FOR CONFIRMATION   **PUBLIC**   **CLOSED SESSION**

TO: Executive Committee

SPONSOR: Professor Cheryl Regehr, Vice-President and Provost
CONTACT INFO: 416-978-2122; cheryl.regehr@utoronto.ca

PRESENTER: Sioban Nelson, Vice-Provost, Academic Programs
CONTACT INFO: vp.academicprograms@utoronto.ca

DATE: January 30 for February 6, 2018

AGENDA ITEM: 4(a)

ITEM IDENTIFICATION:

Proposal for a new Bachelor of Information leading to a new degree, Faculty of Information.

JURISDICTIONAL INFORMATION:

The Committee on Academic Policy and Programs has the authority to recommend to the Academic Board for approval new undergraduate programs leading to new degrees *(AP&P Terms of Reference, Section 4.4.a.i).*

GOVERNANCE PATH:

1. Committee on Academic Policy and Programs [for recommendation] (January 11, 2018)
2. Academic Board [for approval] (January 25, 2018)
3. **Executive Committee [for confirmation] (February 6, 2018)**

PREVIOUS ACTION TAKEN:

The proposal for the Bachelor of Information received approval from the Faculty of Information on November 30, 2017.

HIGHLIGHTS:

The proposed Bachelor of Information (BI) is a two-year (five-session), full-time second-entry professional undergraduate degree program to be offered by the Faculty of Information. It will consist of 11.0 full-course equivalents (FCEs). Students are expected to apply during Year 2 of their undergraduate degree program.

The BI will consider the interactions between social worlds and information technologies, providing students with the conceptual tools and practical techniques necessary to understand and effect change in a data-intensive society. The program integrates design thinking, critical scholarship, and experiential learning to provide students with the knowledge and skills necessary to design and critique complex technical, political, and cultural responses to new and enduring information practices. An interdisciplinary approach draws on social science, the humanities, and computing science to understand information and communications technologies and practices as they are implicated in larger systems of power. Students will study how data is generated, exchanged, transformed, deployed, and used, and the way that these processes mediate the maintenance and transformation of knowledge, individuals, cultures, and institutions.

The academic content of the BI is clustered around three interdependent content areas: the first examines theories of information, power, and culture; the second addresses how information practice is organized at many social and political scales; and the third concerns techniques of digital practice. In addition, students will take two integrative courses: Work Integrated Learning Practicum and Capstone Project, which will allow students to fully consolidate their learning. Students also take four elective courses in order to focus on areas of particular interest. Students will be enrolled continuously for five sessions (F/W/S/F/W). During the Summer session, students will be enrolled in the Work Integrated Learning Practicum and a studio course.

The degree program will appeal those who wish to complete a program that is design focussed, professionally oriented, and critically engages current issues in the study of information. Students will be eligible to apply in the spring of Year 2 of undergraduate study. They must have a minimum average of 70% in the last 5.0 FCEs completed and at least 0.5 FCE with a grade of 70% in each of the following areas: formal systems, socio-cultural systems, and creative practice.

Graduates will be prepared for careers in three areas. The first area is creation of information products and systems; jobs in this area include web publishing, interactive media design, and information systems design. The second area is information policy and research; jobs in this area include business, policy, and research analysis, and privacy and information regulatory compliance oversight. The third area is in information management and cultural stewardship; jobs in this area include library, archives, and record systems management.

Consultation at the University of Toronto has occurred with the Faculty of Applied Science and Engineering; the Faculty of Arts and Science; the John H. Daniels Faculty of Architecture, Landscape, and Design; the Faculty of Law; the Faculty of Medicine; the Faculty of Music; the Joseph L. Rotman School of Management; the Factor-Inwentash Faculty of Social Work; the Ontario Institution for Studies in Education; University of Toronto Mississauga; and University of Toronto Scarborough.

The program was subject to external appraisal on August 10 and 11, 2017 by Professor John Leslie King, iSchool, University of Michigan and Professor Pam McKenzie, Faculty of Information and Media Studies, Western University. The external appraisers made a number of suggestions which resulted in changes to the program, as reflected in the Dean's response to the appraisal report.

FINANCIAL IMPLICATIONS:

The new financial obligations resulting from this program will be met at the Faculty level.

RECOMMENDATION:

Be It Confirmed by the Executive Committee

THAT the proposed Bachelor of Information, which will confer the degree BI, as described in the proposal from the Faculty of Information dated October 24, 2017, be approved effective September 1, 2019.

DOCUMENTATION PROVIDED:

- *Proposal for the Creation of the Bachelor of Information*

University of Toronto
New Undergraduate Program Proposal

(This template has been developed in line with the University of Toronto's Quality Assurance Process.)

This template should be used to bring forward all proposals for new undergraduate programs for governance approval under the University of Toronto's Quality Assurance Process. It is designed to ensure that all evaluation criteria established by the Quality Council are addressed in bringing forward a proposal for a new program.

Please note that all proposed new undergraduate programs are subject to external review.

Name of Proposed Program:	**Information**
Degree conferred:	**Bachelor of Information**
Department / Unit (if applicable) where the program will be housed:	**Faculty of Information**
Faculty / Academic Division:	**Faculty of Information**
Dean's Office Contact:	**Anna Pralat; anna.pralat@utoronto.ca**
Proponent:	**Wendy Duff, Dean, Faculty of Information**
Direct entry or selection of POSt at end of 1st year:	**Second entry**
Version Date:	**24 October 2017**

New Undergraduate Program Proposal

Bachelor of Information

Faculty of Information

Contents

1. Summary

Please provide a brief overview of the proposed program summarizing many of the points found in more detail elsewhere in the proposal. This may need to be used on a stand-alone basis and should include:

- *A clear statement of purpose / a description of what is being proposed (including the normal program length and, where applicable, a short reference to the appropriateness of the degree designation and program name)*
- *The academic focus of the program*
- *The impetus for the program's development (including student demand/societal need) and how it fits with the Unit/Division's academic plans*
- *Projected enrolment*
- *The approach used in the development of the proposal, and*
- *Any distinctive elements*

The Faculty of Information is proposing a new 2-year second entry undergraduate degree program – a Bachelor of Information (BI). The BI will consist of 11.0 full equivalent courses (FCE) and students will apply during year 2 of their undergraduate degree. We anticipate steady state enrolment of 100 incoming students per year, with a total enrolment of 200 students.

The BI will consider the interactions between social worlds and information technologies, providing students with the conceptual tools and practical techniques necessary to understand and effect change in a data-intensive society. An interdisciplinary approach will draw on social science, the humanities and computing science, encouraging creative and critical approaches to the complex problems and opportunities that face society. Students will study how data is generated, exchanged, transformed, deployed, and used, and the way that these processes mediate and are mediated by cultural, legal, economic, and technical structures and institutions. Students thereby will engage with some of the most complex challenges facing our society, using their social insights and technical capabilities to create sustainable social and technological solutions.

The program integrates design thinking, critical scholarship, and experiential learning to provide students with the knowledge and skills necessary to design and critique complex technical, political, and cultural responses to new and enduring information practices.

The academic content of the BI is clustered around three interdependent content areas comprising 9.0 Full Course Equivalents. The first examines **theories of information, power and culture**. These courses engage questions of what information does, and why it is makes a difference in human life. The second cluster addresses **how information practice is organized** at many social and political scales. The third cluster concerns **techniques of digital practice**,

including four studio based courses. Other required courses are preparatory, teaching students the skills they need to excel in the more advanced courses. The curriculum also includes two work-integrated learning courses.

In addition to the common core, students will take 2 FCE of advanced elective courses, allowing them to focus on areas of particular interest, moment, or concern.

Our experience as an interdisciplinary Faculty of Information has convinced us that all professions and careers demand an understanding of the processes of data creation, management, and transfer that increasingly organize social, political, and economic life. In particular, the BI's integrative, critical, humanities and social science based approach to information technologies and practices will prepare graduates for vital and enriching careers in three areas. The first is the **creation of information products and systems**. Jobs in this area include *web publishing*, *interactive media design*, and *information systems design*. The second is **information policy and research**. Jobs in this career area include *business, policy, and research analysis*, and *privacy and information regulatory compliance oversight*. The third area is in **information management and cultural stewardship**, including *library, archives, and records systems management*. For some of these career paths, the BI will serve as a terminal degree.

Three programmatic features make the program unique. The first is a required research, government, non-profit, or business practicum. The second is the integration of modes of learning through lecture based and studio based courses. Throughout the curriculum, studio based courses use hands on and experiential learning to engage and elaborate the intellectual content of the program's lecture based courses, while providing students with familiarity and expertise in common types of software and hardware suites. This is a reflection of the third unique feature – an integration of technological and critical perspectives with an eye toward professional job skills.

In developing this program, we have relied on student responses to existing undergraduate programs, published governmental and academic reports on trends in employment and education, and consultation within the Faculty and within the University, as well as consultation with potential employers.

2. Effective Date

Anticipated date students will start the program

September 2019

New Undergraduate Program Proposal for Bachelor of Information

3. Program Rationale

(you may wish to use the headings below)

- *Identify what is being proposed and provide an academic rationale for the proposed program (What is being created and why)*
- *Explain the appropriateness of the program name and degree nomenclature*
- *If relevant, describe the mode of delivery (including online) and how it is appropriate to support students in achieving the learning objectives of the program*
- *Context*
  - *Discuss how the program addresses the current state of the discipline or area of study. (Identify pedagogical and other issues giving rise to the creation of this program. Where appropriate speak to changes in the area of study or student needs that may have given rise to this development)*
  - *Describe the consistency of the program with the University's mission and unit/divisional academic plan and priorities*
- *Distinctiveness*
  - *Identify any distinctive/ innovative aspects of the proposed program*
  - *Identify similar programs offered at the University and/or by other universities (with specific reference to those in Ontario) and describe how they may be different or similar from the current program. (In doing this you may wish to append a table describing other programs)*

The Faculty of Information is proposing a new 2-year second entry undergraduate degree program – a Bachelor of Information (BI).

The BI considers the interactions between social worlds and information technologies, providing students with the conceptual tools and practical techniques necessary to understand and effect change in a data-intensive society.

An interdisciplinary approach draws on social science, the humanities, and computing science to understand information and communications technologies and practices as they are implicated in larger systems of power. Students will study how data is generated, exchanged, transformed, deployed, and used, and the way that these processes mediate the maintenance and transformation of knowledge, individuals, cultures, and institutions. Students thereby will engage with some of the most complex challenges facing our society, using their social insights and technical capabilities to create sustainable intellectual, social, and technological responses. Students will engage, theoretically and practically, in debates over digital culture, surveillance and privacy, Internet governance and policy, intellectual property, human-computer interaction, information systems design, the making and un-making of collective memory, and the discourse of innovation and technological development.

As a whole, the program integrates design-thinking, critical scholarship, and experiential learning to provide students with the knowledge and skills necessary to design and critique complex technical, political, and cultural responses to new and enduring information practices.

Within the BI, students will learn to
- understand and assess the social, political, economic, and ethical entailments of information creation, ownership, stewardship, and circulation, especially in light of enduring and emerging ethical and political questions, including, for example, intellectual property, democracy, and individual and cultural autonomy;
- critique the conceptual and philosophical foundations of representation and computation;
- critique, create, and use data models and algorithmic representations of social phenomena and practices;
- understand, critique and use multiple techniques of data creation, manipulation, and interpretation;
- use current information and computing tools and learn to use similar tools that may be developed in future;
- develop and defend methods to analyze complex information practices and the political, economic, technical, and cultural contexts in which they occur;
- use the design process to understand, analyze and engage with complex questions of information practice;
- work collaboratively and professionally, on interdisciplinary teams or independently, to analyze, address, and engage enduring and emerging problems relating to information technologies and practices;
- apply their knowledge and skills in a manner that demonstrates ethical, cultural, and legal awareness; and
- engage with digital technologies through both a pragmatic and a reflexive lens.

The program will do this through 11 Full Course Equivalent (FCE) of lecture-based, studio-based, and practical courses. Nine FCE form a common core, and are clustered around three interdependent content areas. The first examines **theories of information, power and culture**. Courses in this area include *Introduction to Information and Power*; *Information, Memory, and Culture*; *Information in the Global Economy*; *Information in the Cultural Imaginatio*n; and *Worlds become Data*. Generally and as a whole, these courses engage questions of what information does, and why it is makes a difference in human life. The second cluster addresses **how information practice is organized** at many social and political scales. This cluster includes *Integrative Approaches to Technology and Society*; *Information Practice in Organizations*; and *Information Policy in Canadian and Global Context*. The third cluster concerns **techniques of digital practice**. This cluster is comprised of *Computational Reasoning*; *Data Analytics*; and four studio based courses – *How to Make a Computer (and Why)*; *Designing Interactive Systems*; *Information Visualization; and Coding*. Other common courses are preparatory, teaching students the skills they need to excel in the pedagogic process itself. These include *How to Design*, *Research Design*, and *Practicum Prep for the Non-academic Workplace.* The common

curriculum also includes two integrative courses – *Work Integrated Learning Practicum* and *Capstone Project*.

In addition to the common core, students will take 2 FCE of advanced elective courses, allowing them to focus on areas of particular interest, moment, or concern. These might include courses in *Audience Production*, *Information and Political Activism*, *Histories of Information Technologies*, *Digital Material Culture*, *Surveillance*, *Policy*, *User Interface Design*, or *Information Systems Design*, to name a few.

Appropriateness of the program name and degree nomenclature
We propose the name "Information." While there are no existing undergraduate degree programs in Information in Canada, there are numerous programs of Information Systems, Information Science, or Information Technology. These generally focus on information systems management and design in organizations. (Please see Appendix D for a table comparing these programs and our proposed BI.) The absence of a qualifier in the title of our program signals that our program integrates humanities and social science approaches, as well as technological and systems-based approaches, to the study and practice of Information.

Further, we propose a new degree – a Bachelor of Information – rather than a specialist program within an existing Bachelor of Arts or Bachelor of Science degree program.   We do this in recognition of the fact that the field of Information is a unique amalgam of skills, knowledge, and area interests that integrates the separate foci of arts, humanities, sciences, and engineering. Our curriculum is designed around attention to information tools and practices as both constitutive of and produced by human concerns and interactions. It includes elements typically considered the purview of the BA, such as, for example, political economy, cultural analysis, and the philosophy of representation. It also includes elements typical of a BSc degree, such as data analytics, analysis of organizational needs, systems design, and visualization. Uniquely in the BI, however, neither the attention to skilled practice nor to critical analysis is foremost. Instead, professionalism, praxis, and creativity are integrated throughout the curriculum. Design and studio projects integrate at structural and conceptual levels hands-on, experiential, creative learning with critical analysis. We aim to produce graduates who can not only understand, but also make and do.

The human, social, technical, economic, and environmental implications of information practice in the world today are terribly difficult problems, extending across all areas of employment, sociality, and political engagement. These require a design approach, a social and technical approach, and a focus on human values and perspectives. It is our unique strength of the Faculty's Master of Information (MI) degree at the Faculty of Information to bring these together, and the BI builds on this success and extends it to undergrad education.

Appropriateness of mode of delivery

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The program is structured around three modes of pedagogy: lecture based courses, small enrollment studio-based courses, and practica. These mutually supportive modes of learning are essential to adequately address the fundamental principal that social, intellectual, and technical structures reference and support each other, and that both pragmatic and reflexive skills are essential to understand and navigate today's society.

Some of the studio-based courses will necessarily be taught face-to-face. Experiential, participatory studio classes integrate the skills, perspectives, and knowledge first introduced in the lecture classes. In these classes, students will build computers, learn design perspectives and processes, and use current professional software. These experiences will support students in developing technical skills in parallel with the reflective understandings that will help them situate and contextualize information as a socio-technical phenomenon.

Others, and some of the lecture-based courses, may be appropriate for online delivery. However, all will initially be taught face to face.

Current state of the discipline
The discipline of Information is the site of radical change, evidenced by the emergence of the "iSchool" movement. Since 2005, the iSchool consortium has advanced the field of Information, forging it from a variety of cognate disciplines, including Computer Science, Information Science, Informatics, and Library Science. Members of the iSchool consortium share a "fundamental interest in the relationships between information, people, and technology [and] take it as a given that expertise in all forms of information is required for progress in science, business, education, and culture. This expertise must include understanding of the uses and users of information, the nature of information itself, as well as information technologies and their applications."(iSchool Charter; http://ischools.org/about/charter/)

As the first and leading Canadian iSchool, the Faculty of Information has been instrumental in this interdisciplinary intellectual movement, adding to it a unique emphasis on digital humanities, archives, museums, and other institutions of cultural memory. With the BI, we continue that intellectual work by developing, at an undergraduate level, an integrated approach to practices and institutions of information creation, ownership, stewardship, and use.

Consistency with the University's mission and the Faculty's academic plan
The Faculty's strategic reports have addressed the institutional need for an undergraduate program since 1990. But more specifically, the BI program reflects pedagogic, professional, and social goals articulated in the Faculty of Information's 2012-2017 Strategic Plan. Through the sequence of design studio courses, and through the Work-Integrated Learning Practicum, it "engag[es] students in experiential, experimental, and empirical learning," "engage[s] students in research," and "enhance[s] practica and internship initiatives." Throughout, it "foster[s] an environment that supports interdisciplinary, inclusive and multiple modes of learning" and "develop[s] space for critical dialogues with faculty about values, agendas, and social needs." As

a whole, it is "innovative, responsive to change, challenging and critical" and will "produce graduates who have knowledge and values appropriate to their future exercise of cultural, economic, and/or social leadership." (*iSchool Strategic Plan 2012-2017: Pathways to Our Future*; available at https://ischool.utoronto.ca/wp-content/uploads/2016/11/ischool_strategicplan2012-17-1.pdf)

In content, structure, and intent, the BI responds to President Gertler's call to rethink undergraduate education, articulated in "Three Priorities: A Discussion Paper" (M. Gertler, 2015, University of Toronto; http://threepriorities.utoronto.ca/). In focusing on information, the BI aims at a vibrant engine of regional, national, and global economic growth. Yet it also affirms the value of liberal arts and the social sciences, insisting on a constant reference to enduring and perennial questions of ethics, power, and justice while honing the "analytical capacity, problem-solving ability, … critical and creative thinking, … strong written and oral communication skills, and … breadth of knowledge that provides a well-rounded foundation for a lifelong career of progressively responsible positions." (p 26).

President Gertler suggests three elements of a strategy for reconceiving undergraduate education. These include
- providing more opportunities for research-based and experience-based learning,
- exploring new learning modes and technologies, and
- helping students manage the transition from study to work. (p 21)

The practica requirement of the BI engages several of these. Not only does it offer experiential workplace-based learning, it specifically includes university research as a viable and valuable site of workplace learning. The practicum will not only strengthen the social ties between the University and regional employers, but also foster 'vertical' research communities within the University. It will also help our students manage their transition from study to work.

The BI incorporates new learning modes and technologies in its six small enrolment, studio-based courses. These use hands on and experiential learning to engage, elaborate, and extend the intellectual content of the program's lecture based courses, while promoting familiarity and facility with families of digital tools.

Distinctive and innovative aspects
Three programmatic features make the program unique. The first is a required research, government, non-profit, or business practicum. Work-integrated learning is a critical part of the BI's focus on understanding through making and doing. It will enable students to put into practice the knowledge and theories developed through the courses and to integrate the social, humanistic, and technical in specific professional settings.. The second is the integration of modes of learning through lecture based and studio based courses. Throughout the curriculum, studio based courses use hands-on and experiential learning to engage and elaborate the intellectual content of the program's lecture based courses, while providing students with familiarity and expertise in common types of software and hardware suites. Both of these

reflect of the third unique feature – an integration of technological and critical perspectives with an eye toward professional job skills.

Comparison with other university programs
Please see the section on Need and Demand and Appendix D for a detailed comparison of the proposed BI with other programs, both inside and outside U of T.

4. Need and Demand

- *Provide a brief description of the need and demand for the proposed program focusing, as appropriate, on student interest, societal need, employment opportunities for prospective graduates, interest expressed by potential employers, professional associations, government agencies or policy bodies and how this has been determined*
- *How is the program distinct from other programs at the U of T? (Address if relevant how this program might affect enrolment in other related programs offered here)*
- *With specific reference to the impact on need and demand, describe how the proposed program relates to (is similar to or different from) existing programs offered by other universities in North America and Internationally (with specific reference to Canadian and Ontario examples). In doing this you may wish to append a table showing other programs.*

Social and societal need
The BI's integrative, critical, humanities and social science based approach to information technologies and practices will prepare graduates for vital and enriching careers in three areas, that parallel the three themes of the curriculum. The first is the *creation of information products and systems*. Jobs in this area include web publishing, interactive media design, and information systems design. The second is i*nformation policy and research*. Jobs in this career area include business, policy, and research analysis, and regulatory compliance officer. The third area is in *information management and cultural stewardship*, including libraries, archives, and records systems management. In each of these areas, the program will produce graduates who are able to assess the social, ethical, and technical implications of the projects they are pursuing, to muster broad inter-disciplinary perspectives on that project, and to integrate those perspectives in designing specific political, technical, or cultural responses.

For some of these career paths, the BI will serve as a terminal degree. In other cases, it will provide excellent preparation for professional degrees in, for example, libraries and archives, law, business, urban planning, or public policy.

We believe that there will be great demand for this program. This belief is bolstered by numerous government, industry, and academic reports, and by our consultations with former students and potential employers. Together, these affirm the need across many sectors for transdisciplinary, integrative expertise.

SSHRC's Imagining Canada's Future initiative, launched in 2011, identifies the challenge of "understand[ing] the ethical, environmental, economic, legal and social implications" of digital technologies as necessary in order to "benefit from, integrate and adapt to these technologies", and to "stay ahead of the curve, mitigate risks and take advantage of emerging opportunities." The report urges attention to several questions that are at the heart of our curriculum, including "What is needed in order to maximize equitable access to information and communication technologies, foster digital literacy, and mitigate the digital divide in Canada and the world? In what ways might emerging technologies affect the behavior of citizens in all aspects of their lives, institutions and governments?... How can citizens, organizations and governments balance competing needs of security and privacy in an increasingly "open" society? How might Canadians be affected by new developments in "big data," data analytics and information management?" (http://www.sshrc-crsh.gc.ca/society-societe/community-communite/Future_Challenge_Areas-domaines_des_defis_de_demain-eng.aspx)

The BI's commitment to practica and labs reflects the 2015 recommendation of the Ontario Premier's Highly Skilled Workforce Expert Panel, which was appointed, to develop a strategy to help the province's current and future workforce adapt to the demands of a technology-driven knowledge economy." That report recommended that every Ontario student have "at least one experiential learning opportunity by the time they graduate from post-secondary education." (Building the Workforce of Tomorrow: A Shared Responsibility. The Premier's Highly Skilled Workforce Expert Panel. June 2016. https://www.ontario.ca/page/building-workforce-tomorrow-shared-responsibility, p. 60.)

Increasingly, there is an identified need for people who have "T-shaped skills"; that is, people who display depth in a particular field of study (the stem of the T) and an ability to communicate and collaborate across disciplines (the top of the T) (see, for example: http://chiefexecutive.net/ideo-ceo-tim-brown-t-shaped-stars-the-backbone-of-ideoae%E2%84%A2s-collaborative-culture/). Researchers have described T-shaped professionals as: "... lifelong learners with open minds who collaborate easily across their local and global networks. They are broad, empathic communicators and challenge seekers as well as deeply engaged, critical thinkers." (Demirkan, H., & Spohrer J. 2015. T-Shaped Innovators: Identifying the Right Talent to Support Service Innovation. Research-Technology Management, 58(5), pp. 12-15. http://dx.doi.org/10.5437/08956308X5805007) The BI program, as designed, produces "T-shaped" professionals by encouraging critical perspectives and interdisciplinary training, and applying that breadth of understanding to particular issues, problems, and situations.

Industry interest in the field of Information is evidenced by the success of our MI co-op, which in the inaugural year, 2015, achieved a 96% placement rate. All of those placed received positive ratings from supervisors. Similarly, the Faculty succeeds in placing its graduates. The Faculty surveys its alumni one year post graduation. In 2015, 91% of respondents identified they had found employment within 6 months of graduation. Additionally, 53% (of 91%) indicated permanent employment; 47% contract employment; and, 94% in closely and/or somewhat closely related positions.

The Faculty also consulted with over 25 representatives of possible employers[1]. All of these were in positions of strategic hiring and management in organizations including multi-national computing and banking corporations; policy and analytics support in fields of health, energy, and immigration services; incubator services; library support services; public libraries; public archives; and privacy regulators.

These interviewees recognized the BI program as unique, and identified its greatest strengths in its interdisciplinarity, its breadth, and its integration of lecture and studio courses. These strengths were perceived to address a need among employers for employees who could understand the "ecosystem" in which information production, management, and analysis occurred, as well as the tools and practices of that production, management, and analysis. These skills were deemed valuable across the board – in small, mid-sized, and very large organizations; in non-profits, government agencies, and multinational corporations; for entry-level positions and throughout an individual's career.

Primarily, our interviewees described a need for people who can recognize and define problems of information practice, gather and interpret the data relating to those problems, and translate those findings into services and programs. They also cited a need for people who can monitor and evaluate the impact of programs to justify them to stakeholders – who can "take data [regarding a program] and tell a story" to prove that the programs provide value to stakeholders. In addition to this start-to-finish project management, interviewees mentioned a need for people who can manage their organizations' increasingly complex and heterogeneous information resources. Throughout, interviews described a need for "independent thinking persons capable of making informed decisions."

Interviewees noted that this interdisciplinary expertise in both social and technical systems differentiated the BI from programs in Computer Science or Information Engineering.

The tasks described require a particular sets of skills and knowledge. employees would be required to understand the needs of the communities that information projects are intended to serve, and to operationalize those needs in specific project designs. They would need to understand the cultural, political, and economic ecosystem in which particular stakeholders operate, and in which particular projects occur. They should be able to define the problems

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[1] The names and affiliations of the interviewees are included as Appendix E.

that data and information are intended to address, and the arguments that data is intended to support. They should be able to translate and communicate among different communities, with special familiarity with the discourse and language of business and entrepreneurship.

Especially in small firms, employees will manage their own projects. They will need training and experience in working in teams, in communicating among people with different vocabularies and skills, in listening, remaining open, and encouraging conversation. Finally, employees need skills in information organization, including issues of digitization, preservation, searching, and reliability.

These skills are integrated into our curriculum. The required courses, including the practicum and capstone, provide training in design skills, including requirements gathering, business or other contextual analysis, the translation of those requirements to specs and functionality, prototyping, and testing. They include project management skills including interpersonal communication techniques, and presentation skills including information visualization. Students will be able to code and to work with a changing set of popular platforms and software tools.
Students engage issues and practices of the digitization – the creation and management of digital resources. Moreover, and uniquely, students attain a familiarity with social, political, and economic context of information practice, including issues of privacy and public access to information.

The elective courses provide an opportunity for acquiring advanced expertise in sociological analysis, information analysis, information visualization, policy, and design.

Comparison with other Bachelor's programs
In developing the BI, we examined the undergraduate offerings of all major iSchools in the US and Canada, the media studies offerings of Canadian schools, and similar programs offered in the GTA and at all three campuses of the University of Toronto.

At U of T, we considered cognate programs including the Information Engineering Stream in the Industrial Engineering BASc, St Mike's Book and Media Studies major, the Media Studies major at Scarborough, the Interactive Digital Media (IDM) Specialist Program and the Communication, Culture, Information and Technology (CCIT) major at Mississauga. Our peers in Canadian Media Studies would be the University of Western Ontario, Simon Fraser University, the University of British Columbia, and York University. In the U.S, we reviewed undergraduate majors in the iSchools at Syracuse, Drexel, Florida State University, Georgia Tech, Penn State, Rutgers, U Indiana, U Maryland, U Michigan, U Colorado, U North Carolina, and Michigan State.

A detailed comparator table is available in Appendix D. Briefly, though, we are distinct from information Science and other BS or BASc programs in that these tend to focus on the design

New Undergraduate Program Proposal for Bachelor of Information

of information systems in organizations, while our program integrates historical, social, political, and technical perspectives throughout the curriculum. We are distinct from media studies and other BA programs in that, while we share a focus on the organization and political economy of cultural production, we primarily address the often invisible processes of data creation, management, and transfer that increasingly organize social, political, and economic life.

The structure of the BI grew, in part, from the Faculty's experience with the Interactive Digital Media Specialist Program, offered in collaboration with CCIT at UTM. Like the proposed BI, IDM explored the transformation of knowledge and culture through critical examinations of the social impacts of new and emerging communication and information technologies. It also took an interdisciplinary and design-oriented approach to the study of the relationship between information infrastructure, business, and culture. During consultations with students on how to improve IDM, we heard the desire that it be more coherent and career-based. During consultation with our own Faculty, we heard the desire that it be broader and more inclusive of all the faculty's expertise. All of these – intellectual and pedagogic coherence, an embrace of the entire field of Information, and a focus on preparation for long and engaging careers – have been incorporated into the curriculum.

Provide details regarding the anticipated yearly in-take and projected steady-state enrolment target including a timeline for achieving it. (Please adjust the table as necessary)

Please note when the program expects to reach steady state.

Table 1: Undergraduate Enrolment Projections

Level of study	Academic year 19-20	Academic year 20-21	Academic year 21-22	Academic year 22-23	Academic year 23-24 (steady state)
1st year	25	50	75	100	100
2nd year	0	25	50	75	100
Total enrolment	25	75	125	175	200

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Enrolment in the BI has been planned and anticipated for through the usual university mechanisms. First year enrolment in BI will be modest, with 25 students in 2019-20. Steady state of 200 is expected to be reached by 2023-24.

Because we expect domestic demand to be very high, we anticipate a relatively low international enrolment. We anticipate approximately 90% domestic and 10% international.

5. Admission Requirements

- *Provide formal admission requirements*
- *Explain how these are appropriate for the program*
    - o *How will they help to ensure students are successful? (How do they align with the learning outcomes of the program)*
- *Explain any additional requirements for admission to the program such as minimum grade point average, special language, portfolio, etc. (and how the program recognizes prior work or learning experience, if applicable)*
- *Is this or not a direct entry program, explain*

The BI is a second-entry undergraduate program. Students will apply directly to the program after having completed at least the equivalent of two years of full-time study at the undergraduate level in any discipline.

To be eligible for admission to the BI, applicants must submit:

1. *Official Transcripts Meeting Academic Requirements*
   Completion of at least 10.0 FCE university-level courses, 4.0 FCE of which must be at the 200-level or greater.
   a. A minimum average of 70%, or 2.70 GPA in the most recent 5.0 FCE completed.
   b. At least 0.5 FCE with a grade of 70% or above in each of the following areas:
      i. formal systems (example courses include Calculus, Statistics, Formal Logic, Coding, or other math or science focused courses),
      ii. socio-cultural systems (example courses include Media Studies, Cultural Studies, Sociology, or other humanities or social science courses), and
      iii. creative practice (example courses include Design, Creative Writing, Performance or other art or design focused courses).

Candidates must demonstrate good academic standing and aptitude for transition to the BI program. At the time of application in the spring of second year, only the first 1.5 years of academic standing will be available for initial assessment. Acceptance into the program will

be conditional upon the candidate completing second year and achieving the required academic minimums.

2. *Written Essay*
    A 400-500 word essay will specifically address the applicant's intent in entering the BI program, their expectations of the program, and the ways in which their academic and other experience has prepared them for it. The essay will help the admissions committee identify applicants with excellent written communication skills, and to determine fit between the applicant's expectations and the BI program itself.

3. *Two Letters of Reference*
    Two academic references using standardized forms are used to assess scholarly achievement and level of engagement with academic material and/or extracurricular activities.

4. *Proof of English Facility*
    All applicants educated outside Canada whose primary language is not English must demonstrate proficiency in the English language. The English language requirement may be satisfied using one of the following tests:
    *   Test of English as a Foreign Language (TOEFL) with the following minimum scores:
        o   paper-based TOEFL exam: 600 with 5.5 on the Test of Written English (TWE)
        o   Internet-based TOEFL exam: 107/120 with 24/30 on the speaking section and 27/30 on the writing section.
    *   Michigan English Language Assessment Battery (MELAB) with a minimum required score of 95.
    *   International English Language Testing System (IELTS) with a minimum required score of 8.0.
    *   English Language Diagnosis and Assessment (ELDA)/Certificate of Proficiency in English (COPE) with a minimum required score of 6 and at least 3 in the writing portion.

Together, these application materials will allow the admissions committee to admit only those students with a high likelihood of success in the BI. The admissions committee will examine the admissions portfolio as a whole evaluate them on these criteria:
*   success in current or previous academic environment;
*   English proficiency;
*   written communication skills;
*   demonstrated interdisciplinary interest and facility;
*   fit between students' intent and program goals;
*   evidence of scholarly achievement as cited by academic references.

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We expect the BI to attract students in their first year of a BA, BASc, or BSc degree who wish to complete a program that is design-focussed, professionally oriented, and that critically engages current issues in Information. The following scenarios exemplify possible paths to entry into the BI from the BA and BASc programs at the University of Toronto. Other Canadian programs are very likely to offer similar paths to entry.

The Engineering Student
An Engineering student could meet the BI entry requirements through a combination of core courses, technical electives, and complementary studies / humanities and social science electives in the first two years of undergraduate study.

Formal Systems could include engineering core courses such as: CHE112H1 – Physical Chemistry, MAT188H1 – Linear Algebra, or ECE243H1 – Computer Organization.

Socio-Cultural Systems could include engineering core courses such as: APS301H1 – Technology in Society and the Biosphere I, CIV220H1 – Urban Engineering Ecology, or ESC203H1 – Engineering and Society.

Creative Practice could include engineering core courses such as: AER201H1 – Engineering Design, ECE297H1 – Communication and Design, or a Complementary Studies / Humanities and Social Sciences Elective.

The Arts and Science Student
Arts and Science programs of study are highly flexible and include a vast array of potential pathways with which to meet the BI minimum entry requirements.

Formal Systems could include Arts and Science courses such as: BIO220H1 – From Genomes to Ecosystems in a Changing World, CSC207H1 – Software Design, or STA220H1 – Introduction to Statistics.

Socio-Cultural Systems could include Arts and Science courses such as: ANT204H1 – Anthropology of the Contemporary World, SMC228H1 – Elements of Material Bibliography and Print Culture, or SOC208H1 – Introduction to Social Policy.

Creative Practice could include Arts and Science courses such as: UNI102Y1 – Performing the City, VIC273H1 – The Body: An Exercise, or ENG254Y1 – Indigenous Literatures of North America.

The Architecture Student

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Architecture and Visual Studies programs of study may prepare students to enter the BI program after the first two years.

Formal Systems could include Architecture courses such as: ARC181H1 – Technologies of Architecture, Landscape, Urbanism, and Art I, ARC180H1 – Computation and Design, or ARC281H1 – Structures, Building Systems, and Environments I.

Socio-Cultural Systems could include Architecture courses such as: ARC251H1 – Close Readings in Architecture, ARC253H1 – Close Readings in Urban Design, or HPS202H1 – Technology in the Modern World.

Creative Practice could include Architecture courses such as: JAV101H1 – How to Design Almost Anything, ARC200H1 - Drawing and Representation II, or JAV120H1 – Visual Concepts.

Students from Other Academic Disciplines
Many diverse programs offer entry points to the BI program following the first two years of undergraduate study through a combination of core and elective requirements. Students from all disciplines are encouraged to undertake a breadth of courses from the three broad areas in order to gain the skills necessary for entry into the BI program.

6. Program Requirements

- *Describe in your own words the requirements of the program*
- *Provide as an appendix clear and full calendar copy including:*
  - *An exact program description as it will appear in the calendar including all required courses and recommended electives and their prerequisites*
  - *A detailed copy of the program requirements as they will appear in the Undergraduate Calendar including all required courses and recommended electives and their prerequisites*
- *Provide as an appendix*
  - *A full list of the all courses included in the program including course numbers, titles, and descriptions. Please indicate clearly whether they are new/existing. (Please note that all new courses should be proposed and approved independently in line with established Faculty procedures. Where possible append full course proposals as an appendix)*

The BI program consists of 11.0 FCE over 5 terms (fall/winter/summer/fall/winter). These include:

- 5.0 FCE (10 courses) in required lecture-based courses

INF 301H	Introduction to Information and Power
INF 302H	Integrative Approaches to Technology and Society
INF 311H	Information in the Cultural Imagination
INF 312H	Worlds Become Data
INF 313H	Computational Reasoning
INF 314H	Information, Memory, and Culture
INF 315H	Information Practice in Organizations
INF 411H	Information in the Global Economy
INF 412H	Data Analytics
INF 413H	Information Policy in Canadian and Global Contexts

- 3.0 FCE (6 courses) in required studio-based courses

INF 351H	Information Design Studio I: How to Make a Computer. And Why.
INF 352H	Information Design Studio II: How to Design
INF 353H	Information Design Studio III: Designing Interactive Systems
INF 451H	Information Design Studio IV: Information Visualization
INF 452H	Information Design Studio V: Coding
INF 453H	Capstone Project

- 2.0 FCE (4 courses) in lecture-based electives

INF 481H	Special Topics in Information Studies I (Lecture/Elective)
INF 482H	Special Topics in Information Studies II (Lecture/Elective)
INF 483H	Special Topics in Information Studies III (Lecture/Elective)
INF 484H	Special Topics in Information Studies IV (Lecture/Elective)

Special topics courses offer in-depth examinations of selected topics in Information. These will change from year to year, and may include, for example, Surveillance, Audiences, Information and Political Activism, Critical Histories of Information Technologies, Digital Material Culture, Artificial Intelligence and Deep Learning, Advanced Topics in Policy, Advanced Topics in UXD, Advanced Topics in ISD, Advanced Topics in Info and Culture.

- 1.0 FCE in Practicum (2 courses)

  INF 401H   Practicum Prep
  Section A: Research Design in Information
  OR
  Section B: Practicum Prep for the Non-academic Workplace
  INF 402H   Work Integrated Learning Practicum.

These will be offered according to the following timetable.

Table 2: Timetable for course offerings through the program.

	Fall	*Winter*	*Summer*
Year 1	**INF 301** Introduction to Information and Power **INF 302** Integrative Approaches to Technology and Society **INF 311** Information in the Cultural Imagination **INF 351** Information Design Studio I: How to Make a Computer. And Why. **INF 352** Information Design Studio II: How to Design	**INF 312** Worlds Become Data **INF 313** Computational Reasoning **INF 314** Information, Memory, and Culture **INF 315** Information Practice in Organizations **INF 401** Practicum Prep	**INF 402** Work Integrated Learning Practicum **INF 353** Information Design Studio III: Designing Interactive Systems
Year 2	**INF 411** Information in the Global Economy **INF 412** Data Analytics **INF 413** Information Policy in Canadian and Global Contexts **INF 451** Information Design Studio IV: Information Visualization **INF 452** Information Design Studio V: Coding	**INF 453** Capstone Project **INF 481** Special Topics in Information Studies I **INF 482** Special Topics in Information Studies II **INF 483** Special Topics in Information Studies III **INF 484** Special Topics in Information Studies IV	

Please see Appendix A for proposed calendar copy, including a full list of course descriptions.

7. Program Structure, Learning Outcomes, and Degree Level Expectations

- *Address how the design, structure, requirements and delivery of the program support the program learning outcomes and degree level expectations*
- *Describe how the program structure and delivery methods reflect universal design principles and/or how the potential need to provide mental or physical health accommodations has been considered in the development of this program*
- *Please note, in place of # 6 proponents may wish to follow the model of the new graduate program proposal template and identify DLEs, identify how each DLEs is addressed in this particular program, and specify how the program design and requirements support the attainment of student learning outcomes. Proponents may find the language in the table useful or should feel free to use their own*

For an overview of the program structure and a delineation of the *specific knowledge, practical skills, areas of professional development, , etc. that students will develop, or learn,* in specific courses within the curriculum please see the curriculum map below.

Program Learning Outcomes (PLOs)

PLO 1: understand and assess the social, political, economic, and ethical entailments of information creation, ownership, stewardship, and circulation, especially in light of enduring and emerging ethical and political questions;

PLO 2: analyze the complexity of information practices and the political, economic, technical, and cultural contexts in which they occur

PLO 3: critique the conceptual and philosophical foundations of representation and computation;

PLO 4: critique, create, and use multiple tools and techniques of data creation, manipulation, and interpretation, and be able to learn to use tools that may be developed in the future;

PLO 5: use the design process to understand, analyze and engage with complex questions of information practice.

PLO 6: create practical responses to enduring and emerging problems relating to information technologies and practices in a manner that demonstrates ethical, cultural, and legal awareness.

PLO 7: work collaboratively and professionally on interdisciplinary teams

PLO 8: present their work to audiences with various degrees of familiarity with the field of information and the specific questions the work addresses.

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PLO 9: identify their own skills and expertise and the necessity for enhancing that expertise, either through collaboration or continued learning.

PLO 10: Develop, defend, and use methods of analysis of complex information practices and the political, economic, technical, and cultural contexts in which they occur

PLO 11: recognize recurring patterns of unresolved intellectual and social tension;

Table 3: Curriculum Map

Term taught	Course Code	PLO 1:			PLO 2:			PLO 3:			PLO 4:			PLO 5:			PLO 6:			PLO 7:			PLO 8:			PLO 9:			PLO 10:			PLO 11:		
		I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P
Admission requirements		X									x						x						x									x		
1	INF 301	X																														x		
1	INF 302				x																								X			x		
1	INF 311	X			X																		x						x			x		
1	INF 351	X						x			x			x			x						x											

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Term taught	Course Code	PLO 1:			PLO 2:			PLO 3:			PLO 4:			PLO 5:			PLO 6:			PLO 7:			PLO 8:			PLO 9:			PLO 10:			PLO 11:		
		I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P
1	INF 352	X									x			x			x							x											
2	INF 312		x					x																					x				x	
2	INF 313							x				x																						
2	INF 314		x			x												x						x									x	
2	INF 315		x			x						X						x		x				X							x			x	
2	INF 401					x						x						x			x						x			x				

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Term taught	Course Code	PLO 1:			PLO 2:			PLO 3:			PLO 4:			PLO 5:			PLO 6:			PLO 7:			PLO 8:			PLO 9:			PLO 10:			PLO 11:		
		I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P
3	INF 402											x							x				x						x						
3	INF 353	X				x			x			x			x			x			x			x											
4	INF 411			x		x	x											x							x						x				x
4	INF 412									x			x												X					x					
4	INF 413			x															x						X										x

Term taught	Course Code	PLO 1:			PLO 2:			PLO 3:			PLO 4:			PLO 5:			PLO 6:			PLO 7:			PLO 8:			PLO 9:			PLO 10:			PLO 11:		
		I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I	R	P
4	INF 451		x							x			x			x		x			x				x									
4	INF 452		x						x				x			x		x																
5	INF 453			x			x											x							x		x			x				
Total		6	7	3	2	5	1	4	2	3	3	5	3	2	1	2	3	8	2	1	3	1	3	4	5	1	2	1	3	4	1	4	3	2

I: Introduces fundamental concepts and techniques and relates them to the field as a whole.

R: Reinforces and elaborates concepts and techniques, focuses on specific areas in depth, relatively narrow domain-specific knowledge.

P: Produces proficiency in synthetic and integrative problem solving.

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Table 4: DLEs

Degree Level Expectations	Program Learning Outcomes	How the program design / structure supports the degree level expectations
1. Depth and Breadth of Knowledge Information is a fundamentally trans-disciplinary field. Within the BI, breadth of knowledge includes a working understanding of the technologies, social practices and cultures, economic structures, and legal regimes through which and within which information practices occur. It also includes a familiarity with enduring issues of power, justice, and ethics. Depth of knowledge is understood in two ways. Firstly, it is a working grasp of field-specific knowledge including a) the conceptual, philosophical, and practical fundamentals of computation; b) multiple techniques of data creation, manipulation, and interpretation; and c) enduring and emerging ethical, political, and	**Depth and breadth of knowledge** is reflected in graduates who are able to: Understand and assess the social, political, economic, and ethical entailments of information creation, ownership, stewardship, and circulation, especially in light of enduring and emerging ethical and political questions [PLO 1]; Analyze the complexity of information practices and the political, economic, technical, and cultural contexts in which they occur [PLO 2]; Critique the conceptual and philosophical foundations of representation and computation [PLO 3]; Critique, create, and use multiple tools and techniques of data creation, manipulation, and interpretation, and be able to learn to use tools that may be developed in the future [PLO 4]; Create practical responses to enduring and emerging problems relating to information technologies and practices in a manner that demonstrates ethical,	*PLO 1:* Skills of analysis and assessment of the social, political, economic and ethical entailments of information practices occurs at an introductory level in at an introductory level in INF 301 (Intro to Information and Power), and in studio courses INF 351 How to Make a Computer. And Why, INF 352, How to Design and INF 353 Designing Interactive Systems. Domain specific elaborations of these entailments occur in 311 , Information in the Cultural Imagination 312 Worlds Become Data, 314 Information, Memory, and Culture, 315 Information Practice in Organizations, INF 411 Information in the Global Economy, and studio courses 451 Information Visualization and 452 Coding. In 413 Information Policy in Canadian and Global Context, 453 Capstone Project students will learn to integrate and synthesize these various perspectives on social impact of information *PLO 2:* Skills in recognizing and analyzing the socio-technical complexity of information practice are introduced in INF 302 Integrative

Degree Level Expectations	Program Learning Outcomes	How the program design / structure supports the degree level expectations
organizational issues in information creation, ownership, stewardship, and circulation.

Secondly, it is the ability to integrate and apply this broad knowledge to a particular question within a specific social setting. | cultural, and legal awareness [PLO 6]; | Approaches to Technology and Society.

These skills are further elaborated in INF 311, Information in the Cultural Imagination INF 314 Information, Memory, and Culture, INF 315 Information Practice in Organizations, in the practicum prep INF 401, and in the studio course

These concepts will be integrated at an advanced level in integrative level in INF 411 Information in the Global Economy, in the studio course INF 353 Designing Interactive Systems, and the capstone course, INF 453.

PLO 3:
The conceptual and philosophical fundamentals of computation are introduced and elaborated in INF 312 (Worlds Become Data), INF 313 (Computational Reasoning), and INF 351 (How to Make a Computer and Why.) Students will engage these critically and practically in INF 452(Coding) and INF 412 (Data Analytics).

PLO 4:
Techniques, and choices among techniques, of data creation, manipulation, and interpretation are addressed in all six studio courses (How to Make a |

Degree Level Expectations	Program Learning Outcomes	How the program design / structure supports the degree level expectations
		Computer, How to Design, Designing Interactive Systems, Information Visualization, Coding, and Capstone) as well as many lecture-based courses, including INF 313(Computational Reasoning), INF 315 (Information Practice in Organizations), and INF 412 (Data Analytics).

PLO 6:
Skills of practical engagement are addressed throughout the curriculum, and through many modes of creation.

All of the studio-based courses are focused on skills of using concrete tools to understand and address practical or conceptual problems. Throughout the curriculum, (For example in Information, Memory, and Culture; Information Practice in Organizations ; Information in the Global Economy ; Data Analytics ; and Information Policy in Canadian and Global Context), at increasing advanced depth and complexity, legal, cultural, technical and economic issues are explored as situations inviting creative engagement. Students will be trained and encouraged not merely to understand, but to participate in the development of information practices. |

Degree Level Expectations	Program Learning Outcomes	How the program design / structure supports the degree level expectations
2. Knowledge of Methodologies The Bachelor of Information is an inter-disciplinary degree that strives to be inclusive and recognize the value and limitations of all methods of knowledge production. It especially recognizes ethnographic, political economic, statistical, historical, discursive and design-based methods, and the symbiotic interactions among them.	**Knowledge of methodologies** is reflected in graduates who are able to: Use the design process to understand, analyze and engage with complex questions of information practice [PLO 5]. Develop, defend, and use methods of analysis of complex information practices and the political, economic, technical, and cultural contexts in which they occur [PLO 10]	*PLO 5:* As a multi-disciplinary and integrative program, Information embraces many methods of inquiry. In particular, the BI is committed to design-based inquiry. The design studios (INF 351, INF 352, INF 353, INF 451, INF 452) use hands-on techniques and human-centered design principles to articulate and probe questions raised in the lecture based courses. *PLO 10:* The lecture based courses themselves introduce and develop skills in various research techniques, including large scale data analysis (INF 412: Data Analysis), ethnographic approaches (INF315: Information Practice in Organizations), discursive approaches (INF 311: Information in the Cultural Imagination), and philosophical and critical approaches (INF 312 Worlds Become Data; INF 411 Information in the Global Economy). The skills of choosing between methods will be covered at an introductory level in INF 302 (Integrative Approaches to Technology and Society) and at an advanced level in the Capstone project and INF 401 Section A (Research Methods in Information) which focuses on

Degree Level Expectations	Program Learning Outcomes	How the program design / structure supports the degree level expectations
		the task of designing research projects – of matching social questions to research questions to research techniques. It is intended for students who will be engaging in research practica.
3. Application of Knowledge As a professional degree, the BI trains students to actively engage information practices in complex technical, political, cultural, and economic contexts. These engagements may take many forms, including project management and design; artistic, aesthetic, or intellectual explorations; technological creations; or policy critiques.	**Application of Knowledge** is reflected in graduates who are able to: Create practical responses to enduring and emerging problems relating to information technologies and practices in a manner that demonstrates ethical, cultural, and legal awareness [PLO 6].	*PLO 6:* The Practicum and all of the Design Studios train students engage in, enact, and create information practices in specific social contexts. These engagements may take many technical, aesthetic, or intellectual forms. Students will be expected to argue for the appropriateness of their choices among these forms. Students in more advanced lecture courses will be expected to integrate, synthesize, and apply knowledge acquired in earlier courses through term papers and projects.
4. Communication Skills The BI will enable students to describe and express situations, arguments, and analyses with clarity. They will be able to listen to others and converse toward common ends. They will be able to use oral, written, and other mediated communication tools effectively. They will be aware of the audience	**Communication Skills** are reflected in graduates who are able to: Work collaboratively and professionally on interdisciplinary teams [PLO 7] Present their work to audiences with various degrees of familiarity with	The curriculum provides experiential learning opportunities in communication skills. *PLO 7:* Opportunities to practice collaborative communication skills will take place in many of the studio courses, which will provide guidance on successful group work. The practicum, too,

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Degree Level Expectations	Program Learning Outcomes	How the program design / structure supports the degree level expectations
they address, and communicate in forms appropriate to that audience.	the field of information and the specific questions the work addresses [PLO 8]	will provide opportunities to practice collaboration. *PLO 8:* Presentation skills will be practiced throughout the curriculum, as students will present their work in various forms to various audiences.
5. Awareness of Limits of Knowledge Students will appreciate uncertainty, ambiguity and limits to knowledge, especially as this applies to long-standing ethical, political, and technical questions, and to unfamiliar social and cultural contexts.	**Awareness of the limits of knowledge** is reflected in graduates who are able to: Recognize recurring patterns of unresolved intellectual and social tension [PLO 11].	*PLO 11:* Courses throughout the curriculum provide students with examples of fundamental and recurrent questions and tensions in information practice. For example, Introduction to Information and Power; Integrative Approaches to Technology and Society; Worlds Become Data; Information, Memory, and Culture; Information in the Global Economy; and Information Policy all approach their areas as unsettled fields of recurrent tensions.
6. Autonomy and Professional Capacity The BI trains students to question and manage their own learning within the program, and their career paths after graduation. They will exercise initiative, personal responsibility and accountability in personal and group contexts. They	**Autonomy and professional capacity** are reflected in students who are able to: Create practical responses to enduring and emerging problems relating to information technologies and practices in a manner that demonstrates ethical,	*PLOs 6 and 9:* Through term projects and papers, the design studios and many advanced lecture courses will require that students articulate questions and fashion the means to explore them. This will require that they identify opportunities for engagement, evaluate the skills that they either possess or must acquire,

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Degree Level Expectations	Program Learning Outcomes	How the program design / structure supports the degree level expectations
will acquire an appreciation of how their areas of study relate to practices, organizations, and professions they may encounter outside the program.	cultural, and legal awareness [PLO 6]. Work collaboratively and professionally on interdisciplinary teams [PLO 7] Identify their own skills and expertise and the necessity for enhancing that expertise, either through collaboration or continued learning [PLO 9].	and apply those skills with ethical, cultural, and legal awareness. Through a reflective component, the practica will foster an awareness of how their training relates to organizations and practices outside the program. *PLO 7:* Opportunities to practice collaborative communication skills will take place in many of the studio courses, which will provide guidance on successful group work. The practicum, too, will provide opportunities to practice collaboration in a professional setting.

Accommodations for Students

The Faculty of Information is committed to providing suitable arrangements for students with disabilities in order to facilitate equal participation in the environment and activities of our classes and at all Faculty events. Changes in course delivery, assessment methods, types of resources provided, and physical access to learning spaces are some of the primary ways that this is addressed. The Faculty of Information works with Disability Counselors at the University of Toronto Accessibility Services to determine the most suitable accommodation on a case-by-case basis.

The Faculty is further committed to reducing the need for individual accommodations through the encouragement of universal design principles in course development, including the review of physical classroom space prior to the course start date, breaks for questions in lectures, opportunities to practice analytical skills in assignments, multi-modal delivery of materials, a range of assessment methods in each course, example course assignments, clear extension guidelines, and opportunities for mid-course feedback.

When a course involves practica, labs, or field trips, the course syllabus will include clear dates by which students should discuss accommodations required with the course instructor.

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Transportation, time-of-day issues, food issues, and physical demands will be clearly outlined well in advance of the event. Instructors will be encouraged to include multi-modal teaching opportunities at all out-of-classroom activities.

Students experiencing documented medical/extenuating circumstances will be accommodated to the extent possible given the nature of the coursework missed. The Committee on Standing will review all cases of missed coursework and accompanying documentation, and recommend either a coursework extension, a modification of the course grading scheme, or no action as appropriate. In cases involving the substantial loss of coursework due to verified medical/extenuating circumstances, the petitions committee may recommend the late withdrawal from a course without academic penalty.

Students who miss a particular course, or who cannot complete a full course load of 5 courses per term, can be accommodated within the program.
- Students may take a missed or failed course in same term as originally offered but in the following year of the program.
- The Faculty intends to re-offer one of two courses during the summer terms. The decision of which courses to be re-offered will be based upon course completion data.
- Students may be allowed to move to part time status and complete the two year program in three years. The courses would be offered in the same term/s as originally indicated but taken in a later year and/or as 'pick up' courses in summer term (see #2 above).

The following illustrates a possible alternative path through the program:
Year One
Fall term: INF301, INF302, INF311
Winter term: INF312, INF313, INF314

Year Two
Fall term: INF351, INF352, INF411, INF413
Winter term: INF315, INF401 Practicum Prep, INF481
Summer term: INF402, INF353, plus option to take one of two repeated courses

Year Three
Fall term: INF412, INF451, INF452
Winter term: INF453, INF482, INF483, INF484
Summer: Option to complete one of two repeated courses

In addition to INF401: Practicum Prep, co-curricular sessions will be offered to BI students to prepare them for work-integrated learning, including, as example,

- Know Your Skills/Strengths
- How to Network
- How to Interview
- Resume/CV/Cover Letter

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- Professional Communications

There may be an opportunity for students to provide a 'team approach' to practicum projects, when there is a clear example that such will be beneficial for students and/or host employers/agencies.

Any student who does not maintain currency with the full time cohort pathway will be invited to meet with Student Services to review their options at end of term.

Students can apply for course work extension for additional term as approved by the Committee on Standing.

Students who do not complete this program in its entirety may elect to apply for transfer credits to another program within the University of Toronto or at another university.

8. Assessment of Learning

- *Describe how the methods for assessing student achievement are appropriate and effective relative to established program learning outcomes and degree level expectations (in other words, how will faculty be able to determine whether students have learned and can do what we expect them to by the end of the program)*
- *Describe how the effectiveness of the proposed program be assessed.*
- *How will the program document and demonstrate the level of performance of students' consistent with the University's DLEs*

In 2014, the Faculty established a policy requiring that all Faculty of Information course syllabi articulate how individual course goals and learning outcomes relate to program-level student learning outcomes, and how the achievement of those course level goals and outcomes will be assessed. Therefore the collection of syllabi as a whole articulates how the program addresses all of the program level learning outcomes.

The assessment mechanism for each course will differ depending on the content, intent, and delivery method of the course. Lecture courses may rely on exams, assignments, and term papers for evaluation. Studio-based courses may rely on papers, posters, demos, and projects. Practica and experiential learning courses may rely on regular student-supervisor interviews. The Faculty requires that any course with group work must have an assessment mechanism for evaluating the quality of work done by each member of the group, as well as assessing the work of the group as a whole.

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Table 5: Means of assessing proficiency in learning outcomes.

Program Learning Outcome	Assessment methods
PLO 1: understand and assess the social, political, economic, and ethical entailments of information creation, ownership, stewardship, and circulation, especially in light of enduring and emerging ethical and political questions;	Essay exams, term papers, individual or group design projects.
PLO 2: analyze the complexity of information practices and the political, economic, technical, and cultural contexts in which they occur	Essay exams, term papers, individual or group design projects.
PLO 3: critique the conceptual and philosophical foundations of representation and computation;	Essay exams, term papers, individual or group design projects.
PLO 4: critique, create, and use multiple tools and techniques of data creation, manipulation, and interpretation, and be able to learn to use tools that may be developed in the future;	Essay exams, term papers, individual or group design projects.
PLO 5: use the design process to understand, analyze and engage with complex questions of information practice.	Individual or group design projects.
PLO 6: create practical responses to enduring and emerging problems relating to information technologies and practices in a manner that demonstrates ethical, cultural, and legal awareness.	Term papers, individual or group design projects.
PLO 7: work collaboratively and professionally on interdisciplinary teams	Group design projects, reflection papers, practicum supervisor surveys.
PLO 8: present their work to audiences with various degrees of familiarity with the field of information and the specific questions the work addresses.	Term papers, presentation of individual or group design projects.
PLO 9: identify their own skills and expertise and the necessity for enhancing that expertise, either through collaboration or continued learning.	Term papers, individual or group design projects, reflection papers.
PLO 10: Develop, defend, and use methods of analysis of complex information practices and the political, economic, technical, and cultural contexts in which they occur	Term papers, individual or group design projects.

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PLO 11: recognize recurring patterns of unresolved intellectual and social tension;	Essay exams, term papers, individual or group design projects.

The Faculty's Programs Committee is tasked with regular review of each of the Faculty's degree programs. In order to closely review the BI in its initial stages, the Programs Committee will appoint an Undergraduate Subcommittee consisting of the Director of Undergraduate Programs, three full time teaching staff, a representative of the library, and a representative of the Student Services Office. This subcommittee will meet bi-monthly with BI students, and will review syllabi and student performance to ensure that the Program Learning Outcomes are being met.

The following data sources will be used by the Undergraduate Committee to conduct these evaluations:
- Strengths, research foci, interests of regular faculty members
- Current course descriptions
- Learning outcomes in existing courses (available each term)
- Syllabi of existing courses (available each term)
- Annual alumni surveys (available Fall each year)
- Aggregated data from student responses to division-specific questions in teaching evaluations (available end of each term)
- Employer surveys of co-op, practica placements, and internships (available end of each offering)
- Results of face-to-face consultations with constituency bodies: current students; alumni; employers; iSchool advisory board members; Inforum librarians; relevant association members; community leaders; etc.
- Enrollment trends and data
- University and School of Graduate Studies data sources
- Feedback from students
- Input from Student Services (e.g., recruitment, courses, enrollment, etc.)
- Sectoral trends

The Chair of the Undergraduate Committee will report back to the Program Committee. In addition, each program is reviewed at least every seven years as part of the UTQAP review.

9. Consultation

- *Describe the expected impact of what is being proposed on the nature and quality of other programs delivered by the unit/division*
- *Describe the expected impact of what is being proposed on programs being offered by other units/divisions*
- *Describe any consultation with the Deans of Faculties/Divisions that will be implicated or affected by the creation of the proposed program*

Impact on other programs offered by the Faculty of Information
The Faculty currently offers a Master of Information (MI) and a Master of Museum Studies (MMSt). The proposed BI complements, yet is distinct from, these degree offerings.

The Master of Information is a professional degree program accredited by the American Library Association. Students concentrate in one or two areas, including Library and Information Science, Archives & Records Management, Critical Information Policy Studies, Information Systems Media & Design, Knowledge Management & Information Management, Culture & Technology, and User Experience Design. The Master of Museum Studies examines museological scholarship and its practical application in collections, curatorship, digital heritage, global cultures and museums, museum education and programming, and museum management. Both of these programs are interdisciplinary, and accept applicants from a wide range of undergraduate specializations.

The BI will complement these programs by providing a pool of extremely well-prepared applicants for either degree and for any of the specialist streams in the MI. We intend to develop combined BI/MI and BI/MMSt program pathways as soon as the BI is in place.

The BI is distinct from the Master's programs in that it is not intended as preparation for a specific profession or career. The BI is a generalist program that will prepare students for a variety of positions, for example, entry level positions in information management, information systems design, web publishing, cultural stewardship, etc.

Impact on programs offered in other divisions
Our faculty are currently teaching in a number of undergraduate programs through the Undergraduate Course Development Fund (UCDF). UCDF is a University of Toronto initiative through which professors in graduate-only Faculties may teach courses in the undergraduate programs of other Faculties. The Faculty of Information currently teaches 14 courses through UCDF in the Faculty of Arts and Science programs in Philosophy, Anthropology, History, Material Culture, Semiotics, and Book History and the through the University of Toronto at Mississauga's program Interactive Digital Media.

When the proposed BI commences, the Faculty of Information will no longer be eligible to teach through UCDF. These courses will then either be taught by faculty in their home unit, cancelled, moved to the Faculty and cross-listed with the current unit, or funded by another mechanism. Affected units have been informed of these changes.

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Since 2012, the Faculty has jointly run the Interactive Digital Media (IDM) Specialist program with the Institute of Communication, Culture, Information and Technology (ICCIT) at UTM, teaching nine IDM courses through UCDF agreements. In Fall 2016, UTM administratively suspended admissions to the IDM Specialist Program. The ICCIT Director has been involved in many discussions regarding the BI, and is supportive.

Consultation with Deans and Principals
Throughout the development of the BI program, the Faculty has engaged in consultation across the University.

In Fall 2016, a draft outline of the curriculum was shared with Prof. Uri Krull (Principal, UTM), Prof. Amrita Daniere (Vice Principal Academic and Dean, UTM), and Prof. William Gough (Vice-Principal Academic and Dean, UTSC).

In February 2017, the Faculty circulated a brief description of our proposed curriculum to Deans of St. George Faculties, including
    Prof. Tiff Macklem, Dean, Rotman School of Management
    Prof. Don McLean, Dean, Faculty of Music
    Prof. Faye Mishna, Dean, Faculty of Social Work
    Prof. David Cameron, Dean, Faculty of Arts and Science
    Prof. Edward Iacobucci, Dean, Faculty of Law
    Prof. Trevor Young, Dean, Faculty of Medicine
    Prof. Tom Coyle, Vice Dean Undergraduate Studies, Faculty of Applied Science and Engineering
    Prof. Glen Jones, Dean, Ontario Institute for Studies in Education
    Prof. Richard Sommer, Dean, Daniels Faculty of Architecture, Landscape, and Design.

On May 11, we discussed the proposal with Prof. Pamela Klassen (Vice-Dean Undergraduate and International, Faculty of Arts and Science) and Prof. Penelope Lockwood (Vice Dean Academic Planning and Strategic Initiatives, Faculty of Arts and Science).

On May 23, we sent the latest version of the BI proposal to Vice-Principal Daniere (UTM) and Vice-Principal Gough (UTSC).

In general, the comments we received were positive and supportive. In particular, Principal Krull of UTM expressed great interest and support for in the program. Vice-Principal Gough of UTSC expressed interest in the possibility of establishing lower level undergraduate courses at UTSC that might serve as a "feeder" into the BI. The Faculties of Applied Science and Engineering, and Architecture, Landscape Architecture, and Design expressed interest in collaborating on cross-listed courses. OISE is "very supportive."

The proposal was revised in response to comments indicating that more detail on curriculum and career and intellectual trajectories would be helpful.

10. Resources

- *Please be specific where this may impact significant enrolment agreements with the Faculty/Provost's Office.*
- *Indicate if the major modification will affect any existing agreements with other institutions, or will require the creation of a new agreement to facilitate the major modification (eg. Memorandum of Understanding, Memorandum of Agreement, etc). Please consult with the Provost's Office (vp.academicprograms@utoronto.ca) regarding any implications to existing or new agreements.*

We do not expect that the new program will impact the Faculty's current MI, MMSt, and PhD enrolments*.*

As mentioned above in the Consultation section, the Faculty currently offers about nine courses within the IDM Program at UTM and about seven courses in other departments throughout the University through UCDF agreements. The IDM Program is suspended; other courses currently funded through UCDF will either be taught by faculty in the current home unit, cancelled, or funded by another mechanism.

10.1. Faculty

- *Brief statement to provide evidence of the participation of a sufficient number and quality of faculty who will actively participate in the delivery of the program*
  - o *Discuss the role of any adjunct or contractual (e.g., stipendiary) faculty*
  - o *Comment on the provision of supervision of experiential learning opportunities, as appropriate*
  - o *If relevant, describe the plan to provide additional faculty resources to support the program*

We are in the process of searching for two teaching stream and one tenure stream positions. We expect to fill these by July 2018. The Faculty has just hired a teaching stream faculty

member at the assistant level, Colin Furness, who started on July 1, 2017. He will teach in the BI and is included in the table below.

As the attached tables detail, expertise for all required and elective BI courses will be available, either in our current tenure stream faculty or in the four new positions. Moreover, the teaching expertise is distributed throughout the Faculty, allowing us to compensate for sabbaticals and other leaves.

These professors currently teach in our MI, MMSt, and PhD programs, as well as in undergraduate programs across the University. As their teaching responsibilities move from those programs to the BI, the shortfall will be covered in two ways. First, all undergraduate teaching in other units will stop or will be covered by alternative financial arrangements. Second, the new hires will provide the resources both to cover existing Master's and PhD courses, and to cover additional sections of the BI courses as enrolment increases.

The Faculty currently places approximately 50 students per annum in the Master's level co-op program and an additional 100 students in practica placements and 50 students in the MMSt internship course. This expertise will be leveraged to support the BI practica.

Table 5: Detailed Listing of Committed Faculty

Name	Units of Primary and other Budgetary Appt & %	Commitment to other programs	Nature of contribution to this program Areas of expertise, BI course assignment for 2019-2021, and other possible course assignments
Tenure Stream: Full			

Choo, Chun-Wei	Fac Info 100%	MI, PhD	*Areas of Expertise:*
			    Knowledge Management
			    Organizational Learning
			Probable BI Course Instructor 2019-2021:
			    none
			Possible course instructor for:
			    Information Practice in Organizations

Duff, Wendy	Fac Info 100%	MI, PhD	*Areas of Expertise:*
			    Archives and Social Justice
			Probable BI Course Instructor 2019-2021:
			    none
			Possible course instructor for:
			    Information, Memory, and Culture

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Howarth, Lynne	Fac Info 100%	MI, PhD	*Areas of Expertise:*
			    Knowledge Organization
			    Objects, Memory, and Identity
			Probable BI Course Instructor 2019-2021:
			    Special Topics: Information in a Disabling Society
			Possible course instructor for:
			    Information in the Cultural Imagination
			    Worlds Become Data
			    Information, Memory, and Culture
			    Information Practice in Organizations
			    Research Design in Information

MacNeil, Heather	Fac Info 100%	MI, PhD	*Areas of Expertise:*
			    Histories and theories of archives
			Probable BI Course Instructor 2019-2021:
			    Special Topics: Information and Culture
			Possible course instructor for:
			    Worlds Become Data
			    Information, Memory, and Culture

Ross, Seamus	Fac Info 100%	MI, PhD	*Areas of Expertise:*
			    Digital Humanities
			    Knowledge Representation and Reasoning
			    Cultural Heritage Informatics
			Probable BI Course Instructor 2019-2021:
			    none
			Possible course instructor for:
			    Research Design
			    Worlds Become Data
			    Information, Memory, and Culture

Shade, Leslie	Fac Info 100%	MI, PhD	*Areas of Expertise:*
			    Feminist Media Studies
			    Media Reform
			    Media Justice
			Probable BI Course Instructor 2019-2021:
			    Introduction to Information and Power
			Possible course instructor for:
			    Introduction to Information and Power
			    Integrative Approaches to Technology and Society

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			Information in the Global Economy Information Policy

Smith, Brian Cantwell	Fac Info 100%	MI, PhD	*Areas of Expertise:*
			     Philosophy of Information and of Computing
			Probable BI Course Instructor 2019-2021:
			     Computational Reasoning
			Possible course instructor for:
			     Worlds Become Data
			     Research Design
			     Computational Reasoning

Yu, Eric	Fac Info 100%	MI, PhD	*Areas of Expertise:*
			     Information systems design
			     Systems modeling
			Probable BI Course Instructor 2019-2021:
			     Special Topics: Information System Design
			Possible course instructor for:
			     Information Practice in Organizations

Tenure Stream: Associate			

Caidi, Nadia	Fac Info 100%	MI, PhD	*Areas of Expertise:*
			     Information behavior
			     Information policy
			     Information and diasporic communities
			Probable BI Course Instructor 2019-2021:
			     Information Policy in Canadian and Global
			     Contexts
			Possible course instructor for:
			     Information, Memory, and Culture
			     Information Policy

Dallas, Costis	Fac Info 100%	MMSt, PhD	*Areas of Expertise:*
			     Digital heritage
			     Digital curation
			Probable BI Course Instructor 2019-2021:
			     Special Topics: Digital Material Culture
			Possible course instructor for:
			     Information, Memory, and Culture
			     Research Design

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Foscarini, Fiorella	Fac Info 100%	MI, PhD	*Areas of Expertise:*
			    Archives & Records Management
			Probable BI Course Instructor 2019-2021:
			    Information Practice in Organizations
			Possible course instructor for:
			    Information, Memory, and Culture
			    Information Practice in Organizations
			    Research Design

Galey, Alan	Fac Info 100%	MI, PhD; Book History	*Areas of Expertise:*
			    digital humanities
			    history of media and information technology
			Probable BI Course Instructor 2019-2021:
			    Information in the Cultural Imagination
			Possible course instructor for:
			    Integrative Approaches to Technology and Society
			    Information in the Cultural Imagination
			    Worlds Become Data

Grimes, Sara	Fac Info 100%	MI, PhD	*Areas of Expertise:*
			    Digital Media Culture
			    Critical Theories Of Technology
			Probable BI Course Instructor 2019-2021:
			    Integrative Approaches to Technology and Society
			Possible course instructor for:
			    Introduction to Information and Power
			    Integrative Approaches to Technology and Society
			    Information in the Cultural Imagination
			    Information Policy
			    Research Design in Information

Hartel, Jenna	Fac Info 100%	MI, PhD	*Areas of Expertise:*
			    Information Activities of Leisure Practices
			Probable BI Course Instructor 2019-2021:
			    Research Design in Information
			Possible course instructor for:
			    Information Practice in Organizations
			    Research Design

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Krmpotich, Cara	Fac Info 100%	MMSt, PhD	*Areas of Expertise:* museum and indigenous relations; repatriation; memory and material culture *Probable BI Course Instructor 2019-2021:* Information, Memory, and Culture *Possible course instructor for:* Information, Memory, and Culture Research Design
Lyons, Kelly	Fac Info 100%	MI, PhD	*Areas of Expertise:* Information Systems knowledge mobilization social media and collaborative work *Probable BI Course Instructor 2019-2021:* Studio: How to Make a Computer. And Why Studio: Coding *Possible course instructor for:* Computational Reasoning How to Make a Computer Coding
Ratto, Matt	Fac Info 100%	MI, PhD	*Areas of Expertise:* Critical Making Culture and Technology Design Studies *Probable BI Course Instructor 2019-2021:* Studio: How to Design *Possible course instructor for:* Integrative Approaches to Technology and Society; Worlds Become Data How to Make a Computer How to Design
Shachak, Aviv	Dalla Lana School of Public Health 75%; Fac Info 25%	MI, PhD	*Areas of Expertise:* health informatics interface design *Probable BI Course Instructor 2019-2021:* none *Possible course instructor for:* Designing Interactive Systems

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Stevenson, Siobhan	Fac Info 100%	MI, PhD	*Areas of Expertise:*
			    Library and Information Studies
			    Political Economy of Information Policy
			Probable BI Course Instructor 2019-2021:
			    Information in the Global Economy
			Possible course instructor for:
			    Introduction to Information and Power
			    Information, Memory, and Culture
			    Information Practice in Organizations
			    Information in the Global Economy
			    Practicum Prep for the Non-Academic Workplace

Tenure Stream: Assistant			

Andritsos, Periklis	Fac Info 100%	MI, PhD	*Areas of Expertise:*
			    Database Systems
			    Cluster Analysis
			    Structure Discovery
			Probable BI Course Instructor 2019-2021:
			    Data Analytics
			Possible course instructor for:
			    Computational Reasoning
			    Data Analytics
			    Coding

Becker, Christoph	Fac Info 100%	MI, PhD	*Areas of Expertise:*
			    Digital curation
			    digital preservation
			    software engineering
			Probable BI Course Instructor 2019-2021:
			    Studio: Capstone
			Possible course instructor for:
			    Introduction to Information and Power
			    Information, Memory, and Culture
			    Computational Reasoning
			    Research Design
			    Capstone Project

Keilty, Patrick	Fac Info 100%	MI, PhD	*Areas of Expertise:*
			    technology studies
			    visual studies

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			critical theory
			Probable BI Course Instructor 2019-2021:
			    Worlds Become Data
			
			Possible course instructor for:
			    Introduction to Information and Power;
			    Integrative Approaches to Technology and
			    Society
			    Information in the Cultural Imagination
			    Worlds Become Data
			    Information, Memory and Culture
			    Studio: Visualization
			    Studio: Capstone

Mihalache,
Irina
	Fac Info
	100%
		MMSt, PhD	*Areas of Expertise:*
			    food studies
			    museum interpretation
			    global museums
			Probable BI Course Instructor 2019-2021:
			    Special Topics: Histories of Information
			    Technologies
			Possible course instructor for:
			    Information, Memory, and Culture

Teaching Stream, Assistant			

Furness,
Colin
	Fac Info
	100%
		MI	*Areas of Expertise:*
			    Information architecture; design of information
			    systems; quantitative methods
			Probable BI Course Instructor 2019-2021:
			    Practicum Prep for the Non-Academic
			    Workplace
			    Work-Integrated Learning Practicum
			Possible course instructor for:
			    Computational Reasoning
			    Information Practice in Organizations
			    Capstone Project
			    Data Analytics

Positions with approval to hire			

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Tenure Stream, User Experience Design	Fac Info 100%	MI, PhD	
Teaching Stream, User Experience Design	Fac Info 100%	MI, PhD	*Probable BI Course Instructor 2019-2021:* Studio: Designing Interactive Systems
Teaching Stream, Museum Studies	Fac Info 100%	MMSt, PhD	

10.2.   TA Support

- *Give details regarding the nature and level of TA support required by the program*
-

TA support will be provided to course instructors following the Faculty's current policy for its Master's and PhD classes.

TAs are typically assigned blocks of 50 hours.

Normally two blocks of 50 hours are assigned to classes with enrolments of more than 35 students.

An additional 50 hour of TA work is assigned for every additional 35 students beyond that. (i.e. 36 - 70 students = 100 TA hours, 71 - 105 students = 150 TA hours, 106 – 140 students = 200 hours).

Assignment/hiring of TAs is governed by the CUPE 3902, Section 1 Collective Agreement.

The following table displays the total TA requirements when the program is in steady state.

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Table 6: BI TA requirements

Type of course	Number of sections per year	TA hours required per class/section	Subtotal
Large lecture (class size = 100)	10 (10 courses, 1 section each)	150	1500
Small lecture (class size = 50)	8 (4 courses, 2 sections each)	100	800
Studio (class size = 25)	24 (6 courses, 4 sections each)	0	0
Total TA hours per year			**2300**

10.3. Learning Resources

Please see

Appendix B: Library statement confirming the adequacy of library holdings and support for student learning

Appendix C: Statement concerning student support services

10.4. Space/Infrastructure

- *Address any unique space/infrastructure requirements including information technology, laboratory space and equipment, etc.*
- *Note: The requirements for physical facilities should be identified by providing information on the change in the number of people to be accommodated by type (i.e., faculty, students, administrative staff, etc.) as well as information on changes in equipment and activities requiring accommodation. The Division/Faculty should state whether it requires additional space; the renovation of existing space; or whether the current space allocation to the academic program will accommodate the new initiative.*

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The Bissell Building, home of the Faculty of Information, can accommodate many of the space and infrastructure requirements for the new Bachelor of Information (BI) program, which will have around 200 students when the program reaches a steady state.

The following table outlines the estimated types and sizes of classrooms/tutorial rooms/studio spaces that will be needed for the BI program, along with the anticipated number of weekly space bookings for these spaces. The table is also broken down into the number of time slots each type of room is expected to be needed each term.

Table 7: Required Classrooms

year/term	2019-20		2020-21		2021-22		2022-23		2023-24 (and steady state)	
	F	W	F	W	F	W	F	W	F	W
room requirement/week										
2 hour large auditorium (76-100 students)							3	4	5	4
2 hour small auditorium (51 – 75 students)					3	4	2			
1 hour tutorial (25 stud)			6	8	13	12	18	16	20	16
2 hour tutorial (25 stud)										
3 hour tutorial (25 stud)	3	4	2	4						
2 hour class (26-50 stud)			3	4	2					
3 hour class (26-50 stud)						4		8		8
3 hour studio (25 students around tables)	2	1	4	3	6	5	14	7	16	8

Based on initial planning assumptions, once the new BI program reaches steady state in fiscal 2022-23 year, it is assumed that a total of 16-20 tutorials will be held in the Fall/Winter terms, with a desired seating capacity of 25. Similarly, 7-15 studio sessions are projected to be held each week in the Fall/Winter terms.

There is also a projected need for between 3-5 two hour undergraduate classes in a large auditorium, with a capacity of 76-100 seats, once the undergraduate program has matured. The projected need for 51-75 seat classrooms for undergraduate courses ranges from 2-4 classrooms, for two-hour classes, in each of the Fall and Winter terms.

Bissell currently houses classes for two Master's programs, seminars and office space for the PhD program and doctoral students, and office space for the Faculty's professors, researchers, and staff. Faculty of Information Master's level classes and PhD seminars are

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currently taught from Monday – Thursday from 9am – 10pm, mainly in Bissell classrooms.   A small number of courses are currently taught on Fridays. We expect that many BI courses will be taught weekdays in the Fall and Winter terms, including Fridays, in both Academic and Campus Events (ACE), the Central U of T office that coordinates classroom use throughout the university and Faculty controlled classrooms.   We have consulted with ACE and been informed that provided course scheduling is flexible, there is currently capacity for the requirements as described in the circulated Space/Infrastructure outline of the New Undergraduate Program Proposal for Bachelor of Information

The Faculty will likely try to book more space in the ACE-controlled classrooms in Bissell than it currently reserves in order to teach BI courses. The Faculty currently controls 7 of the 17 classrooms in Bissell. Bissell room 205, a large ACE-controlled classroom, may ultimately serve as the major auditorium space needed for large BI classes.

The Faculty may also need to book space in ACE controlled classrooms in other neighbouring buildings. The Faculty believes that an undergraduate student's experience can be enriched if they take Faculty of Information courses in many venues across the St. George Campus.

There are several sections of Bissell that have not been fully optimized or updated to support the newly introduced pedagogies. The Faculty recently created a Space Revitalization Work Group to study the current space and projected growth needs of the Faculty's Academic Plan. The report from this Work Group is expected to outline some ways to upgrade several sections of Bissell; these improvements, if enacted would likely support the BI program.

For studio courses, students would be expected to provide their own laptop computers, and to buy, at a reasonable cost, any necessary hardware or software. When the program is fully enrolled, space will need to be provided for up to 20 TAs and up to 8 CLA/sessional instructors.

Space and infrastructural support (desks, computers, etc.) will also be required for a full student services administrator, a half time recruitment officer, and a full time Dean's Office Assistant in July 2018, one year before the Program's first entering class. The Faculty has set aside funds for these positions.

11. Quality and Other Indicators

- *Please describe the appropriateness of collective faculty expertise to contribute substantively to the proposed program and refer to specific areas of faculty strength and expertise, innovation, scholarly record that will contribute to the quality of the program and student experience*

- *Please explain how the program structure and faculty research will ensure the intellectual quality of the student experience*
- *Please describe any elements that enhance the program's diversity*

The Bachelor of Information will leverage the Faculty's expertise in four broad and overlapping areas as detailed in Table 5, above. These are

The relation of digital artifacts to material phenomenon, including:
- The conceptual and philosophical foundations of computation;
- Representation, veracity, and authenticity;
- Digital evidence and humanities scholarship;

Institutions and practices of digitality, including:
- Genres of production and consumption of digital artefacts; narrative and documentary forms; database logics;
- Institutions of memory and culture; museums, archives, and libraries;
- Organizations as epistemic communities;
- Digitized practices of community, identity, pleasure and desire;

Information, power, and culture, including:
- Access to cognitive, economic, cultural, and practical resources of production, distribution, consumption and use, especially among aboriginal, diasporic, and otherwise marginalized communities;
- Political economy of information and information institutions, including libraries, museums, archives, governments, and corporations;
- Digital policy; Intellectual property and remix culture; industrial organization, neo-liberalism and culture;

Techniques of digitality
- Preservation and sustainability of digital artefacts;
- History of information forms, practices, and techniques;
- Design of information systems;
- Design of user interface.

The Faculty is active in research in these areas. Between 2009 and 2016, faculty published 20 monographs (8 single-authored, 3 co-authored, and 9 edited volumes). They also edited or co-edited 14 special journal issues and 8 conference proceedings. In the same period, faculty published 196 peer-reviewed journal articles and 177 conference papers; they gave 389 invited keynotes, panels, lectures and workshops; they gave 193 refereed conference presentations; and they disseminated their scholarship through 34 exhibitions, including curatorial works, videos, and performances. During this period the faculty also won 23 awards for their publications, research and service.

Information faculty are involved in a variety of interdisciplinary research projects Figure 1 illustrates number of local, national, and international collaborative research projects faculty have worked on between 2009 and 2016. Faculty involvement in collaborative research projects varies from year to year, with a high of 33 collaborative research projects (6 local, 17 national, and 10 international) in 2015 to a low of 24 (3 local, 13 national, and 8 international) in 2011.

The curriculum includes 4 advanced special topics electives in which students will have the opportunity to engage with faculty in their areas of research expertise.
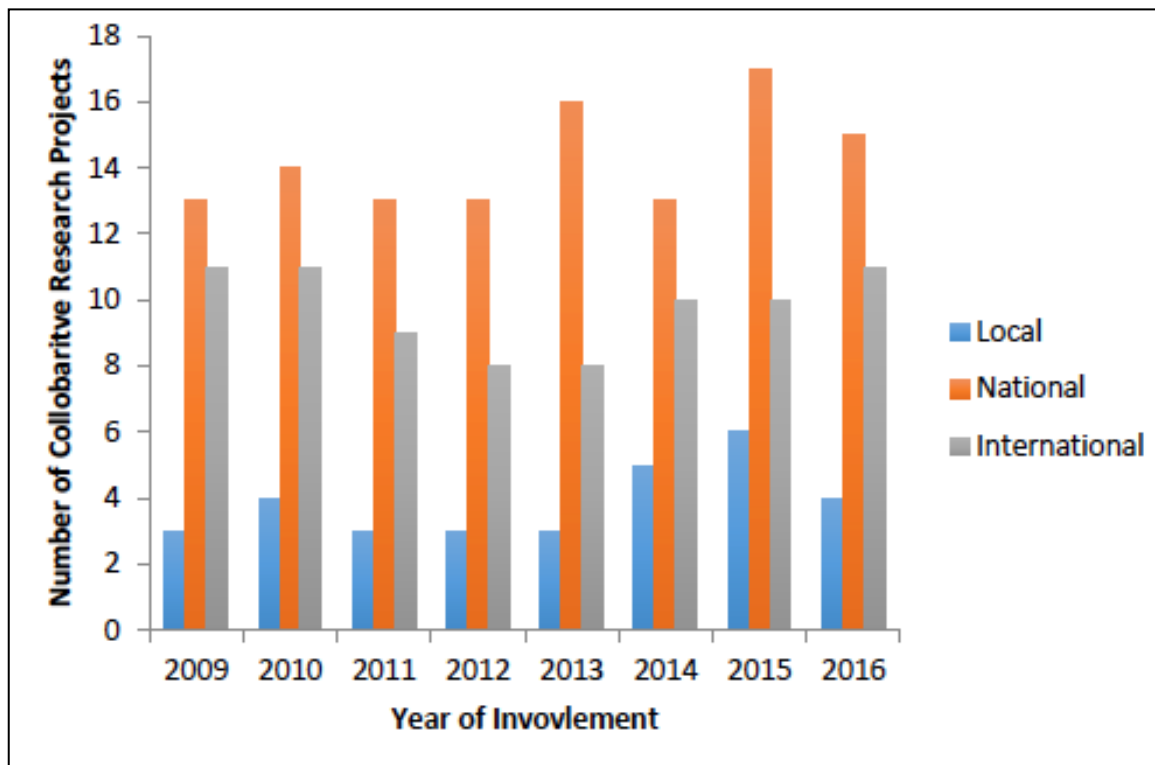
Figure 1: Faculty Involvement in Collaborative Research at the Local, National and International Level

The Faculty is the home of Semaphore, a research cluster dedicated to inclusive design in the area of mobile and pervasive computing. Semaphore is part of the Inclusive Design Institute, and funded by the Canadian Foundation for Innovation (CFI) New Initiatives Fund and associated ORF-RE. The IDI effort is interdisciplinary and cross-institutional, involving researchers from eight collaborating partner institutions across several departments and fields. Semaphore is a recognized leader in developing and using critical making and design as a methods of pedagogy and research.

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The Faculty of Information also enjoys significant expertise and experience in undergraduate education. Since 2013, we have collaborated with UTM's Institute for Communication, Culture, Information, and Technology to offer the Interactive Digital Media Program, where we have been jointly responsible for curriculum development and teaching. We also currently teach 7 courses in 6 departments on the St George campus. We also have a cohort of Doctoral and Masters students eager and prepared to be instructors and teaching assistants. We anticipate that one or two courses per year will be taught by advanced doctoral students.

The Faculty currently manages co-op, practica, and internship programs for our Master's students. This expertise will be leveraged in administering the undergraduate practicum.

The Faculty of Information is committed to the enhancement of diversity within the BI program. The Undergraduate Recruitment and Admissions Committee is tasked with engaging talented students from across Canada and abroad through the use of culturally appropriate recruitment strategies. Technology will be leveraged to engage with potential students from geographically distant areas. Entry to our program is possible from a wide diversity of academic backgrounds, including the humanities, sciences, engineering, and computer and social sciences.

The Faculty is actively developing scholarships and bursaries for this program as part of our overall tiered financial aid structure, which reaffirms the University of Toronto policy that no student admitted to the BI program will be unable to complete it due to lack of financial means.

The Office of Student Services is engaged in regular, thorough assessments of the climate of inclusion and diversity in the Faculty through the use of focus groups and anonymized student surveys. The office further gathers outside perspectives on the enhancement of diversity through periodic external reviews.

Academic and career-focused leadership and guidance is available from both staff and peer mentors to help students achieve their diverse intellectual and career goals.

12. Governance Process

	Levels of Approval Required
Decanal and Provostial Sign-Off	July 20, 2017
	Unit Level approval: Programs Committee approval November 2, 2017
	Faculty/Divisional Governance: Faculty Council approval November 30, 2017
Submission to Provost's Office	
	AP&P
	Academic Board (if a new degree)
	Executive Committee of Governing Council (if a new degree)
Program may begin advertising as long as any material includes the clear statement that "No offer of admissions will be made to the program pending final approval by the Quality Council and the Ministry of Colleges Training and University (where the latter is required)."	
	Ontario Quality Council
	Submitted to MTCU (in case of a new degree)

New Undergraduate Program Proposal for Bachelor of Information

Appendix A: Calendar Copy and Course Descriptions

CALENDAR COPY

Bachelor of Information Program Description

The BI considers the interactions between social worlds and information technologies, providing students with the conceptual tools and practical techniques necessary to understand and effect change in a data-intensive society.

An interdisciplinary approach draws on social science, the humanities, and computing science to understand information and communications technologies and practices as they are implicated in larger systems of power. Students will study how data is generated, exchanged, transformed, deployed, and used, and the way that these processes mediate the maintenance and transformation of knowledge, individuals, cultures, and institutions. Students thereby will engage with some of the most complex challenges facing our society, using their social insights and technical capabilities to create sustainable intellectual, social, and technological responses. Students will engage, theoretically and practically, in debates over digital culture, surveillance and privacy, Internet governance and policy, intellectual property, human-computer interaction, information systems design, the making and un-making of collective memory, and the discourse of innovation and technological development.

Common core courses include both lecture- and studio-based learning. Students also participate in an experiential learning practicum project relevant to their core interests. As a whole, the program integrates design-thinking, critical scholarship, and experiential learning to provide students with the knowledge and skills necessary to design and critique complex technical, political, and cultural responses to new and enduring information practices.

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Admission Requirements

The BI is a second-entry undergraduate program. Students will apply directly to the program after having completed at least the equivalent of two years of full-time study at the undergraduate level in any discipline.

To be eligible for admission to the BI, applicants must submit:

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1. *One copy of official Transcripts Meeting the following Academic Requirements*
   Completion of at least 10.0 FCE university-level courses, 4.0 FCE of which must be at the 200-level or greater.
   a. A minimum average of 70%, or 2.70 GPA in the most recent 5.0 FCE completed.
   b. At least 0.5 FCE with a grade of 70% or above in each of the following areas:
      i. formal systems (example courses include Calculus, Statistics, Formal Logic, Coding, or other math or science focused courses),
      ii. socio-cultural systems (example courses include Media Studies, Cultural Studies, Sociology, or other humanities or social science courses), and
      iii. creative practice (example courses include Design, Creative Writing, Performance or other art or design focused courses).

   Candidates must demonstrate good academic standing and aptitude for transition to the BI program. At the time of application in the spring of second year, only the first 1.5 years of academic standing will be available for initial assessment. Acceptance into the program will be conditional upon the candidate completing second year and achieving the required academic minimums.

2. *Written Essay*
   The essay will specifically address the applicant's intent in entering the BI program, their expectations of the program, and the ways in which their academic and other experience has prepared them for it. The essay will help the admissions committee identify applicants with excellent written communication skills, and to determine fit between the applicant's expectations and the BI program itself.

3. *Two Letters of Reference*
   Two academic references using standardized forms are used to assess scholarly achievement and level of engagement with academic material and/or extracurricular activities.

4. *Proof of English Facility*
   All applicants educated outside Canada whose primary language is not English must demonstrate proficiency in the English language. The English language requirement may be satisfied using one of the following tests:
   - Test of English as a Foreign Language (TOEFL) with the following minimum scores:
     - paper-based TOEFL exam: 600 with 5.5 on the Test of Written English (TWE)
     - Internet-based TOEFL exam: 107/120 with 24/30 on the speaking section and 27/30 on the writing section.
   - Michigan English Language Assessment Battery (MELAB) with a minimum required score of 95.

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- International English Language Testing System (IELTS) with a minimum required score of 8.0.
- English Language Diagnosis and Assessment (ELDA)/Certificate of Proficiency in English (COPE) with a minimum required score of 6 and at least 3 in the writing portion.

Together, these application materials will allow the admissions committee to admit only those students with a high likelihood of success in the BI. The admissions committee will examine the admissions portfolio as a whole evaluate them on these criteria:
- success in current or previous academic environment;
- English proficiency;
- written communication skills;
- demonstrated interdisciplinary interest and facility;
- fit between students' intent and program goals;
- evidence of scholarly achievement as cited by academic references.

Program Requirements

11.0 full course equivalent courses (full course descriptions below):

- 5.0 FCE in required lecture-based courses
- 3.0 FCE in required studio-based courses
- 2.0 FCE in lecture-based electives
- 0.5 FCE in Practicum Prep
- 0.5 FCE in Practicum

Courses

INF 301 Introduction to Information and Power *(Lecture/Required)*
This course addresses the ways in which information and information practices are shaping and being shaped by social conflicts, tensions, and alignments. It introduces and integrates issues of representation and knowledge production, privacy and community, autonomy and control, culture and property that are revealed, alleviated, or exacerbated as information practice changes. [24L, 12T]

INF 302 Integrative Approaches to Technology and Society *(Lecture/Required)*
This course explores how society, culture, and understanding of the human condition influence, and are influenced by, technological development. It focuses on the study of interdependent and institutionalized systems of law, economics, culture and technology, exploring the conditions of stability and instability in these systems. We will survey the available theories and methods for understanding large scale socio-technological systems. [24L, 12T]

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INF 311 Information in the Cultural Imagination *(Lecture/Required)*
How is the idea of information constructed through cultural representation? How do imaginative works provoke us to think about information technologies? This course surveys the cultural history of the idea of information, from its historical roots to present-day representations in popular culture, drawing on film, television, video games, literature, art, advertising, performance, and other media. [24L, 12T]

INF 312 Worlds Become Data *(Lecture/Required)*
This course covers issues in the practices of translating phenomena to data and algorithmic description. What happens, what is gained, what is lost, when things that happen in the world are recorded and made into information or recorded as a document? The course explores representation, modeling, correctness, reliability, and bias in data and algorithms. [24L, 12T]
Prereq: 301 (Introduction to Information and Power), INF 302 (Integrative Approaches to Technology and Society)

INF 313 Computational Reasoning *(Lecture/Required)*
This course introduces principles and concepts of computational thinking and reasoning by providing an overview of data structures and algorithms, logic in computing, and programming paradigms such as object orientation and functions. It is accompanied by tutorials and assignments that make these concepts tangible and enable students to engage productively in the design of computational systems. [24L, 12T]
Prereq: 301 (Introduction to Information and Power), INF 302 (Integrative Approaches to Technology and Society)

INF 314 Information, Memory, and Culture *(Lecture/Required)*
This course offers an opportunity to explore the theories and practices employed by cultural heritage institutions, including libraries, archives, and museums, to acquire, manage and preserve information objects. Students will learn about traditional and contemporary approaches to the making and unmaking of collective memory, and will develop an appreciation for the challenges concerning remembering and forgetting in the digital age. [24L, 12T]
Prereq: 301 (Introduction to Information and Power), INF 302 (Integrative Approaches to Technology and Society)

INF 315 Information Practice in Organizations *(Lecture/Required)*
This course provides students with an understanding of organizations as social contexts where individuals enact information practices to carry out their work. Social contexts range from corporations and governmental agencies to fan clubs and activist organizations. Topics include ethnography, requirements modeling, records management, and knowledge translation and mobilization. [24L, 12T]
Prereq: 301 (Introduction to Information and Power), INF 302 (Integrative Approaches to Technology and Society)

INF 351 Information Design Studio I: How to Make a Computer. And Why. *(Studio/Required)*
By developing a working system using lightweight computing platforms such as Arduino or

Raspberry Pi and networked services, students will explore the implications of choices in architecture across the range from mainframes and personal computing to mobile devices and sensors, understand the nature of different network and service architectures including cloud computing, explore the relationship of hardware, data, and programs, and appreciate the various sensing mechanisms through which the world becomes data for the computer in operation. [24L, 12T]

INF 352 Information Design Studio II: How to Design *(Studio/Required)*
Students will develop a general sense of design and the role it plays in the construction of our built environment. Human-centered design practices will be taught. Students will learn to identify important characteristics of the built environment using observational methods drawn from art and design practices, to analyze these characteristics using theories and perspectives drawn from relevant scholarship, and to represent their analyses using techniques of design sketching. [24L, 12T]

INF 353 Information Design Studio III: Designing Interactive Systems *(Studio/Required)*
Using current computational tools students will use human-centered design methods to produce interactive systems that engage with socio-cultural issues and society. The course will mobilize analytic and technical skills drawn from other lecture and studio courses. Students will also engage in self and peer critique in order to reflect on their own digital objects and those they will encounter in society at large. [24L, 12T]
Prereq: 301 (Introduction to Information and Power), INF 302 (Integrative Approaches to Technology and Society), INF 352 (Information Design Studio II: How to Design)
Coreq: INF 313 (Computational Reasoning)

INF 401 Practicum Prep *(Lecture/Required)*

A: Research Design in Information
As a preparation for an academic practicum, this course provides an introduction to the philosophy, language, lifecycles, and methods of qualitative and quantitative inquiry. The emphasis is on conceptualizing and designing research, based on an appreciation of the epistemological underpinnings of the approaches covered. We will consider the fundamental principles, processes, values, and roles of research into complex questions of the role of information in society. We will explore and learn the basic skills of evaluating, planning, designing, executing, and applying research. Students will be afforded the opportunity to develop research on a question of their choice. [24L, 12T]
Prereq: 301 (Introduction to Information and Power), INF 302 (Integrative Approaches to Technology and Society)

OR

B: Practicum Prep for the Non-academic Workplace
Where a university (or any formal educational setting) is student-centered and focused on facilitating student learning, a workplace is focused on its own strategic

goals, stakeholders, and clients. Student learning is peripheral to the purpose of the organization. While it is assumed that any organization that engages a practicum student has a commitment to the educational value of the experience for all parties, employers are not responsible for the student's academic development. In order for learning to occur in the workplace, the processes associated with learning (cognitive, emotional, affective, etc.) must be made conscious and accessible to the learner. This is the overriding purpose of this course: to create independent, autonomous and self-directed learning professionals.

Prereq: 301 (Introduction to Information and Power), INF 302 (Integrative Approaches to Technology and Society)

INF 402 Work Integrated Learning Practicum_(Practicum/Required)_
The practicum provides hands-on experience to supplement theoretical knowledge and to develop professional competencies. Students will complete a minimum of 100 hours of project work through one of the following: an unpaid internship, a faculty research project, a not-for-profit or an industry-based project. Students will be required to keep a reflective learning journal based on their personal, professional and intellectual growth, as well as produce a final report on the completion of their placement or project. [24L, 12T]
Prereq: INF 401 (Practicum Prep)

INF 411 Information in the Global Economy _(Lecture/Required)_
This course surveys how information technologies, information services, and information itself are produced, circulated, and consumed. How is information made into a commodity? How are markets for information and information services created and sustained? Students will develop a basic understanding of the political, economic, cultural, and regulatory environment in which information, culture, and technologies are produced, as well as the implications of processes such as globalization, digitization, and commodification for social life. [24L, 12T]
Prereq: 301 (Introduction to Information and Power), INF 302 (Integrative Approaches to Technology and Society)

INF 412 Data Analytics _(Lecture/Required)_
This examines core topics in probability and statistics through the study and practice of data analysis. Topics include hypothesis testing, confidence intervals, counts and tables, analysis of variance, regression, principal components, data summarization, and cluster analysis. Upon completion of this course, students should be able to critically think about data and use/implement standard statistical procedures to perform a wide range of analyses.
Prereq: 301 (Introduction to Information and Power), INF 302 (Integrative Approaches to Technology and Society), INF 313(Computational Reasoning)

INF 413 Information Policy in Canadian and Global Contexts _(Lecture/Required)_
This course provides students with an introduction to the history and development of information policy. Topics include Canadian and international regulations concerning data protection and privacy, intellectual and cultural property, and industrial organization. The course will also cover emerging models of governance and the politics of standards setting

bodies and global treaty organizations. [24L, 12T]
Prereq: 301 (Introduction to Information and Power), INF 302 (Integrative Approaches to Technology and Society)

INF 451 Information Design Studio IV: Information Visualization *(Studio/Required)*
Problems, practices, and techniques of conveying complex information analysis. Issues of clarity, persuasion, visual literacy, and cultural context will be explored. Students will develop a data visualization project that will speak to or engage surveillance, data analytics, activism, or other issues covered in advanced IDM courses. [24L, 12T]
Prereq/Coreq: INF 412 (Data Analytics), INF 352 (Information Design Studio II: How to Design)

INF 452 Information Design Studio V: Coding *(Studio/Required)*
Students will develop skills in coding principles and practice by working with media artifacts. Students will write and modify code to address and engage issues covered in lecture based courses. [24L, 12T]
Prereq: 353 (Designing Interactive Systems)

INF 453 Capstone Project *(Studio/Required)*
A self-guided and collaborative student project. Students will identify a design problem, design a creative solution to the problem using a combination of skills from previous courses, and share their project with the class. Students will present the outcomes of their project in both visual and written formats. [24L, 12T]
Prereq: INF 452 (Information Design Studio V: Coding)

INF 481 Special Topics in Information Studies I *(Lecture/Elective)*

INF 482 Special Topics in Information Studies II *(Lecture/Elective)*

INF 483 Special Topics in Information Studies III *(Lecture/Elective)*

INF 484 Special Topics in Information Studies IV *(Lecture/Elective)*

Special topics courses offer In-depth examinations of selected topics in Information, including, for example:

> **Audiences**
> Audiences are social constructions which must be imagined to be actualized. In emerging social media space capacity to characterize imagined audiences provides a foundational framework for determining the information representations and presentations necessary to create those virtual audiences. This approach is foundation to personal, commercial and public sector exploration of virtual worlds. Beginning with an exploration of the nature and role of audiences across multiple virtual and electronic media, the students explore the conception, perception and reality of imagined and actual audiences. Broadcast models, interactive models, live audience, audience reading, gender, culture, and audience feedback are investigated. [36L]

> **Information and Political Activism**

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This course offers students an opportunity to investigate the evolving relationship between cultural production, social order, and the development and use of information technologies. Students will critically assess how a wide variety of technological-mediated practices have brought about significant social changes by affecting community structures and notions of individual identity, facilitating cultural exchanges and misunderstandings, impacting public opinion, and enabling new modes of political organization and unrest. As part of that endeavour we will examine various theories of collective action, including collective behaviour theory, resource mobilization, new social movements, gift economies, and class struggle. These theoretical perspectives will be evaluated based on their potential to inform our understandings of historical and contemporary examples of communities of practice. [36L

Critical Histories of Information Technologies
This course approaches current information and communication technologies from critical and historical perspectives. It investigates the interests, motives, and tactics of news media, pop culture producers, amateurs, universities, corporations, and governments in promoting, sustaining, and interpreting information and communication systems. It also asks how information systems mediate, alter, or entrench power relations and cultural practices. While the focus will be on media and information technologies, more theoretical or methodological readings will necessarily cover other systems. Case studies may include investigations of orality, writing, the printing press, industrialized printing, and electronic media from the telegraph and the telephone to broadcasting and the internet. [36L]

Digital Material Culture
This course explores the materiality of digital objects, from image and music files to digital documents to video games and other software, and considers their past, present, and future status as material culture. The course involves the primary study of digital objects themselves, but also considers the technological infrastructures and cultural contexts in which they are produced, circulated, and interpreted. [36L]

Surveillance
Surveillance has become an everyday facet of modern life. It is a foundational structure of current social, political, and technological interrelationships. Studying surveillance can help us more effectively understand how power, identity, and control operate in modern life. This course will integrate theory (economic, political, and social) and case studies to investigate how data, economics, militarism, policy, identity, visibility, fear, desire, and risk all interoperate in a global context to create and mediate the world we live in. [36L]

Artificial Intelligence and Deep Learning
Recent developments in deep learning, parallel hardware, and the accessibility of big data are leading to rapid advances in delivering on artificial intelligence's dream of building intelligent computers. This course will develop: (i) a conceptual understanding of these new brain-inspired computational architectures, (ii) an analysis of what tasks

they are appropriate for, what sorts of performance they offer and promise in the future, and what types of human work they will be able to automate; and (iii) an exploration of both their immediate and their potential long-term impact on the nature of human labour, creativity, social configuration, and self-conception.

Advanced Topics in Policy

Advanced Topics in User Interface Design

Advanced Topics in Information Systems Design

Advanced Topics in Information and Culture

Appendix B: Library Report

UNIVERSITY OF TORONTO
LIBRARIES

**University of Toronto Libraries Report for the
Bachelor of Information, Faculty of Information, January 2017**

Context: The University of Toronto Library (UTL) system is the largest academic library in Canada and is currently ranked 4th among academic research libraries in North America, behind Harvard, Yale and Columbia.[2] The UTL has an annual acquisition budget of $31 million. Its research and special collections comprise over 12 million print volumes, 5.6 million microforms, over 17,000 journal subscriptions, and rich collections of manuscripts, films and cartographic materials. The system provides access to more than 1.9 million electronic books, journals, and primary source materials.[3] Numerous, wide-ranging collections, facilities and staff expertise reflect the breadth of research and instructional programs at the University, and attract unique donations of books and manuscripts from around the world, which in turn draw scholars for research and graduate work.

Major North American Research Libraries[4]					
	2010-2011	**2011-2012**	**2012-2013**	**2013-2014**	**2014-2015**
ARL RANK	**UNIVERSITY**	**UNIVERSITY**	**UNIVERSITY**	**UNIVERSITY**	**UNIVERSITY**
1	Harvard	Harvard	Harvard	Harvard	Harvard
2	Yale	Yale	Yale	Yale	Yale
3	**Toronto (3rd)**	**Toronto (3rd)**	**Toronto (3rd)**	**Toronto (3rd)**	Columbia
4	Michigan	Columbia	Columbia	Columbia	**Toronto (4th)**
5	Columbia	Michigan	Michigan	Michigan	Michigan

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[2] Chronicle of Higher Education, "Library Investment Index at University Research Libraries, 2014 – 2015." In the Almanac of Higher Education, 2016. http://www.chronicle.com/interactives/almanac-2016?cid=cp51#id=65_416

[3] Figures as of 2015 taken from UTL's 2016 Annual Report.
http://www.library.utoronto.ca/library/aboutlibraries/annualreport/2016/AnnualReportUTL2016.pdf

[4] Association of Research Libraries Statistics, 2014-15 http://www.arlstatistics.org/analytics

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Top 5 Canadian Universities in the ARL Ranking of Major North American Research Libraries					
	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
	RANK/ UNIVERSITY	RANK/UNIVERSITY	RANK/UNIVERSITY	RANK/UNIVERSITY	RANK/UNIVERSITY
	3/Toronto	3/Toronto	3/Toronto	3/Toronto	4/Toronto
	11/Alberta	10/British Columbia	18/Alberta	22/British Columbia	27/Alberta
	16/British Columbia	15/Alberta	24/British Columbia	26/Alberta	31/British Columbia
	32/Montreal	18/McGill	30/McGill	35/McGill	43/McGill
	38/McGill	32/Montreal	35/Montreal	36/Montreal	49/Calgary

Space and Access Services: The UTL's 44 libraries are divided into four administrative groups: Central, Departmental/local, Campus (UTM and UTSC) and Federated and Affiliated College Libraries. The UTL provides a variety of individual and group study spaces for students. Study space and computer facilities are available twenty four hours, five days per week at one location, Robarts Library, with additional extended hours during study and exam periods at both UTSC and UTM. Web-based services and electronic materials are accessible at all times from campus or remote locations.

Teaching, Learning and Research Support: Libraries play an important role in the linking of teaching and research in the University. To this end, information literacy instruction can be offered to assist in meeting the Bachelor of Information degree level expectations in the ability to gather, evaluate and interpret information. Librarians can collaborate with instructors on assignment design, provide student research consultations, and offer just-in-time student research help in person, by phone or through online chat. Special initiatives, such as the Libraries Undergraduate Research Prize, and an annual forum for student journal editors, extend information literacy beyond the classroom. These services align with the Association of College and Research Libraries (ACRL) *Framework for Information Literacy for Higher Education*.[5]

Program Specific Instructional Support: Instruction can occur at a variety of levels for Bachelor of Information students and will be provided by the faculty liaison librarian for Information Studies. Librarians facilitate formal instruction integrated into the class schedule and hands-on tutorials related to course assignments. Library instruction offered to graduate students through the Faculty of Information's Inforum include sessions such as Deconstructing Databases and Finding Articles in LIS & ARM: it is expected that Bachelor of Information students will also be offered instruction on similar and related topics. The Library, through its liaison librarians, customizes feeds of library resources which appear prominently in Portal/Blackboard course pages, as well as specialized research guides such as Library and Information Science Literature, Publishing, and Communication (http://guides.library.utoronto.ca/lis-publications) and Critical Information Policy Studies

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[5] Association of College & Research Libraries. Framework for Information Literacy for Higher Education. ACRL, 2016. http://www.ala.org/acrl/sites/ala.org.acrl/files/content/issues/infolit/Framework_ILHE.pdf

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(http://guides.library.utoronto.ca/cips2).

Collections: Many college and campus libraries collect materials that will support the Bachelor of Information program; the largest collections of materials are centrally located in Robarts Library, Inforum, Engineering & Computer Science Library, Bora Laskin Law Library, and Ontario Institute for Studies in Education (OISE) Library. Collections are purchased in all formats to meet the variety of preferences and styles of our current students and faculty. The University of Toronto Library is committed to collecting both print and electronic materials in support of the Bachelor of Information program at the University of Toronto.

Journals: The Library subscribes to all of the top 25 journals listed in Journal Citation Reports (JCR)[6] in subject areas Information Science & Library Science and Computer Science & Information Systems. Of these titles, all are available electronically to staff and students of the University. We prioritize acquisition of online journals where possible.

Monographs: The UTL maintains comprehensive book approval plans with 51 book vendors worldwide. These plans ensure that the Library receives academic monographs from publishers all over the world in an efficient manner. In support of the Bachelor of Information, we specifically receive books through plans with YBP. Individual librarian selectors also select unique and interesting scholarly material overlooked by approval plans. These selections include special requests from faculty, and individual e-books and e-book packages, including complete collections of e-books from the following publishers: Oxford University Press, Cambridge University Press, major US university presses and Canadian university presses.
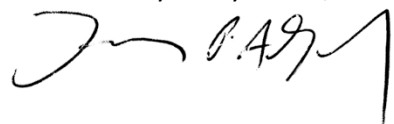
Preservation, Digitization and Open Access: The UTL supports open access to scholarly communication and research information through its institutional research repository (known as T-Space), its Downsview print repository, its open journal services, subscriptions to open access publications, and support for preservation of research materials in all formats. In addition to acquiring materials in support of the Bachelor of Information program, the Library has digitized its monograph holdings published before 1923. These books are available without charge to any Internet user.

Key Databases: *Library Literature & Information Science Full Text* and *Library, Information Science and Technology Abstracts (LISTA).*

Other Library-Departmental Engagement: Inforum staff also support the Digital Tattoo Project (http://digitaltattoo.ubc.ca/), a collaborative project between the University of British Columbia (UBC) Library, the UBC Centre for Teaching, Learning and Technology, the UTL and the Faculty of Information. This project's goal is to drive research and education about our rights and responsibilities as digital citizens.

Initially prepared by: Lari Langford, Director, Inforum, Faculty of Information, January 9, 2017
Submitted by: Larry Alford, Chief Librarian, University of Toronto Libraries, January 26, 2017

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[6] 2015 Journal Citation Reports® (Thomson Reuters, 2016)

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Appendix C: Student Services Report

Student service information for Quality Assurance Framework
[St. George Campus]

All University of Toronto undergraduate and graduate students have access to student services on all three campuses, Mississauga, St. George (downtown Toronto), and Scarborough, regardless of their 'home campus'. The services and co-curricular educational opportunities provide a complement to the formal curriculum by engaging and challenging students to reach their full potential as learners, leaders and citizens. At the University of Toronto (St. George Campus) these services are organized by Student Life Programs and Services, the academic division registrar offices, and the School of Graduate Studies. All these services combine to support the success of our students from the time they are admitted through degree completion and beyond.

Students have access to comprehensive **physical and mental health care** on campus, including a medical clinic, travel medicine services, immunization, contraception and sexual health education. Counselling and treatment options for psychological and emotional concerns include psychotherapy, group therapy and pharmacotherapy, as well as specialized assault counselling services provided both by the health and wellness centre and the Sexual Violence Prevention and Support Centre. In addition, a large number of wellness programs are provided, such as mindful meditation, workshops on coping skills and stress management.

Housing needs, including off-campus housing listings and resources for students living independently, are met through the Student Housing Service.

Coaching and education in the development of key **learning skills** – from time management to overcoming exam anxiety – is provided through the Academic Success Centre. The ASC also partners with faculty to integrate success strategies and support into the curriculum.

Students' career exploration and employment services are provided through a **Career Centre** offering resume and interview coaching, workshops, career resources, on and off-campus employment and volunteer listings, job shadowing, and career counseling.

Specialized services are provided for **international students** (orientation, advising, cross-cultural counselling), students with **disabilities** (academic accommodations, advising), students with **children or other family responsibilities** (advising, resources, subsidized child care), **Indigenous students** (academic support, financial counselling) and **lesbian, gay, bisexual and transgender** students (counselling, referrals, equity outreach and engagement).

Participation in **campus life** and **experiential learning** are facilitated through Hart House (clubs, committees, events), the Centre for Community Partnerships (service learning and volunteer opportunities in community settings), the Multifaith Centre (interfaith dialogue, events), and the Student and Campus Development (leadership development, orientation, recognition and support for student groups, activities.) **Sport and recreational facilities and programs** are

New Undergraduate Program Proposal for Bachelor of Information

provided to all students through both Hart House and the Faculty of Kinesiology and Physical Education.

Undergraduate students in the Faculty of Information also have access to Faculty-specific services. The Office of Student Services, which helps with matters such as course enrolment and registration, **academic and personal advising**, course timetables, exam schedules and post-exam services, student records, transfers, petitions and appeals, and graduation, is available to students on a drop-in basis or by appointment. An embedded counsellor is also available to students seeking more advanced **counselling**, **coping mechanisms**, and **wellness strategies** by appointment.

A tiered financial aid structure supports students through an array of merit-based and needs-based financial opportunities and is complemented by in-person **financial counselling**.

The Faculty of Information **Careers Office** supports students with group and one-on-one advising, skills workshops and training sessions, as well as resume and cover letter support, alumni job shadowing, and access to an industry-specific job bank.

The Inforum, the Faculty of Information's unique and newly-renovated library, allows students access to faculty-specific materials, **learning technology loans** such as laptops, tablets, e-book readers, cameras, camcorders, projectors and other equipment, advanced study pods and **collaborative learning spaces**, and in-person **librarian services** to help students become aware of resources, assist with assignments and papers, and increase academic confidence and success.

Appendix D: Program Comparator Table

This appendix describes in short detail programs at the University of Toronto, in Canada, and in the U.S. that bear some similarity to the proposed BI. This similarity ranges from programmatic overlaps to references to Information in the program name.

Within each geographic area, they are arranged more or less in the order of the strength of the similarity.

University of Toronto comparator programs

Communication, Culture, Information, and Technology major; Institute for Communication, Culture, Information, and Technology (ICCIT)

Program Type:	Major plus Sheridan College Certificate
Degree:	BA
Campus:	UTM
Description:	The CCIT major program emphasizes the points where culture, communication, information and technology converge. Students learn how historical uses of media and cultural theory inform current trends and then apply these concepts in practical settings.
Comparison to BI:	This major program offers less focus on information media *per se* (representation and meaning-making through datafication and algorithmic reasoning); it has a relatively narrow career focus on application design.

Note: Many ICCIT faculty, including Profs. Boase, Caraway, Cohen, Hanna, McArthur, McEwen, Munteanu, Packer, and Sharma, hold their graduate appointments in the Faculty of Information.

Media Studies stream in Media, Journalism And Digital Cultures Major Program

Program Type:	Stream within a major
Degree:	BA
Campus:	UTCS
Description:	Studies how media form and content shape knowledge and meaning from historical, philosophical, cinematic and artistic perspectives.
Comparison to BI:	This is a major program only, less intensive and with lower admission requirements than the BI. Little attention in the curriculum to information as mediated communication (that is, to representation and meaning-making through datafication and algorithmic reasoning)

Note: Many faculty in the UTSC Media Studies Department, including Profs. Burchell, Cowan, Nieborg, and Petit, hold their graduate appointments in the Faculty of Information.

New Media Studies Joint Major Program

Program Type:	Major plus Centennial College certificate
Degree:	BA

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Campus:	UTSC
Description:	Combines the academic study of media at UTSC with the technical education and industry experience provided through practice-based courses on multimedia design for Web and mobile applications at Centennial College.
Comparison to BI:	The major program has little focus on policy or political economy and a narrow career focus on application design.

Digital Enterprise Management specialist program, ICCIT

Program Type:	Specialist
Degree:	BA
Campus:	UTM
Description:	Emphasis on information technologies and organizational management.
Comparison to BI:	Emphasis on organizational management; provides relatively little training in political economy and critical studies.

Electronic and Digital Media stream of Book and Media Studies major

Program Type:	Stream within a major
Degree:	BA
Campus:	St. Michael's College, St George Campus
Description:	An interdisciplinary and historical investigation of the role of printing, books, reading, and electronic and digital media in cultures past and present with an additional focus on radio, television, telecommunications, social media, and the World Wide Web.
Comparison to BI:	As a stream within a major, the program offers only a peripheral treatment of information media.

Information Engineering stream of the Industrial Engineering specialist program

Program Type:	Stream within a specialist program
Degree:	BSc
Campus:	Department of Mechanical and Industrial Engineering, Faculty of Engineering, St. George
Description:	Engineering of Information, knowledge, and decision support, and the systems with which they are delivered to support organizational goals through business processes.
Comparison to BI:	Emphasis on business organizational management; provides relatively little training in political economy and critical studies.

Information Systems Stream within Computer Science specialist Program, BSc

Program Type:	Stream within Specialist program; coop available
Degree:	BSc
Campus:	*Dept of Computer and Mathematical Sciences; UTSC*
Description:	Combines computer science, software engineering and business management. Coop available.

New Undergraduate Program Proposal for Bachelor of Information

Comparison to BI:	Dual emphasis on computer science and business management; provides relatively little training in political economy and critical studies.

Management And Information Technology Specialist Program

Program Type:	Specialist
Degree:	BBA
Campus:	UTSC
Description:	Program is designed to give students a solid grounding in management, accounting, economics, and computer science.
Comparison to BI:	Degree in Business Administration

Canadian comparators

Two Canadian Universities offer programs that might also attract students who are interested in the BI. These are the University of Western Ontario (UWO) and the University of British Columbia (UBC).

Media, Information & Technoculture

Program Type:	Specialist equivalent (9.0 FCE required)
Degree:	BA
Campus:	Faculty of Media and Information Studies; U. Western Ontario
Description:	The program's goal is to offer critical, interdisciplinary analysis of the institutions, practices, and cultural meanings associated with technologies of communication, information, knowledge, learning, and entertainment. It consists of seven foundational courses (3.5 FCE) in History of Communication, Political Economy, Cultural Theory, Technology and Society, Writing, Research Methods, and Information in the Public Sphere. These are followed by eleven elective courses (5.5 FCE) that range over the field of media studies, including, but not predominately focused on, information as media.
Comparison to BI:	The program's foundational courses and critical interdisciplinary approach are very similar to the proposed BI. The BI is more focused in its advanced course content, with more required courses engaging specific topics in cultural stewardship, policy, and data as media. This program, and the program at Cornell described further below, are the closest to the BI.

Bachelor of Media Studies

Program Type:	Bachelor Degree (20.0 FCE)
Degree:	Bachelor of Media Studies
Campus:	UBC
Description:	The BMS degree at UBC is an amalgam of courses from across the University. It consists of ▪ 10.5 FCE in required courses in media theory and media production, including fourth year courses in Human Computer Interaction, Information Visualization, and Information Policy

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	▪ 2 FCE of "core-plus" courses chosen from 58 designated of media-related courses across the University.
	▪ and 7.5 FCE in electives from across the University.
Comparison to BI:	This is similar to the BI in that it incorporates, as a requirement, programming and information courses within a media studies paradigm. It is much more fluid than the BI, especially regarding upper level electives. Students may graduate with only a passing familiarity with the field of Information.

U.S. Undergraduate Programs

Four US Schools of Information have undergraduate programs that are comparable to the proposed BI. They are Cornell, Georgia Tech, U. Colorado, Indiana U., and Michigan State U.

Information Science; U. Colorado

Program Type:	Major
Degree:	BS
School:	College of Media, Communication, and Information
Description:	The program requires ~2.5 FCE in foundational courses covering representation, socio-technical complexity, and modes of reasoning. Also required are ~1.0 FCE in introductory courses identifying, analysing, and engaging real world problems in information practice, ~1.5 FCE in Information electives, ~2.0 FCE in courses showing mastery in the areas of Peer Production, Ethics and Policy, Visualization, and Survey Research Design, and ~1.O FCE capstone project. Students must also complete a minor or second major outside the IS major.
Comparison to BI:	This program is similar to the BI in its interdisciplinarity and its approach to computing informed by media studies. Like the proposed BI, it integrates design thinking and critical analysis. Of all the comparator programs, this is most similar to the proposed BI.

Information Science; Cornell

Program Type:	Major
Degree:	BA or BS
School:	College of Arts and Science (BA), College of Agriculture and Life Sciences (BS); Cornell University
Description:	The BA and the BS programs are very similar, differing primarily in their associated college-level requirements. The program consists of six core courses (Programming; Calculus or Statistics; Information Ethics, Law, and Policy; Introductory Design and Programming for the Web; Networks; Communication and Technology) plus four courses within a concentration. The concentrations are Behavioral Science; Data Science; Digital Culture and Production; Information Ethics, Law, and Policy; Interactive Technologies; Networks, Crowds, and Markets; or User Experience.

New Undergraduate Program Proposal for Bachelor of Information

Comparison to BI:	This is similar in content and approach to the BI. However, the BI integrates studio courses and practica. The BI also requires that students engage across concentration areas, whereas the Cornell program focuses on one.

Computational Media; Georgia Tech

Program Type:	Major
Degree:	BS
School:	A collaboration between the College of Computing and the School of Literature, Media, and Communication (LMC) at Georgia Tech.
Description:	The program requires ~6.0 FCE of courses in computer science and ~5.0 FCE of courses in LMC, ensuring that graduates have basic competence in: computational principles; the representation and manipulation of digital media, including graphics and sound; software design; visual and interactive design; digital arts; and media theory and history.
Comparison to BI:	This program is similar to the BI in its interdisciplinarity and its approach to computing informed by media studies. It is more directed to digital production than the BI is, lacking attention to policy, information management, and cultural institutions.

Informatics; Indiana U.

Program Type:	Major
Degree:	BS
Campus:	School of Informatics and Computing, Indiana U.
Description:	The Informatics program is intended to aid students in exploring how technology can be used to fuel discoveries and innovations in any discipline. It requires ~4.0 FCE in core informatics courses, including Introduction to Informatics, Mathematical Foundations of Informatics, The Information Society, Information Infrastructure, Human-Computer Interaction Design and Programming, and Information Representation. Students then complete 2.0 FCE of electives in other departments (typically courses in business, cognitive science, computer science, journalism, public and environmental affairs, sociology, and telecommunications) and complete a 1.0 FCE capstone project.
Comparison to BI:	The BI is more prescriptive in its requirements across the breadth of the fields of Information. In particular, the BI includes a focus on political economy, policy, and cultural institutions

Media and Information; Michigan State U.

Program Type:	Major
Degree:	BA
School:	College of Communication Arts and Sciences
Description:	Students learn both the techniques of media production guided by principles of aesthetics and narrative design, and approaches to media and

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	information management and research guided by social science theories and methods. The program is comprised of 1.5 FCE in core courses including Understanding Media and Information; Media and Information Technologies and Industries; Bringing Media to Market. 1 FCE in introductory design courses, 2.5 FCE from within one of 7 focus areas – Film and Media Production; Game and Interactive Media Design ; Graphics and Animation; Creating Human-Centered Technology; Interactive Prototyping; Media and Information Management; and Society, Policy and Research.
Comparison to BI:	This program is similar to the BI in its design pedagogy. However, it is more production focused, despite the availability of concentrations in Information Management and Policy and Research

Additionally, several iSchools have undergraduate programs in Information Science or Information Systems that are not comparable to the BI, in that they are focused on the design or management of information systems in organizations. These include Syracuse, Drexel, Florida State University, Georgia Tech, Indiana U., Penn State, Rutgers, Maryland, U Michigan, and U. North Carolina.

Appendix E: List of Potential Employers Interviewed

The Faculty interviewed the following people regarding how they saw graduates of the BI fitting in with their organization, and the skills and knowledge they felt graduates should have to make them competitive in the job market. A summary of the results of these interviews is included in the Need and Demand section.

Alford, Larry P.	Chief Librarian; University of Toronto Libraries
Applebaum, Zena	Director, Professional Firm Customer Segments; Thomson Reuters
Barry, Maureen	CEO; Burlington Public LIbrary
Bennet, Karen	Senior Vice President, Engineering; Cerebri AI
Bodiguel, Ashley	Information Systems Administrator; Pembina Institute
Bruno, Nadia	Coordinator, Freedom of Information & Privacy; Ontario Ministry of Transportation
Dafoe, Sr., Tim	Senior Security Policy Advisor; Government of Ontario
Ferguson, Chris	CEO; Bridgeable, Inc.
Franchetto, Barbara	CEO; Southern Ontario Library Services
Ing, David	Senior Management Consultant (retired); IBM
Isozaki, Nancy	Director of Corporate Information Policy; City of Toronto
Janczyn, Joyce	Chief Operations Officer; Datifex
Jones, Rebecca	Service Delivery Director; Brampton Public LIbrary
Kurtenbach, Gordon	Senior Director of Research; Autodesk
Limkilde, Carrie	Manager, Collections Development & Management; Archives of Ontario
Ma, Tulan	Senior Manager, Projects and Systems; Toronto Region Immigrant Employment Council (TRIEC)
Marland, Leo	Vice President, Enterprise Architecture; RBC
McDonald, Richard	Distinguished Engineer; IBM Canada
Radford-Grant, Carole	Archivist; City of Toronto
Roberts, John	Chief Archivist and Privacy Officer; Archives of Ontario
Semande, Erin	Provincial Heritage Registrar; Ontario Heritage Trust
Vredenburg, Karel	Director, Design; IBM Canada

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Webb, Violeta Quintanilla	Director, Policy and Planning; Information, Privacy and Archives; Ontario Ministry of Government and Consumer Services
Whitmell, Vicki	Executive Director, Information and Technology Services Division; Legislative Assembly of Ontario
Worren, Jon	Sr. Director, Venture & Corporate Programs; MaRS Discovery District
Yoon, James	Director of Design; Bluedot, Inc.

New Program Proposal
Appraisal Report

Program: Bachelor of Information
Reviewers: John Leslie King, iSchool, University of Michigan; Pam McKenzie, Faculty of Information and Media Studies, The University of Western Ontario
Review visit date: 10-11 August 2017

Report Summary

The reviewers met with a variety of stakeholders including the Dean, the undergraduate program director, the anticipated future undergraduate program director and experiential learning coordinator, faculty who will take a leadership role in delivering the program, doctoral students who will serve as prospective TAs and possibly part-time instructors; student services and administrative staff within the Faculty, library staff within the Faculty and UTL, and university-level academic and administrative representatives. The reviewers were struck by the uniformly positive and enthusiastic response to the proposed program and by the degree of thought put into the proposal by each of the stakeholder groups.

Program evaluation criteria

1. Objectives

Consistency of the program with the institution's mission and unit's academic plans.

The program is consistent with both the institution's mission and the unit's academic plans. The proposal responds to the Faculty of Information's longstanding recognition of the institutional need for an undergraduate program, and reflects goals articulated in the Faculty's Strategic Plan. Further, it speaks directly to President Gertler's 2015 call to rethink undergraduate education. The structure of the program affords opportunities for both research-based and experience-based learning. The combination of lecture and studio courses will allow the program to apply new learning modes and technologies. The practica and capstone projects will support students in effecting the transition from study to work.

Clarity and appropriateness of the program's requirements and associated learning outcomes in addressing the academic division's undergraduate Degree Level Expectations.

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The program's requirements and associated learning outcomes are clear and appropriate for the academic division's undergraduate Degree Level Expectations.

Appropriateness of the degree or diploma nomenclature.

The degree/diploma nomenclature is appropriate.   The name Bachelor of Information ties the program directly and distinctly to the Faculty of Information, and acknowledges that the program includes transdisciplinary elements of the arts and the sciences.

2. Admission requirements

Appropriateness of the program's admission requirements for the learning outcomes established for completion of the program.

The program's admission requirements are appropriate for the learning outcomes described. The Faculty has put a great deal of thought into the broad areas of subject experience they would like incoming students to have, and these are both specific enough and flexible enough to enable the program to admit students from a variety of programs and disciplines. These is an appropriate set of initial requirements; these will serve as a baseline and may be adjusted as necessary in subsequent admission cycles as the program develops.

Appropriateness of any alternative requirements, if any, for admission into the program such as minimum grade point average or additional languages or portfolios, along with how the program recognizes prior work or learning experience.

None specified.

3. Structure

Appropriateness of the program's structure and regulations to meet specified program learning outcomes and Degree Level Expectations.

The program's structure and regulations are appropriate for the learning outcomes and Degree Level Expectations. The development of competencies is clearly mapped from introduction to demonstrating mastery. The lecture and studio courses will provide complementary points of entry to both theoretical and applied knowledge in a variety of areas.

The extent to which the program structure and delivery methods reflect universal design principles and/or how the potential need to provide mental or physical health accommodations has been considered in the development of this program.

The program structure is sound with respect to design principles and student needs for mental and/or physical health accommodations as anticipated. Further adjustment is possible if and as needed.

4. Program content

Ways in which the curriculum addresses the current state of the discipline or area of study.

As evidenced by the review of comparator programs, the BI is unique in North America. From the perspective of the undergraduate programs in our two academic units, the BI overlaps somewhat but complements; it sits comfortably between the University of Michigan's undergraduate program in information, which focuses on information analysis, user experience, and social computing, and Western's MIT program, with its inflection on Media Studies as opposed to Information Science.

The successful undergraduate program in information at the University of Michigan was due in large part to the program's evolution under a process of "backward chaining."   The program started with a goal, and worked backward to create placement, curriculum, and recruiting that might produce the desired results. Recruiting desired students was the the first challenge for the program, but it was also the ultimate objective of the program. Program design started with what the students and prospective employers want. The overwhelming majority of prospective students said they would be attracted to a program that placed them in entry-level positions in the "tech" sector, working creatively with technology to produce goods and services of benefit to people. This led to discussions with employers in the "tech" sector about what they search for in people for such entry-level positions. They want people who understand technology well enough to discuss options in areas such as user experience and information analysis. This does not mean a program producing computer scientists because the computer science program was doing a good job of that. Employers want something different, requiring more focus on computing technology than originally anticipated for the program (and more than the current proposal contains).

The University of Toronto need not do what the University of Michigan did – the differences might require something different. Employers consuled by the BI program have confirmed that there is a strong need for people who can do both technical work and the "soft skills" provided by the liberal education tradition. This program as proposed should help students meet this need.

To build on this foundation, the objectives of students and the corresponding needs of employers (assuming the students have objectives relevant to employers) should be given high priority as the program evolves. The objective is to create an undergraduate program that draws good students, prepares them for what they want, and places them into their desired positions. Good prospective students who see this will want to be in this undergraduate

program. As the program evolves, the Faculty of Information must adjust recruitment, curriculum, and placement to achieve this goal in accordance with the needs of good students and leading employers.

Identification of any unique curriculum or program innovations or creative components and their appropriateness.

The main unique innovation is the combining of the two traditions – technical and liberal – in this way. Also, the practica are potentially very innovative. The preceding point about providing the right background to permit graduates to discuss technology issues arises here. Graduates cannot understand how best to handle information without understanding information technology, and they cannot understand information technology without knowing enough about what it can do to know what it cannot do (or cannot affordably be made to do). The studio and practica strategies make sense in producing what employers need in light of what the Faculty think students should know, but to prepare students for what the practica and studio courses need might require that students those courses prepared in ways that require particular prerequisite classes. Again, the curriculum plan at this point is appropriate for the initial offerings and is open to evolution as time goes on.

5. Mode of delivery

Appropriateness of the proposed mode(s) of delivery (distance learning, compressed part-time, online, mixed-mode or non-standard forms of delivery, flex-time options) to meet the intended program learning outcomes and Degree Level Expectations.

The plans are well thought-out, and provide a good point of departure. Experience with the program should provide the means to refine modes of delivery as program needs evolve (e.g., online or hybrid offerings are already indicated as a possibility).

6. Assessment of teaching and learning

Appropriateness of the proposed methods for the assessment of student achievement of the intended program learning outcomes and Degree Level Expectations.

The methods of assessment of student achievement given the expectations for learning outcomes and Degree Level are sensible as developed, but are likely to evolve as experience is gained with the program. Modes of assessment should be flexible to provide the best options over time.

Completeness of plans for documenting and demonstrating the level of performance of students, consistent with the academic division's statement of its Degree Level Expectations.

These cannot be complete at this time, although they are carefully and responsibly drawn, because the innovativeness of the program makes it unlikely that established methods will be fully adequate to the task. The faculty will learn as much as the students as time goes on.

7. Resources

Adequacy of the administrative unit's planned utilization of existing human, physical and financial resources, and any institutional commitment to supplement those resources to support the program.

The recent renovation of the Faculty library, the Inforum, has made it a flexible, attractive, student-friendly space that affords individual study, independent small group work, and classroom interactions. The Inforum already offers extensive and responsive iSkills workshops to meet the need for professionalization and technology skills. There is both will and capacity to extend the scope and audience of these workshops to provide nimble and appropriate co-curricular learning opportunities for undergraduate students.

The BI will both draw from and provide professionalization opportunities for the Faculty's graduate students in Information. Doctoral students are expected to be involved as teaching assistants and possibly part-time instructors. Master's students already work in the Inforum and the opportunity to provide services and programs -- such as teaching assistanceships and iSkills workshops -- for the BI students would provide them with valuable instructional experience.

The Dean is committed to increasing the staffing for student recruitment and placement and to exploring the possibility of building renovations to create effective new student spaces for both the BI students and the students in the extant graduate programs. As time goes on the BI program has the potential to blaze the trail for other innovative initiatives at the University. The reviewers are confident that this program will become something in which the university will want to continue its investment.

The program is well-placed to take advantage of university-wide funding and services for program and curriculum development and teaching excellence.

Participation of a sufficient number and quality of faculty who are competent to teach and/or supervise in the program.

The initial plans should be adequately supported by the faculty as outlined. The overview of faculty and the plan for three additional hires together demonstrate that there will be sufficient depth to cover all of the BI courses even accounting for sabbaticals.

Adequacy of resources to sustain the quality of scholarship and research activities of undergraduate students, including library support, information technology support, and laboratory access.

As indicated above, the resources required to sustain undergraduate student needs are adequate given the growth projections at present. As the program grows additional resources might be required and the Faculty is prepared to respond and adapt.

Adequacy of and planning for:
  Commitment to provide the necessary resources in step with the implementation of the program

The reviewers are pleased to hear that the Faculty has earmarked significant financial resources for program startup, as indicated above.

  Planned/anticipated class sizes

The program plan allows for a modest initial enrollment with gradual and manageable incremental growth to full program size. Projected class sizes are appropriate for the outcomes and forms of learning in both the lecture and studio courses. The opportunity for online or hybrid teaching increases the program's flexibility.

  Provision of supervision of experiential learning opportunities (if required)

With its long history of professional graduate programs in Information Studies and Museum Studies and its experience with graduate-level practica and co-ops, the Faculty has established relationships with local and regional employers and has in place resources and proven policies and procedures for placing students in practica. Not only does it offer experiential workplace-based learning, it specifically includes university research as a viable and valuable site of experiential learning.

  The role of adjunct and part-time faculty

The planning thus far is appropriate and, as noted above, provides professionalization opportunities for graduate students. The plan will appropriately develop along with the program.

8. Quality and other indicators

Quality of the faculty (e.g., qualifications, research, innovation and scholarly record; appropriateness of collective faculty expertise to contribute substantively to the proposed program).

New Undergraduate Program Proposal for Bachelor of Information

The faculty quality is excellent, and the three areas of focus in the program represent three significant faculty strengths.

Program structure and faculty research that will ensure the intellectual quality of the student experience.

The program structure should be of high intellectual quality for students given faculty research. The reviewers encourage the initial instructors to continue working as a team in the program's early years, with regular meetings and consultations.

The extent to which the program has integrated any elements that enhance the diversity of its curriculum, students or teaching staff.

The goals of enhancing diversity of curriculum, students and teaching staff are important, and need to be kept clearly in mind as the program grows. The initial plans are adequate and are likely to be responsive to emerging needs and opportunities as time goes on. The program is configured to draw from strengths from across the Faculty broadly and will engage them broadly.

9. Conclusion

Overall, the reviewers support this program, and encourage the Faculty to take a long view and give the program sufficient time and resources to find its feet. For that reason, the reviewers suggest that the initial midterm review not take place until the program has been up and running for four or even five years.

New Undergraduate Program Proposal for Bachelor of Information

Appendix G: Dean's Response to the External Report

UNIVERSITY OF TORONTO
FACULTY OF INFORMATION

Dr Wendy M Duff
Dean and Professor

27 October 2017

Prof. Sioban Nelson Vice-Provost, Academic Programs
University of Toronto
Simcoe Hall
27 King's College Circle, Room 225
Toronto, ON M5S 1A1

Dear Sioban,

Re: External Appraisal Report
New Program Proposal – Bachelor of Information

I write in response to the report by external appraisers John Leslie King of the iSchool at the University of Michigan and Pam McKenzie of the Faculty of Information and Media Studies at the University of Western Ontario on the proposed Bachelor of Information. I would like to take the opportunity to thank the appraisers for their thorough and expert analysis of the proposal and for their excellent report. I would also like to thank the administrative staff of the Faculty of Information and all those who contributed to the preparation of the comprehensive new program proposal. I also extend many thanks to all the faculty members, students, and staff who met with the external appraisers. Their input was invaluable.

The appraisers describe the program as "unique in North America". They recognize that the Faculty has consulted with employers to confirm the "strong need" for people with both technical skills and the "'soft skills' provided by the liberal education tradition," and they identify the program's practica, studio and lecture courses as a unique combination of the technical and liberal traditions, producing "what employers need in light of what the Faculty think students should know." They note with approval that the program specifically includes university research as a viable and valuable site of experiential learning. As well, the appraisers note that "faculty quality is excellent, and the three areas of focus in the program represent three significant faculty strengths." They identify the Faculty library, the Inforum, as a valuable resource, offering both adaptive workspaces and "workshops to meet the need for professionalization and technology skills." They are pleased with the Dean's commitments to increase the staffing for undergraduate recruitment and placement.

Throughout the report, the appraisers have indicated the need for flexibility and responsiveness, especially in the first years of the program's development, to fine tune procedures regarding admissions, recruitment, program structure, and content delivery. They particularly suggest attention to the program structure, in order to ensure that students have the necessary prerequisite courses to prepare them for studios and practica.

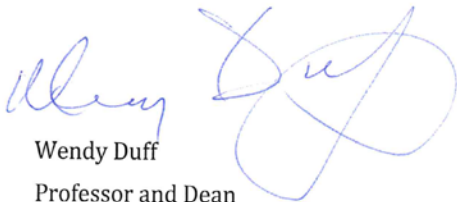New Undergraduate Program Proposal for Bachelor of Information

In response to this suggestion, the Faculty will establish a standing Undergraduate Programs Committee which will meet every second month to assess the program's success in meeting its objectives, and to recommend programmatic changes and adjustments.

They further suggest that the Faculty continually assess and give high priority to the "objectives of students and the corresponding needs of employers" as the program evolves, with the objective of "draw[ing] good students, prepar[ing] them for what they want, and plac[ing] them into their desired positions" and to "adjust recruitment, curriculum, and placement to achieve this goal." The Faculty has now included in the Need and Demand section of the proposal a summary of its extensive interviews with potential employers, which affirm the program will meet its needs. The Undergraduate Programs Committee, relying on data sources newly articulated in the Assessment section of the proposal, will continue to review and adjust the program as necessary, and assess its success in meeting those objectives.

Finally, the appraisers suggest that the Faculty's plans for documenting and demonstrating the level of performance of students "cannot be complete at this time … because the innovativeness of the program makes it unlikely that established methods will be fully adequate to the task." We are aware of the difficulty of assessing student performance under innovative pedagogic techniques. However, we believe that the Undergraduate Programs Committee, in close consultation with the course instructors, and relying on the data sources newly articulated in the Assessment section of the revised proposal, will maintain suitable procedures for the evaluation and documentation of student performance.

My colleagues and I are sincerely appreciative of the suggestions of Professor King and Professor McKenzie's thoughtful external appraiser report.

Sincerely,

Wendy Duff
Professor and Dean
Faculty of Information

Appendix H: Vice-Provost's Letter of Support

UNIVERSITY OF TORONTO

OFFICE OF THE VICE-PROVOST,
ACADEMIC PROGRAMS

November 2, 2017

Wendy Duff
Dean
Faculty of Information
University of Toronto

Re: Appraisal Report, Proposed New Bachelor of Information

Dear Wendy,

I am very pleased to receive the appraisal of the proposed Bachelor of Information. Your administrative response to the appraisal nicely summarizes the report and highlights the specific suggestions made by the appraisers.

The appraisal report indicates that as the program evolves, it will be important for the Faculty of Information to place a high priority on monitoring and adjusting, when necessary, the program structure to ensure it continues to meet the needs of students and employers. The report also notes that, because the program is so innovative, established methods of documenting and demonstrating the level of student performance in relation to the degree level expectations may need to be adjusted. In response to these observations, the Faculty of Information has created an Undergraduate Programs Committee that will meet frequently in order to assess the program structure and other elements. This committee will use the newly identified data sources to both monitor the program's structure and student performance.

I will be very pleased to recommend this new second entry bachelor's program to governance for approval, following approval at the Divisional level.

Sincerely,

Sioban Nelson
Vice-Provost, Academic Programs

cc.

Anna Pralat, Office Manager and Executive Assistant to the Dean
David Phillips, Associate Professor and Director, Undergraduate Programming
Daniella Mallinick, Director, Academic Programs, Planning and Quality Assurance, Office of the Vice-Provost, Academic Programs
Jennifer Francisco, Coordinator, Academic Change, Office of the Vice-Provost, Academic Programs