knowledge and ideas that transcend one context is a built in feature of the core curriculum that provides comprehensive coverage of state of the art knowledge in digital media.
5. Level of Communication Skills	The ability to communicate ideas, issues and conclusions clearly.	Professional program with courses and experiential elements fundamental to the program, notably participation in team-based projects, will ensure development of high-level communication skills.
6. Awareness of Limits of Knowledge	Cognizance of the complexity of knowledge and of the potential contributions of other interpretations, methods, and disciplines.	This is an interdisciplinary program involving 3 Faculties that comprise computer science, communication and design, and business—hence multiple interpretations and appreciation for complex applications and understanding are implicit. The program provides a unique platform for combining and integrating elements from business, technology, and creative content - fields that ordinarily are found in separate faculties.

Masters in Digital Media: Library Support

Prepared by:

Jay Wolofsky
Subject Librarian

Dana Thomas
Evaluation and Assessment Librarian

Jane Schmidt
Collections Team Manager

Madeleine Lefebvre
Chief Librarian

June 2012

Summary Statement

This evaluation demonstrates that Ryerson University Library and Archives resources and services will adequately support the proposed Masters in Digital Media programme. The current depth and breadth of print and electronic resources, achieved by diligent collection development efforts by the Library with input from faculty, has resulted in a collection that will satisfy the information demands of study and research for this graduate programme.

Electronic resource access through subscriptions to aggregators and publishers' collections and participation in national and provincial resource sharing consortia over the past decade, has resulted in an exponential increase in journals and scholarly sources supporting the programme.

Appendix 1. Library Learning Environment (Inputs/Outcomes), contains the latest information on overall Library performance and other measures from the Canadian Association of Research Libraries (CARL), the Canadian Association of University Business Officers (CAUBO) and Common University Data Ontario (CUDO).

Infrastructure: Contributing to Student Success

The Ryerson University Library and Archives is accessible to students 24 hours a day and 7 days a week at *www.library.ryerson.ca*. Alternatively, students have access to the library directly via the *My Library* tab that is universal to all Blackboard logins. For off-campus access to licensed resources the Library has a single sign-on system via the *my.ryerson.ca login*.

The Library building is located centrally on campus and provides a host of services and facilities including a graduate student reading room and bookable study rooms. Students in the programme also have access to a lounge and a bookable smart classroom (exclusive to graduate students) that contains a mobile whiteboard, a large LCD panel and seating for up to 16.

The Ronald D. Besse Information and Learning Commons, located on the main floor, provides access to a very wide range of information resources with advanced technology and provides the expertise necessary to allow students and faculty to successfully integrate information with technology in their academic pursuits.

Learning spaces within the Commons include:

> Reference Support
> IT Support
> Writing Centre
> Math Assistance Centre

Reference services are provided in person, through live chat and telephone support. Graduate students may book appointments online with subject specialist librarians for in-depth consultation.

The library welcomes user feedback and endeavors to respond to the stated needs of the community via several channels including an online suggestion box, live Twitter feeds, and a Facebook fan page. We provide real time information on the availability of computers, laptops and study rooms.

The full list of Services for Graduate Students can be found at this site:

http://www.ryerson.ca/library/info/grads/index.html

Collections to Support Teaching and Learning

The collection development policy in its entirety can be found online at:

http://www.ryerson.ca/library/info/collections/colldev/index.html

The subject librarian, Jay Wolofsky, does all collection development. An approval plan is utilised to ensure the latest and most relevant print material is available in a timely manner, and the Electronic Resources and Serials Review Committee monitors and manages all other acquisition activity.

Ryerson is a member of two major consortia: the Canadian Research Knowledge Network (CRKN) and the Ontario Council of University Libraries (OCUL). The combined purchasing power of these consortia allows us to negotiate the licenses for content from most major academic publishers.

An exhaustive list of research databases available to the Ryerson community is available here:

http://www.ryerson.ca/library/indexes_title.html

Wherever possible, Ryerson prefers to purchase content in digital format. In circumstances where the Library does not have a desired item available, we endeavor to provide it via our RACER Interlibrary Loan Service, which is free to the Ryerson community. Suggestions for purchases from faculty and students are welcomed and we strive to accommodate these within reason.

Through the Canadian University Reciprocal Borrowing Agreement graduate student may borrow directly from Canadian universities. In addition, through a special fund set up bythe Provost, graduate students are able to acquire a borrowing card for the University of Toronto.

Digital Commons Initiative

The Digital Commons@Ryerson is a repository for research and scholarly output produced by university schools, departments and centres. The repository proves an ideal means for sharing publications produced by faculty members and graduate students (theses/MRPs).

Instructional Support for Learning and Teaching

(Complete current Library instruction schedule: www.ryerson.ca/library/info/workshops.html)

 Instruction, information and research skills support sessions include:

    Advanced Library Research Methods for Graduate Students
    Advanced RefWorks
    Custom Orientations/Library Research Methods Workshops (available by request)
    In-depth one-on-one or small group librarian consultation available on request

Table 1: Library Serial Holdings of Scholarly, Peer-Reviewed Journals Compared to Ulrich's Core/Universe
www.ulrichsweb.com

Ulrich's Subject	Ryerson	Ulrich's Core/Universe	Pct Ryerson/Ulrich's
Business and Economics	355	698	50.86
Communications	34	70	48.57
Computers	275	558	49.28
Sciences	73	151	48.34

Table 2: WorldCat Comparison of MDM Related Ryerson University Library Monograph Holdings with University of Toronto and University of British Columbia Libraries

LC Subject Area	Ryerson	U of T + UBC
Art and Architecture (includes Computer and Digital Art)	595	1117
Business and Economics	23942	128688
Computer Science	846	1530
Education	95	1078
Engineering and Technology	9170	15052
Language, Linguistics and Literature	3320	17557

Table 3: Sustained Financial Commitment FY 2007/2008 – FY 2011/2012 in Related MDM Subject Areas

FY 2011/2012

LC range	Description	Books	Electronic Resources	Subscriptions
HB-HB9999.999	Economic Theory	$5,577.52	$24,170.08	$2,346.29
HC-HC9999.999	Economic Hist. & Conditions	$7,720.36	$36,880.66	$3,714.99
HD-HD100.999	Economics: Production	$23,587.45	$3,574.85	$3,666.20
HD9000-HD9999.999	Special Industries & Trades	$4,143.90	$393.11	$6,676.55
HF5001-HF5392.999	Business	$1,491.85	$9,862.08	$448.85

LC range	Description	Books	Electronic Resources	Subscriptions
HF5401-HF5541.999	Marketing, Distribution	$4,987.03	$729.25	$6,919.71
HF5546-HF5549.999	Office Organization/Mgmt	$4,957.32	$2,936.20	$1,463.08
HF5601-HF5689.999	Accounting	$2,383.98	$14,066.00	$5,675.71
HF5717-HF5746.999	Business Communication	$137.67	$-	$118.51
HF5801-HF6182.999	Advertising	$1,436.92	$257.40	$1,299.99
HG-HG9999.999	Finance	$12,615.26	$72,442.03	$7,117.43
LB5-LB1050.799	Theory & Practice of Edu..	$523.23	$272.95	$1,628.14
P-P9999.999	Philology, Linguistics	$6,306.54	$1,436.58	$816.70
QA75-QA76.959	Computer Science	$6,028.93	$35,717.68	$1,716.95
TK-TK9999.999	Electrical Engineering…	$10,271.89	$1,808.40	$2,741.67
Totals		**$92,169.85**	**$204,547.27**	**$46,350.77**

FY2010/2011

LC range	Description	Books	Electronic Resources	Subscriptions
HB-HB9999.999	Economic Theory	$8,036.93	$25,544.99	$2,302.67
HC-HC9999.999	Economic Hist. & Conditions	$13,968.32	$35,111.62	$6,406.87
HD-HD100.999	Economics: Production	$21,846.20	$371.10	$4,072.37
HD9000-HD9999.999	Special Industries & Trades	$6,203.16	$-	$6,541.44
HF5001-HF5392.999	Business	$1,242.15	$9,587.34	$1,703.56
HF5401-HF5541.999	Marketing, Distribution	$3,204.32	$-	$7,044.24
HF5546-HF5549.999	Office Organization/Mgmt	$4,984.85	$217.15	$1,910.08
HF5601-HF5689.999	Accounting	$1,414.18	$14,486.50	$6,074.87
HF5717-	Business	$1,030.19	$-	$26.64

LC range	Description	Books	Electronic Resources	Subscriptions
HF5746.999	Communication			
HF5801-HF6182.999	Advertising	$1,227.44	$-	$1,538.80
HG-HG9999.999	Finance	$12,088.81	$44,532.13	$11,572.98
LB5-LB1050.799	Theory & Practice of Edu..	$1,611.84	$-	$1,548.56
P-P9999.999	Philology, Linguistics	$9,928.76	$1,382.25	$1,115.97
QA75-QA76.959	Computer Science	$8,040.57	$33,168.92	$1,669.80
TK-TK9999.999	Electrical Engineering...	$15,358.59	$17,101.15	$1,858.78
Totals		**$110,186.31**	**$181,503.15**	**$55,387.63**

FY 2009/2010

LC range	Description	Books	Electronic Resources	Subscriptions
HB-HB9999.999	Economic Theory	$11,820.62	$20,726.09	$2,960.25
HC-HC9999.999	Economic Hist. & Conditions	$15,845.43	$33,869.57	$3,750.47
HD-HD100.999	Economics: Production	$33,943.01	$7,029.90	$3,793.32
HD9000-HD9999.999	Special Industries & Trades	$10,571.50	$(696.19)	$2,924.42
HF5001-HF5392.999	Business	$1,339.96	$9,317.00	$462.47
HF5401-HF5541.999	Marketing, Distribution	$7,503.44	$-	$6,813.23
HF5546-HF5549.999	Office Organization/Mgmt	$5,085.82	$-	$1,937.79
HF5601-HF5689.999	Accounting	$3,947.25	$15,199.30	$6,126.85
HF5717-HF5746.999	Business Communication	$1,171.02	$-	$451.53
HF5801-HF6182.999	Advertising	$1,061.34	$87.45	$1,888.49
HG-HG9999.999	Finance	$20,933.67	$38,072.43	$7,760.71
LB5-LB1050.799	Theory & Practice of	$2,137.97	$-	$1,543.72

LC range	Description	Books	Electronic Resources	Subscriptions
	Edu..			
P-P9999.999	Philology, Linguistics	$15,856.78	$1,456.61	$1,743.95
QA75-QA76.959	Computer Science	$10,936.18	$32,704.43	$2,946.09
TK-TK9999.999	Electrical Engineering…	$24,318.44	$1,859.57	$2,061.57
Totals		**$166,472.43**	**$159,626.16**	**$47,164.86**

FY 2008/2009

LC range	Description	Books	Electronic Resources	Subscriptions
HB-HB9999.999	Economic Theory	$10,954.90	$19,660.00	$2,921.72
HC-HC9999.999	Economic Hist. & Conditions	$20,252.87	$79,847.39	$9,818.15
HD-HD100.999	Economics: Production	$32,149.46	$39,357.11	$4,705.94
HD9000-HD9999.999	Special Industries & Trades	$10,759.06	$824.77	$3,184.72
HF5001-HF5392.999	Business	$734.68	$11,091.25	$1,098.88
HF5401-HF5541.999	Marketing, Distribution	$8,255.71	$-	$7,964.87
HF5546-HF5549.999	Office Organization/Mgmt	$4,125.00	$68.95	$2,432.80
HF5601-HF5689.999	Accounting	$4,389.62	$18,237.50	$5,977.45
HF5717-HF5746.999	Business Communication	$1,054.20	$-	$242.40
HF5801-HF6182.999	Advertising	$1,022.26	$-	$2,226.77
HG-HG9999.999	Finance	$16,719.19	$59,282.63	$14,934.26
LB5-LB1050.799	Theory & Practice of Edu..	$3,487.25	$-	$2,259.04
P-P9999.999	Philology, Linguistics	$11,066.81	$1,252.67	$1,436.77
QA75-QA76.959	Computer Science	$15,771.32	$36,435.50	$2,340.36
TK-TK9999.999	Electrical Engineering…	$32,584.72	$1,479.65	$3,533.75

		$173,327.		
Totals		**05**	**$267,537.42**	**$65,077.88**

FY2007/2008

LC range	Description	Books	Electronic Resources	Subscriptions
HB-HB9999.999	Economic Theory	$11,783.99	$20,675.00	$2,393.05
HC-HC9999.999	Economic Hist. & Conditions	$21,201.92	$55,005.59	$4,303.10
HD-HD100.999	Economics: Production	$26,257.05	$37,517.64	$5,223.72
HD9000-HD9999.999	Special Industries & Trades	$7,752.32	$1,467.58	$3,423.70
HF5001-HF5392.999	Business	$828.96	$13,445.00	$1,947.02
HF5401-HF5541.999	Marketing, Distribution	$7,129.18	$17,215.00	$8,652.13
HF5546-HF5549.999	Office Organization/Mgmt	$4,113.14	$-	$1,861.04
HF5601-HF5689.999	Accounting	$4,948.41	$16,482.12	$5,398.84
HF5717-HF5746.999	Business Communication	$1,117.41	$-	$402.51
HF5801-HF6182.999	Advertising	$2,626.34	$-	$1,996.19
HG-HG9999.999	Finance	$10,468.30	$71,177.81	$10,800.52
LB5-LB1050.799	Theory & Practice of Edu..	$3,149.49	$-	$447.25
P-P9999.999	Philology, Linguistics	$17,823.58	$1,268.05	$2,550.24
QA75-QA76.959	Computer Science	$20,844.62	$29,725.50	2,107.66
TK-TK9999.999	Electrical Engineering...	$29,836.86	$1,699.40	$2,745.78

		$169,881.		
Totals		**57**	**$265,678.69**	**$54,252.75**

Appendix 1. Library Learning Environment (Inputs/Outcomes)

Snasphot
Source: CARL statistics – 2009-2010 data[i]

Local Collections

Number of Volumes	607,895
E-monograph Titles	97,478
Volumes added	40,288
Cartographic materials	29,065
Audio materials	8,904
Film and videos	13,181
Current serials – print	1,591
E-serials titles	49,942

Expenditures

Print Monographs	$1,037,945
Electronic monographs	$104,505
Serials	$391,259
Electronic resources	$2,361,650

Teaching and Learning Snapshot

#liaison librarians	23
# reference transactions	44,767
# class sessions	278
# students participating in total	10,580

External Rankings
Source: Maclean's University Rankings - 2010

Libraries	Rank	Measure
% library budget spend on holdings	7 / 15	41%
% of university budget spent on library	13 / 15	3.7%
# volumes per student	15 / 15	51

Source: Council of Ontario Universities 09/10 [ii]
University operating expenditure and library support

	Total library Expenditure	% university budget
Ryerson	$11,912,000	3%
Provincial average	$14,076,714	5%

Library Services and Spaces

Spaces for learning and research [iii]

# Study spaces	840
# Accessible workstations	12
# Study room capacity	250
# Graduate study spaces	66
Turnstile count (sample day)	10,806
Writing Centre	√
Math Assistance Centre	√

Enrolment FTE Activity (all counts per FTE)
Source: CARL – 2009/2010 data [iv]
FTE as reported to CARL: 21,622
Provincial averages in brackets
Inputs

Ratio students / librarian	745.6 (686.8)
Ratio students / library personnel	212.8 (168.7)
Total Library budget/FTE	$11,912,000 / $550
Total acquisitions budget/FTE	$3,895,359 / $180
Total staffing budget/FTE	$7,060,976 / $327
# study spaces/FTE	.01

Outputs

Turnstile counts/FTE***	10,806 / .50
# participants in library instruction/FTE	10,580 / .49
# reference questions/FTE	44,767 / 2.07
# reserve loans/FTE	95,531 / 4.42
# interlibrary loans borrowing/FTE	10,398 / .48
# interlibrary loan lending/FTE	4,589 / .21
# books circulated annually/FTE	342,577 / 15.84
# e-serials/FTE	49,942 / 2.31
# full text downloads/FTE (scholarsportal)	2,276,914 / 105

Technology Services

Scanners	10
Photocopiers	11
Computers / laptops for loan	516
Viewing / borrowing equipment	Laptops, headphones, DVD players
Specialized software available in Geospatial Map and Data Centre	ArcGIS 9.x/8.x, ArcView 3.x, MapInfo, DMTI Geopinpoint Suite

Convenient & Accessible Services

Hours of service	8am-12am (M-F); 10am-12am (Sat/Sun)
Wireless	√
24/7 access via proxy	√
Single sign on	√
Mobile Web APPs	√
Online communication via Chat, Blogs, facebook, twitter	
E-reserves	√
Self-check-out	√
AODA compliant	√
Integrated one-card	√

ENDNOTES: APPENDICES

i http://www.carl-abrc.ca/projects/statistics/statistics-e.html Most recent year may not be online; obtain from local office charged with data collection.
ii http://www.cou.on.ca/statistics/cofo-uo - Use Static reports for institution level and Financial Report Highlights for provincial data
iii Numbers must be obtained locally; may not be possible to match to other categories' reporting year unless data maintained on an annual basis.
iv http://www.cou.on.ca/Statistics/CUDO.aspx Select link to home institution. It is important to use CUDO data for benchmarking purposes and data integrity.
Use most current year available, or the year that matches the CARL stats being used.