

## FOR APPROVAL

## PUBLIC

## OPEN SESSION

**TO:** UTSC Academic Affairs Committee

**SPONSOR:** Prof. Karin Ruhlandt, Vice-Principal Academic and Dean

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**DATE:** April 22, 2026 for April 29, 2026

**AGENDA ITEM:** 10

### ITEM IDENTIFICATION:

Major Modification: New Freestanding Minor in Social Data Science (Arts) (Undergraduate), Department of Sociology, UTSC (for approval)

### JURISDICTIONAL INFORMATION:

The UTSC Academic Affairs Committee (AAC) “is concerned with matters affecting the teaching, learning, and research functions of the campus (AAC *Terms of Reference*, Section 4).” Under Section 5.6 of its *Terms of Reference*, the AAC is responsible for the approval of “major and minor modifications to existing degree programs.”

The AAC has responsibility for the approval of major and minor modifications to existing programs as defined by the [University of Toronto Quality Assurance Process](#) (UTQAP, Sections 3.1 and 3.3).

### GOVERNANCE PATH:

1. UTSC Academic Affairs Committee [For Approval] (April 29, 2026)

### PREVIOUS ACTION TAKEN:

No previous action in governance has been taken on this item.

### HIGHLIGHTS:

The Department of Sociology at UTSC is proposing a new freestanding Minor in Social Data Science (Arts) to complement its existing undergraduate offerings. The Minor responds to the rapidly evolving landscape of data science and artificial intelligence (AI), and their growing integration with social science

research. It also forms part of a coordinated cluster of AI-related initiatives at UTSC, including the Minor in Artificial Intelligence, Mind and Society (Philosophy) and the Artificial Intelligence and Machine Learning stream within the Computer Science Specialist programs (Computer and Mathematical Sciences).

Social Data Science is an interdisciplinary field that applies data science methods to the study of social phenomena, integrating computational tools, domain expertise, and social science theories. It encompasses the analysis of both structured data (e.g., surveys, administrative records) and unstructured data (e.g., social media, ethnographic sources), reflecting the distinct characteristics of social science data and methods.

The Minor will equip students with the technical, analytical, and ethical skills to examine complex social issues through data-informed approaches. Designed for students across disciplines, the Minor provides foundational training in numeracy, modeling, AI, and research methods, alongside a 'Skills and Applications' component that draws on courses across areas such as sociology, health, environmental science, linguistics, political science, and philosophy. Drawing on UTSC's strengths in equity and interdisciplinary learning, the program prepares students for careers at the intersection of technology and society.

The proposed Minor aligns with the University of Toronto's mission to deliver high-quality undergraduate and graduate education, and supports UTSC's strategic priorities in interdisciplinary teaching and research. It strengthens connections to UTSC's Health Sciences programming and the Scarborough Academy of Medicine and Integrated Health (SAMIH), while also aligning with broader institutional efforts in data science, including the work of the Data Science Institute (DSI) and its Computational and Quantitative Social Science (CQSS) portfolio.

Building on the success of the existing Certificate in Computational Social Science (CSS), the Minor expands the scope of training by integrating both qualitative and quantitative approaches and engaging with a broader range of data sources and theoretical frameworks. The Certificate will be phased out following the launch of the Minor.

The proposal has benefited from extensive consultation with faculty, students, cognate units, and the Office of the Registrar within UTSC, as well as engagement with partners across the tri-campus. Student feedback indicates strong demand for the proposed Minor.

Overall, the Minor represents a timely and strategic enhancement to UTSC's undergraduate curriculum, strengthening interdisciplinary education and preparing students to engage critically and responsibly with data and AI in society. The Minor is proposed to take effect on September 1, 2026.

## **FINANCIAL IMPLICATIONS:**

There are no significant financial implications to the campus operating budget.

## **RECOMMENDATION:**

Be It Resolved,

THAT the new freestanding Minor in Social Data Science (Arts) (Undergraduate), in the Department of Sociology, UTSC, as described in the attached proposal, be approved effective September 1, 2026.

**DOCUMENTATION PROVIDED:**

1. Proposal - Major Modification to introduce a new freestanding Minor in Social Data Science (Arts) (Undergraduate), Department of Sociology (April 2, 2026)



# University of Toronto

## Major Modification Proposal:

### Add Program Structure (Freestanding Minor, Specialist or Major Where One Exists, Stream, Field or Concentration)

|                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Program being modified:</b><br>Please specify what program and the components being created; e.g., New stream in the Specialist in History called.... | New freestanding Minor in Social Data Science (Arts)                                                                                                                                                                                                                                                                                  |
| <b>Program of Study Code(s):</b><br><br>Indicate if new POST is needed                                                                                   | New Program of Study Code will be required.                                                                                                                                                                                                                                                                                           |
| <b>Proposed major modification:</b>                                                                                                                      | Creation of a new freestanding minor                                                                                                                                                                                                                                                                                                  |
| <b>Department/unit (if applicable):</b>                                                                                                                  | Department of Sociology                                                                                                                                                                                                                                                                                                               |
| <b>Faculty/division:</b>                                                                                                                                 | University of Toronto Scarborough (UTSC)                                                                                                                                                                                                                                                                                              |
| <b>Dean's office contact:</b>                                                                                                                            | Professor Maggie Cummings, Special Advisor on Academic Programming & Curriculum Development<br>( <a href="mailto:saprogramming.utsc@utoronto.ca">saprogramming.utsc@utoronto.ca</a> )<br><br>Kevin Mak, Manager, Academic Program Reviews & Quality Assurance<br>( <a href="mailto:kevin.mak@utoronto.ca">kevin.mak@utoronto.ca</a> ) |
| <b>Proponent:</b>                                                                                                                                        | Professor Joe Hermer, Department Chair<br>( <a href="mailto:j.hermer@utoronto.ca">j.hermer@utoronto.ca</a> )                                                                                                                                                                                                                          |
| <b>Version date:</b><br>Please update as you edit this proposal.                                                                                         | April 2, 2026                                                                                                                                                                                                                                                                                                                         |

| <b>Development and Approval Steps</b>                    | <b>Date (e.g., of final sign off, governance meeting, inclusion in reports)</b> |
|----------------------------------------------------------|---------------------------------------------------------------------------------|
| Dean's office sign-off                                   | [date]                                                                          |
| VPAP sign-off                                            | March 25, 2026                                                                  |
| Unit-level approval (if required)                        | [date]                                                                          |
| Faculty/divisional governance                            | April 29, 2026 UTSC<br>Academic Affairs<br>Committee                            |
| Faculty/division submits final proposal to VPAP          | [date]                                                                          |
| Included in Major Modification Report to AP&P            | May 12, 2026                                                                    |
| Included in Major Modification Report to Quality Council | July 2026                                                                       |

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## 1 Executive Summary

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Please provide a brief summary of the change being proposed.

The rapid rise of computational data science methods promises to revolutionize intellectual inquiry. New machine learning algorithms and deep learning models, combined with the availability of large, complex datasets, can enable more detailed descriptive analyses across space and time, improve the accuracy of causal estimates, and allow researchers to explore previously infeasible questions, while also increasing the reproducibility and efficiency of the research process. Scholars face numerous challenges in adopting these cutting-edge computational techniques: the fast-paced nature of change, the steep learning curve associated with new methods, and hesitancy to break the boundaries of established disciplinary approaches.

The Minor in Social Data Science at the University of Toronto Scarborough is an interdisciplinary program developed by the Department of Sociology to integrate and apply social science perspectives with AI driven data science. The new Minor is part of a cluster of three proposed new programs at UTSC that engage the contemporary relevance of, and student interest in, artificial intelligence from distinct disciplinary

perspectives. These include a freestanding minor in Artificial Intelligence, Mind, and Society (AIMS; Philosophy), and a new stream in Artificial Intelligence and Machine Learning within the Specialists (regular and co-op) in Computer Science (Computer and Mathematical Sciences). These three new offerings will be complementary, but each is also unique and approaches the broad issue of artificial intelligence (AI) from a different perspective.

The Minor will equip students with the technical, analytical, and ethical skills to analyze complex social phenomena through evidence-based, data-driven approaches. Designed for students across disciplines, the program combines foundational sociology courses in numeracy, modeling, AI, and research methods with a variety of disciplines such as sociology, health, environmental science, linguistics, political science, and philosophy. In addition, the minor is strategically aligned to support both Health Sciences programming at UTSC and the Scarborough Academy of Medicine and Integrated Health (SAMIH) by increasing the depth and range of research capacities across the campus, and the wider Scarborough communities, with a Social Data approach. It responds to growing academic and employer demand for both social science and humanities graduates skilled in data science, as well as math and computer graduates trained in social critique and humanistic ideals. Drawing on UTSC's strengths in equity and interdisciplinary learning, the Minor prepares students for careers at the intersection of technology and society while fostering adaptable, socially responsible and inclusive approaches to data and AI.

## 2 Effective Date

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Please indicate when students may first be enrolled in the new structure and the anticipated date of the first review.

Effective date: September 1, 2026

The proposed Minor will be reviewed with programs housed in the Department of Sociology. A UTQAP review and site visit of the Department and its programs took place in February 2022; the proposed Minor would therefore be reviewed at the next scheduled review of the unit and its programs, which is planned to take place no later than the 2029-30 academic year.

### 3 Current Calendar Copy with Changes Tracked or Highlighted

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Insert calendar copy, including the program description, with all changes tracked or highlighted.

#### Calendar Description:

The Minor in Social Data Science provides students with training that integrates social science theory and perspectives with data science and artificial intelligence (AI) methods and tools, enabling them to analyze social phenomena across an interdisciplinary landscape. Courses develop students' technical and analytical skills, while fostering critical thinking about how data and evidence is generated and understood in different contexts. This Minor will appeal broadly to science students looking to research social phenomenon, as well as social science and humanities students looking to acquire data science skills and methods.

#### Program Requirements

**Note:** Students may not combine more than one Minor program offered by the Department of Sociology.

Students completing more than one program offered by the Department of Sociology (e.g., the Specialist in Sociology with this Minor, or the Major in Sociology with this Minor) may count up to 1.0 credit toward both programs.

Students must complete 4.0 credits:

#### 1. Foundations

2.5 credits as follows:

SOCA05H3 The Sociological Imagination

SOCB05H3 Logic of Social Inquiry

SOCB29H3 Artificial Intelligence and Society\* (new for Fall 2026)

SOCB35H3 Numeracy and Society\* (Title change in progress: Foundations of Social Data Science)

SOCC70H3 Models of the Social World\* (Title change in progress: Applied Modeling for Social Data Science)

2. Skills and Applications for Social Data Science (maximum 0.5 credits from Sociology; at least 0.5 credits must be at the C- or D-level)

1.5 credits from the following courses:

**Note** that additional non-Sociology credits may have discipline-specific prerequisites. Please consult the relevant program section of the calendar for details.

ANTC62H3 Medical Anthropology: Biological and Population Perspectives

ANTC67H3 Foundations in Epidemiology

ANTC70H3 Ethnographic Methods in Anthropology: Past, Present, and Future

BIOB20H3 Introduction to Computational Biology

CITB05H3 Researching the City: An Introduction to Methods

EESA10H3 Human Health and the Environment

EESB03H3 Principles of Climatology

EESB18H3 Natural Hazards

EESC25H3 Urban Climatology

ESTB05H3 Climate Science for Everyone

ESTC35H3 Environmental Science and Technology in Society

ESTC38H3/EESC28H3 The Anthropocene

GGRB30H3 Fundamentals of GIS

GGRC30H3 Advanced GIS

GGRC32H3 Essential Spatial Analysis

HCSB03H3 Ready for Research: HCS Skills Lab

HISB03H3 Critical Writing and Research for Historians

HLTB15H3 Health Research Methodology

HLTB27H3 Applied Statistics for Public Health

HLTC04H3 Qualitative Health Research

HLTC16H3 Health Information Systems

LINA02H3 Applications of Linguistics  
LINB29H3 Quantitative Methods in Linguistics  
LINC35H3 Introduction to Computational Linguistics  
PHLB18H3 Ethics of Artificial Intelligence  
POLB40H3 Quantitative Reasoning for Political Science and Public Policy  
POLC11H3 Applied Statistics for Politics and Public Policy  
POLD56H3 Politics and Computational Social Science  
PSYB06H3 Applied Statistical Analysis for Psychology & Neuroscience\* (new for Fall 2026)  
PSYC06H3 Advanced Statistical Analysis for Psychology & Neuroscience\* (new for Fall 2026)  
STAB23H3 Introduction to Statistics for the Social Sciences

SOCB20H3 The City and the Fight against Climate Change\* (new Fall 2026)  
SOCB22H3 Sociology of Gender  
SOCB26H3 Sociology of Education  
SOCB30H3 Political Sociology  
SOCB44H3 Sociology of Cities and Urban Life  
SOCB47H3 Social Inequality  
SOCB54H3 Sociology of Work  
SOCB60H3 Issues in Critical Migration Studies  
SOCB70H3 Social Change  
SOCC15H3 Work, Employment and Society  
SOCC23H3 Research in Action: Gathering and Analyzing Qualitative Data  
SOCC31H3 Research in Action: Quantitative Data and Statistical Analysis  
SOCC49H3/HLTC49H3 Indigenous Health  
SOCC61H3 Sociology of the Truth and Reconciliation Commission

## 4 Academic Rationale and Program Objectives

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### 4.1 Program Objectives

- a) State the program's objectives.

The Minor in Social Data Science aims to:

1. Provide students with interdisciplinary training that integrates social science perspectives with data science and artificial intelligence (AI)-enabled methods and tools, enabling them to analyze social phenomena using evidence-based approaches in a rapidly-shifting technological context.
2. Develop students' technical and analytical skills in working with diverse forms of social data, while fostering critical thinking about how data is produced, analyzed, and interpreted in different social contexts.
3. Prepare students to apply ethical and socially responsible practices in the collection, analysis, and communication of data, with attention to issues of privacy, equity, representation, and the broader social implications of AI and automated decision-making systems.

## 4.2 Academic Rationale

In a **single** response, please describe the academic rationale for the proposed changes, referring to the calendar copy above, and considering the offering relative to the criteria below.

- a) Discuss the consistency of the program's [objectives](#) with the institution's [mission](#) and U of T's/the division's/unit's [academic plans](#), [priorities](#) and commitments, including consistency with any implementation plans developed following a previous review.
- b) Appropriateness of degree or diploma nomenclature given the program's objectives.
- c) Evidence that the following have been substantially considered in the context of developing the proposed change and its associated resources:
  - i. [Universal design principles](#) and/or the potential need to provide mental or physical disability-related accommodations, reflecting the University's [Statement of Commitment Regarding Persons with Disabilities](#).
  - ii. Support for student well-being and sense of community in the learning and teaching environment, reflecting the work of the [Expert Panel on Undergraduate Student Educational Experience](#) and the commitment to establishing a Culture of Caring and Excellence as recommended by the Presidential and [Provostial Task Force on Student Mental Health](#).

- iii. Opportunities for removing barriers to access and increasing retention rates for Indigenous students; for integrating Indigenous content into the curriculum in consultation with Indigenous curriculum developers; and for addressing any discipline-specific calls to action, reflecting the commitments made in [Answering the Call: Wecheehetowin: Final Report of the Steering Committee for the University of Toronto Response to the Truth and Reconciliation Commission of Canada.](#)
  - iv. Opportunities for removing barriers to access and increasing retention rates for Black students; for promoting intersectional Black flourishing, fostering inclusive excellence and enabling mutuality in teaching and learning, reflecting the commitments made in the [Scarborough Charter](#) and consistent with the recommendations of the [Anti-Black Racism Task Force Final Report.](#)
  - v. Opportunities for fostering an equitable, diverse, and inclusive teaching and learning environment, reflecting the values articulated in existing institutional documents such as the [Statement on Equity, Diversity, and Excellence](#), the [Antisemitism Working Group Final Report](#), the aforementioned reports and future institutional reports related to equity, diversity and inclusion.
- d) Where appropriate, discuss unique curriculum or program innovations, creative components, significant high-impact practices relative to the change proposed.
  - e) Provide a statement on the way in which the proposed major modification will improve the student experience (required).

The proposed Minor in Social Data Science (SDS) emerges in response to the rapidly evolving landscape of data science, artificial intelligence (AI), and their integration with social science research. The new Minor is part of a cluster of three proposed new offerings at UTSC that address the contemporary relevance of, and student interest in, artificial intelligence from distinct disciplinary perspectives. These include a freestanding minor in Artificial Intelligence, Mind, and Society (AIMS; Philosophy), and a new stream in Artificial Intelligence and Machine Learning within the Specialists (regular and co-op) in Computer Science (Computer and Mathematical Sciences). These three new offerings will be complementary, but each is also unique and approaches the broad issue of artificial intelligence (AI) from a different perspective.

In the case of the Minor in Social Data Science, the focus is on methodological innovation and building student skills to engage with data in the context of evolving technologies, including AI. The field of data science as a whole is undergoing profound transformation with the rapid advancement of AI technologies. What it means to analyze data is changing, as are the nature of data and the skill sets necessary to interpret it. These shifts are likely to increase the importance of social science questions, skills, and theories as creative inquiry and theoretically informed interpretations rise in salience relative to technical abilities alone. In contrast to applied data science programs created in the past decade, establishing a Minor in SDS at this moment provides an opportunity to integrate AI approaches into social science education from the ground up.

Social Data Science represents a strategic effort to cultivate data science expertise specifically designed to address the complexities of the social world. As an emergent interdisciplinary field, SDS applies advanced data science techniques to social science questions, integrating computational tools, domain expertise, and social science theories. Unlike broader applied data science initiatives, SDS focuses on the unique challenges and opportunities inherent to social science data and methods. This includes leveraging structured sources, such as surveys and administrative records, alongside unstructured sources, like social media and ethnographic data. Social data science makes the most of the new innovations wrought by new AI technologies for data collection and analysis, but also acknowledges that these innovations are only one piece of the puzzle. By bridging traditional social science with modern, data-driven approaches, including new advances in AI, SDS can uncover otherwise hidden patterns in social data and generate theoretically relevant insights into complex social phenomena.

The proposed program aligns with the [University of Toronto's institutional mission](#) to be an “internationally significant research university, with undergraduate, graduate, and professional programs of excellent quality.” It directly supports [UTSC's strategic plan](#) by fostering interdisciplinary approaches to learning and research while creating innovative educational pathways that prepare students for an increasingly data-driven and AI-influenced society.

The Department of Sociology at UTSC is ideally positioned to develop SDS as an important site of learning, teaching, and student-based research. This Minor would build on the success of the existing Certificate in Computational Social Science (CSS); the new Minor would replace the certificate with a program that better meets the moment in terms of rapidly-changing AI-informed methods and questions and that can be readily combined with academic programs across different disciplines. While CSS tends to prioritize the application of large-scale automated methods to digital data, SDS offers a

broader view, incorporating both qualitative and quantitative approaches, and emphasizing the integration of diverse and increasingly rich data sources with social theories and contextual insights.

The Minor would support student well-being and sense of community by creating cohorts of learners who share interests in data science applications to social questions, providing opportunities for collaborative learning and project-based work. The program is based in [universal design principles](#) with flexible pathways and assessment methods that accommodate diverse learning styles. In addition, expanding data science programs across more departments will create greater opportunities for students from a diverse range of backgrounds to gain training and expertise in essential data science skills. Additionally, the Department of Sociology has been a campus-wide leader in equity and reconciliation work, placing us in a prime position to integrate these principles into the study of data science. Embedding these values within courses ensures that data science is not only more inclusive but also more critically engaged with the social contexts in which data is produced and used. Student experience will be significantly enhanced through this Minor by: (1) providing a structured pathway to develop interdisciplinary skills highly valued in both academic and professional contexts; (2) creating opportunities for hands-on experience with real-world social data and computational methods. Experiences built into the Minor course offerings include hands-on qualitative data collection and analysis, real-world quantitative research projects, and AI-based “Chatstorm” simulations for digital experiential learning. 3) fostering critical thinking about the ethical implications of data science and AI in social contexts; (4) preparing students for emerging, in-demand career opportunities at the intersection of social science and data science; and (5) complementing a wide range of primary majors with valuable analytical and methodological skills, including sociology, political science, anthropology, psychology, linguistics, health and society and geography.

The proposed Minor in Social Data Science strategically aligns with broader institutional efforts, particularly the Data Science Institute (DSI) and its Computational and Quantitative Social Science (CQSS) portfolio led by Professor Ethan Fosse. This academic alignment is reinforced by co-curricular initiatives such as the UTSC SDG Data Challenge, which is funded in part by the DSI and the Department of Sociology at UTSC, and which was piloted in Spring 2025. The active involvement of core faculty members who will be contributing to the proposed program, specifically Professors Fosse and Nicholas Spence, who served as judges for the challenge's final event, underscores the strong link between the department's expertise and student opportunities in the data sciences at UTSC. Furthermore, the Minor formalizes an

academic pathway for a vibrant campus ecosystem that includes the student-led Data Science and Statistics Society (DS3), which offers informal data science and machine learning courses, as well as accessible skill-building workshops like the UTSC Library's "Fun Data Fridays."

## 5 Program Design

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### 5.1 Admission Requirements

Please describe any proposed changes to admission requirements by considering the changes tracked in the calendar copy relative to the following:

- a) Discuss the appropriateness of the program's admission requirements as they are articulated in section 3 above, given the program's objectives and program-level learning outcomes.
- b) Provide a sufficient explanation of alternative requirements, if applicable, for admission into a graduate, second-entry or undergraduate program (e.g., minimum grade point average, additional languages or portfolios, and how the program recognizes prior work or learning experience).

Admission to the Minor Program in Social Data Science will be unlimited, with no specific admission or eligibility requirements. The program requirements, particularly in the "Skills and Applications in Social Data Science" section, are designed so that students from a range of disciplines, such as Environmental Studies and Health and Society, can find a pathway into the minor. The program requirements also reflect the interdisciplinary nature of contemporary social data science.

### 5.2 Program Structure and Requirements

Addressing the prompts below in **one response**, please discuss the proposed changes to requirements, including any changes to milestone assessments, by considering the changes relative to the following criteria:

## 5.3 All Programs

- a) With reference to the change proposed, discuss the appropriateness of the offering's structure and the requirements to meet its objectives and program-level learning outcomes, including the structure and requirements of any identified streams (undergraduate), fields or concentrations (graduate).
- b) Appropriateness of the offering's structure, requirements and program-level learning outcomes in meeting the institution's applicable [undergraduate or graduate Degree Level Expectations](#).
- c) State the mode of delivery and the appropriateness and effectiveness of the mode(s) of delivery (i.e., means or medium used in delivering a program; e.g., lecture format, distance, online, synchronous/asynchronous, problem-based, compressed part-time, flexible-time, multi-campus, inter-institutional collaboration or other non-standard forms of delivery) to facilitate students' successful completion of the program-level learning outcomes.
- d) If the offering's structure will be an online or hybrid mode of delivery, please discuss the following as appropriate:
  - i. Maintenance of and/or changes to the program objectives and program-level learning outcomes
  - ii. Adequacy of the technological platform and tools
  - iii. Sufficiency of support services and training for teaching staff
  - iv. Sufficiency and type of support for students in the new learning environment
  - v. Access
- e) Discuss the ways in which the proposed curriculum addresses the current state of the discipline or area of study and is appropriate for the level of the program.
- f) Please provide details on any experiential learning that is part of the offering, including confirmed and interested partners, duration of experiential learning component in a program, and anticipated number of placements.

The structure of the new Minor in Social Data Science is appropriate because it grounds students in sociological perspectives and questions and also provides ample exposure to interdisciplinary methods and various areas and contexts relevant to the application of social data science perspectives. All students complete 2.5 courses in sociological "Foundations", which ground students in the sociological imagination and sociological inquiry, issues of society and AI, and provide skills in numeracy, modelling, and research methods. Students choose their remaining 1.5 credits in "Skills and

Applications for Social Data Science”, a selection of interdisciplinary courses that expose students to various qualitative and quantitative methods that comprise social data science, as well as providing background and sociological and interdisciplinary subject areas that are particularly relevant to the application of social data science, such as work, education, climate science, public health and health information systems, and more. This two-pronged approach to the program requirements reflects the program’s broader objectives of integrating social science with data science tools, fostering critical and ethical engagement with data, and preparing students for real-world applications.

**Table 1: Degree Level Expectations, Program Learning Outcomes and Requirements**

| <u>University of Toronto Scarborough<br/>DLEs for the Honours Bachelor of<br/>Arts (Based on the Ontario Council<br/>of Academic Vice-Presidents<br/>[OCAV])</u>                                                                                                                                                                                                                                       | <u>Program Learning Outcomes</u>                                                                                      | <b>How the Program Design/Structure<br/>of the Required Courses and Other<br/>Learning Activities Supports the<br/>Achievement of Program Learning<br/>Outcomes</b>                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Expectations: This Minor in Social Data Science is awarded to students who have demonstrated the following program objectives:</b>                                                                                                                                                                                                                                                                  |                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>1. Depth and Breadth of Knowledge</b><br><br>Depth of Knowledge:<br>Programs of study will attain depth through a progression of introductory, core and specialized courses. Specialized courses will normally be at the C and D levels. This basic requirement is further refined in the three sections Knowledge of Methodologies, Application of Knowledge and Awareness of Limits of Knowledge. | <b>PLO1:</b> Demonstrate foundational and advanced understanding of key concepts and theories in Social Data Science. | Students gain understanding of key concepts and theories in sociology through introductory courses such as SOCA05H3 The Sociological Imagination and SOCB05H3 Logic of Social Inquiry<br><br>Students gain understanding through SOCB35H3 (Numeracy and Society), which introduces quantitative reasoning in social contexts. Depth is developed through courses from various disciplines that focus on specific social issues (e.g., inequality, |

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Breadth of Knowledge:</b><br/>In the course of their studies, students will gain an appreciation of the variety of modes of thinking, methods of inquiry and analysis, and ways of understanding the world that underpin different intellectual fields. Through courses within or outside of their programs of study, students will be exposed to an appropriate balance of: the arts, literature and history of human cultures, the social and behavioral sciences, the natural sciences, and quantitative reasoning.</p> |                                                                                                                                                           | <p>migration) and advanced data science methods.</p>                                                                                                                                                                                                                                                                                                                                                                                           |
| <p><b>2. Knowledge of Methodologies</b><br/>Students will have a working knowledge of different methodologies and approaches relevant to their area of study. They will be able to evaluate the efficacy of different methodologies in addressing questions that arise in their area of study.</p>                                                                                                                                                                                                                               | <p><b>PLO2:</b> Apply and evaluate a range of social data science approaches, recognizing their strengths, limitations, and appropriate applications.</p> | <p>Students will learn applied modelling for social sciences in SOCC70H3 (Models of the Social World). Interdisciplinary methodological skills are introduced in a variety of courses through the elective requirements in “Skills and Applications for Social Data Science”. Students will deepen their knowledge in applied courses such as LINC35H3 (computational linguistics), and STAB23H3 (applied statistics). The program ensures</p> |

|                                                                                                                                                                                                                                                                                               |                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                               |                                                                                                                                | students can critically assess these methodologies for suitability to specific research questions and data types.                                                                                                                                                                                                                                                                       |
| <b>3. Application of Knowledge</b><br>Within their area of study students will be able to frame relevant questions for further inquiry. They will be familiar with or will be able to seek the tools with which they can address such questions effectively.                                  | <b>PLO3:</b> Frame and investigate social questions using appropriate data science tools.                                      | Application of knowledge begins in foundational courses (e.g., SOCA05H3, SOCB05, SOCB29H3, SOCB35H3 and SOCC70H3) and is reinforced through electives that require students to analyze real-world data (e.g., PHLB18H3 on AI ethics). Many B and C-level courses include project-based work where students collect, analyze, and interpret data to study social problems                |
| <b>4. Awareness of Limits of Knowledge</b><br>Students will gain an understanding of the limits to their own knowledge. They will also gain an appreciation of the uncertainty, ambiguity, and limits to our collective knowledge and how these might influence analyses and interpretations. | <b>PLO4:</b> Identify the limits of different data science methods and theoretical frameworks used in social science research. | Courses such as SOCB29H3 (Artificial Intelligence and Society), SOCC61H3 (Truth and Reconciliation Commission), and SOCB47H3 (Social Inequality) address ethical, cultural, and methodological limitations in interpreting social data. Students critically evaluate how biases in data collection influence findings and consider the broader implications of this in social research. |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>5. Communications Skills</b><br/>Students will be able to communicate information, arguments, and analyses accurately and reliably, both orally and in writing. Students will learn to read and to listen critically.</p>                                                                                                                                                                                                                          | <p><b>PLO5:</b> Communicate complex social data analyses clearly, accurately, and persuasively to diverse audiences both orally and in writing.</p>                                                                            | <p>Communication skills are embedded in most courses via written assignments and presentations that require clear and concise articulation of foundational theories and research findings.</p>                                                                                                                                                                                                                                               |
| <p><b>6. Autonomy and Professional Capacity</b><br/>In a broader context, the education students receive while pursuing their degrees has three further goals: to give students the skills and knowledge they need to become informed, independent and creative thinkers; to instill the awareness that knowledge and its applications are influenced by and contribute to society; and to lay the foundation for learning as a life-long endeavour.</p> | <p><b>PLO6:</b> Work independently and with others to design and execute social data science research projects, laying the foundation for future social science research in a professional capacity and advanced learning.</p> | <p>Students develop autonomy through independent and collaborative project work. Courses such as SOCC15H3 (Work, Employment, and Society) involve collaborative projects with real-world relevance. The interdisciplinary structure and inclusion of applied electives (e.g., health studies, environmental science, GIS and geography etc.) prepare students for various professional contexts while building lifelong learning skills.</p> |

## 6 Assessment

### List of Program-Level Learning Outcomes and Assessments

- a) Discuss the appropriateness of the methods for assessing student achievement of the program-level learning outcomes and degree level expectations.
- b) Discuss the appropriateness of the plans to monitor and assess the following:
  - i. The overall quality of the offering's structure
  - ii. Whether the program and/or the offering within the program is achieving in practice its proposed objectives
  - iii. Whether its students are achieving the program-level learning outcomes
  - iv. How the resulting information will be documented and subsequently used to inform continuous program improvement.

| List of PLOs                                                                                                                                       | Exams | Written Papers | Oral Presentations | [Labs/Case Studies | Practice Observation |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------|--------------------|--------------------|----------------------|
| <b>PLO1:</b> Demonstrate foundational and advanced understanding of key concepts and theories in Social Data Science.                              | x     | x              |                    | x                  |                      |
| <b>PLO2:</b> Apply and evaluate a range of social data science approaches, recognizing their strengths, limitations, and appropriate applications. |       | x              | x                  |                    | x                    |

|                                                                                                                                                                                                                         |   |   |   |   |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|
| <b>PLO3:</b> Frame and investigate social questions using appropriate data science tools.                                                                                                                               | x | x |   |   | x |
| <b>PLO4:</b> Identify the limits of different data science methods and theoretical frameworks used in social science research.                                                                                          | x | x |   | x |   |
| <b>PLO5:</b> Communicate complex social data analyses clearly, accurately, and persuasively to diverse audiences both orally and in writing.                                                                            | x | x | x |   |   |
| <b>PLO6:</b> Work independently and with others to design and execute social data science research projects, laying the foundation for future social science research in a professional capacity and advanced learning. | x | x | x |   |   |

The assessment methods for the Minor in Social Data Science are aligned with both program-level learning outcomes and UTSC's Degree Level Expectations. A mix of assessments—including exams, written assignments, oral presentations, labs, case studies, and projects—ensures comprehensive evaluation of learning objectives. Exams and essays appropriately test PLO1 (foundational knowledge) by requiring accurate recall and conceptual understanding. Labs, case studies, and research projects are well suited to PLO2–3 (methodological competence and application) as they provide students with hands-on opportunities to design, apply, and critically assess data science methods in social contexts. Reflective writing and case analyses address PLO4 (theoretical frameworks) by encouraging students to confront uncertainty, bias, and the broader implications of data practices. Oral and written communication tasks are appropriate for PLO5 (communication skills) as they ask students to translate their findings for diverse audiences. Finally, independent and collaborative projects

effectively measure PLO6 (research and professionalism) by simulating real-world research, experiential learning, and professional teamwork.

The ongoing success of the Minor will be assessed through regular reviews by the Department Chair and program co-ordinator. This review will take place through regular meetings with the Department's Curriculum Committee. In order to ensure that the program keeps pace with the evolving nature of social data, the program co-ordinator will regularly consult the Associate Director of the Data Science Institute, as well as the students of Sociology which have been enthusiastic in their support of the minor.

The analysis of course evaluations and the tracking of program enrolments and completion rates will be carried out in coordination with the Dean's Office. The introduction of the new department databooks at UTSC will provide significant data to underpin this work. Within the Department of Sociology, the program co-ordinator plays a key role in monitoring the health of all programs by regularly tracking and analyzing enrolments and other indicators.

As part of the regular cyclical review process, the Department administers a student survey and works with the Dean's Office to review both course-level and program-level indicators and metrics when preparing the self-study. This process enables the Department to identify and analyze trends, assess student satisfaction with program offerings, and evaluate the program's effectiveness in supporting students' achievement of the stated program-level learning outcomes. A specific pilot survey is now underway in anticipation of the introduction of the minor, the results of which will immediately provide data to evaluate the first year of the program, to direct program marketing, and to support the interdisciplinary character of the program.

## 7 Need and Demand

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Provide a brief description of the need and demand for the proposed offering, including information on student demand and internal cognate and external comparator programs as relevant.

The proposed Minor in Social Data Science addresses an increasingly critical intersection between social sciences and data analytics in today's rapidly evolving

technological landscape. This program will equip students with a valuable combination of social science frameworks and data science skills to meet growing demands across academic, public, and private sectors.

The exponential growth of digital data in social contexts has created an urgent need for professionals capable of analyzing, interpreting, and ethically managing such data. For example, the [World Economic Forum's Future of Jobs Report 2025](#) indicates that “AI and big data” are the fastest-growing skills that are demanded by employers. In fact, 85% of employers surveyed plan to “prioritize upskilling their workforce.” Likewise, the U.S. Bureau of Labor Statistics expects [the number of data science jobs to increase by 36% from 2023-2033](#), making it the [fourth fastest-growing occupation](#), and the fastest-growing high-skilled occupation.

As a result, student demand for training in data science-related fields has grown tremendously in recent years, most notably in computer science. Centers, programs, and certificates at other institutions such as Simon Fraser University (Minor in Social Data Analytics), Dalhousie University (undergraduate certificate in “Computing in Arts and Social Science”), University of Copenhagen (Copenhagen Center for Social Data Science), Hong Kong University (BASc in Social Data Science), London School of Economics (MSc in Applied Social Data Science), University of Chicago (MA in Computational Social Science), and Northeastern University (Minor in Computational Science) indicate movement toward dedicated social data science programs in peer institutions.

However, spaces in these programs are limited, technical expectations are very high, and the educational focus is geared toward computer science rather than the scientific understanding of the social world, despite the fact that there is widespread and increasing recognition of the value of social science and humanities perspectives for data science and its applications. The result is that many highly qualified students who could greatly benefit from social data science training have no clear pathway at UTSC. As it stands thus our campus is not currently matching the supply to this demand. The SDS minor will be a key step in that direction.

The Department of Sociology at UTSC is ideally positioned to develop SDS as an important site for learning, teaching, and student-based research. A minor in SDS would build on the success of the Certificate in Computational Social Science (CSS) which will be slowly phased out. While CSS tends to prioritize the application of large-scale

automated methods to digital data, SDS offers a broader view, incorporating both qualitative and quantitative approaches, and emphasizing the integration of diverse data sources with social theories and contextual insights. A Minor in SDS represents a natural broadening of CSS and a chance to leverage the full range of data science methodologies, including recent advances in AI, for examining the rich diversity of social data. Enrollments in the existing courses from which the new Minor will draw are consistent, and it is expected that the opportunity to combine them into a minor will only increase their attractiveness. In this way, the proposed Minor will provide new opportunities for students and support equity, diversity, and inclusion.

The SDS Minor is distinct from what is already available at UTSC and, more broadly, at UofT and across Canada. At UTSC, the Department of Human Geography offers a Minor in Geographic Information Science, which addresses the intersections of human geography, urban systems, and environmental and physical systems. A new Major in Geographic Data Science has been proposed by the Faculty of Arts & Science for Fall 2026. Its objective is to integrate technical training with substantive geographic knowledge. The SDS Minor is distinct in that it more broadly focuses on social data science, including qualitative methods, and its application to a wide variety of social issues that are not limited by geography. Across Canada, Simon Fraser University offers a minor in Social Data Analytics, which is similar to our proposed Minor, and Dalhousie offers a certificate in Computing in Arts and Social Science, which narrowly focuses on computer science and does not account for broader social data science. The Social Data Minor will be the first program of its kind in Ontario.

| Comparative Programs to Proposed Social Data Science Minor |                                                     |                                                                           |
|------------------------------------------------------------|-----------------------------------------------------|---------------------------------------------------------------------------|
| Institution                                                | Program                                             | Focus                                                                     |
| University of Toronto Scarborough                          | Minor in Geographic Information Science             | Studies geographic information science with focus on quantitative methods |
| Simon Fraser University                                    | Minor in Social Data Analytics                      | Analyzes social data; similar to proposed SDS minor                       |
| Dalhousie University                                       | Certificate in Computing in Arts and Social Science | Focus on computer science                                                 |

## 8 Enrolment

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- a) Please provide details regarding the anticipated in-take by year, reflecting the expected increases to reach steady state. Include approximate domestic/international mix. This table should reflect normal estimated program length. (Please adjust the table as necessary.)
- b) Please provide an explanation of the numbers shown and their relationship to the Faculty/division’s enrolment plan. Please be specific where this may differ from approved enrolment plans.

**Table 1: Enrolment Projections\***

| Year of Study | 2026-27 | 2027-28 | 2028-29 | 2029-30 | 2030-31 | 2031-32 | 2032-33 |
|---------------|---------|---------|---------|---------|---------|---------|---------|
| Year 1        | 5       | 10      | 15      | 15      | 20      | 20      | 20      |
| Year 2        | 35      | 40      | 45      | 50      | 55      | 60      | 60      |
| Year 3        | 25      | 35      | 40      | 45      | 50      | 55      | 55      |
| Year 4        | 15      | 25      | 35      | 35      | 40      | 50      | 50      |
| Total         | 80      | 110     | 135     | 145     | 165     | 185     | 185     |

\*Please note when the program expects to reach steady state.

These projections are based in similar patterns and estimates with regard to the Health Humanities Minor in the Department of Health and Society Minor and the Public Law Minor in the Department of Political Science. We are mindful that these estimates may be lower than actual demand, since we expect the Minor to be attractive to a range of disciplines. We have prioritized unlimited enrolment to support access to the program, but will monitor enrolment as the program is established to ensure capacity can be supported. We expect to reach a steady state the 6<sup>th</sup> year into the program.

## 9 Impact of the Change

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- a) Please assess the impact the proposed modification will have on the program’s students and/or other units or divisions.

Consultation (see section 11 below for additional details and results) suggests that students will view this Minor as an attractive option that will increase their employment options and directly engage with the rapid and evolving changes in AI and its consequences. This is particularly true given that the Minor is designed for students who want both data skills and capacities, framed within social science approaches and societal problem solving. We expect this Minor will be especially attractive to students in the science disciplines such as Health Sciences and Environmental Sciences who do not have a math, computing or social science background and who aspire to work in these two areas that will be revolutionized by data science and AI. We also anticipate that the Minor will appeal to students from a wide variety of disciplines that employ address social issues to which data science methods are more and more often applied, such as public policy, law, linguistics, and media. The Minor is structured so that the elective requirements are attractive and practical with regard to students enrolled in Minors and Majors both in Sociology as well as in other departments. The computational social sciences certificate will be phased out – currently there are 46 students in the certificate, demonstrating strong interest in this field. This phase-out will start this fall of 2026 (no new admissions). All current certificate students will be able to finish the certificate as part of their program, although we expect that some will enter into the minor immediately.

## 10 Resources

### 10.1 Faculty

Please fill out the table below.

**Table 2: Faculty Complement (please list alphabetically)**

| <b>Name</b>                          | <b>Unit of Primary Budgetary Appt and %</b> | <b>Unit of Other Budgetary Appt and % (if applicable)</b> | <b>Graduate Faculty Membership Status and Graduate Unit (e.g., EEB, Associate member)</b> | <b>Commitment to Other Programs (Please list other programs in which the person routinely teaches/ supervises.)</b> | <b>Nature of Contribution to This Program (Course instructor [CI], thesis supervision [TS], clinical or practice supervisor [C/PS]. Please list the courses each member will teach.)</b> |
|--------------------------------------|---------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tenure Stream: Full Professor</b> |                                             |                                                           |                                                                                           |                                                                                                                     |                                                                                                                                                                                          |
| John Hannigan                        | Sociology, 100% (UTSC)                      |                                                           | Full membership Sociology                                                                 | All UTSC Sociology programs: Specialist, Major, Minor in Sociology; Minor in Culture,                               | SOCB44H3                                                                                                                                                                                 |

|                  |                              |  |                              |                                                                                                                                                       |                      |
|------------------|------------------------------|--|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
|                  |                              |  |                              | Creativity, and<br>Cities; MA and PhD<br>in Sociology                                                                                                 |                      |
| Patricia Landolt | Sociology,<br>100%<br>(UTSC) |  | Full membership<br>Sociology | All UTSC Sociology<br>programs:<br>Specialist, Major,<br>Minor in Sociology;<br>Minor in Critical<br>Migration Studies;<br>MA and PhD in<br>Sociology | SOCB05H3<br>SOCC15H3 |
| Mahur Sarkar     | Sociology,<br>100%<br>(UTSC) |  | Full membership<br>Sociology | All UTSC Sociology<br>programs:<br>Specialist, Major,<br>Minor in Sociology;<br>Minor in Critical<br>Migration Studies;<br>MA and PhD in<br>Sociology | SOCB22H3             |
| Daniel Silver    | Sociology,<br>100%<br>(UTSC) |  | Full membership<br>Sociology | All UTSC Sociology<br>programs:<br>Specialist, Major,<br>Minor in Sociology;<br>Minor in Culture,<br>Creativity, and                                  | SOCB29H3<br>SOCB35H3 |

|                                           |                        |  |                           |                                                                                                                                  |                      |
|-------------------------------------------|------------------------|--|---------------------------|----------------------------------------------------------------------------------------------------------------------------------|----------------------|
|                                           |                        |  |                           | Cities; MA and PhD in Sociology                                                                                                  |                      |
| Patricia Romero-Lankao                    | Sociology, 100% (UTSC) |  | Full membership Sociology | All UTSC Sociology programs: Specialist, Major, Minor in Sociology; MA and PhD in Sociology                                      | SOCB20H3             |
| <b>Tenure Stream: Associate Professor</b> |                        |  |                           |                                                                                                                                  |                      |
| Emine Fidan Elcioglu                      | Sociology, 100% (UTSC) |  | Full membership Sociology | All UTSC Sociology programs: Specialist, Major, Minor in Sociology; Minor in Critical Migration Studies; MA and PhD in Sociology | SOCC23H3<br>SOCB60H3 |
| Joe Hermer                                | Sociology, 100% (UTSC) |  | Full membership Sociology | All UTSC Sociology programs: Specialist, Major, Minor in Sociology; MA and PhD in Sociology                                      | SOCC11H3             |
| Ann Mullen                                | Sociology, 100% (UTSC) |  | Full membership Sociology | All UTSC Sociology programs: Specialist, Major,                                                                                  | SOCB26H3             |

|                 |                              |                                      |                              |                                                                                                                                                       |                      |
|-----------------|------------------------------|--------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
|                 |                              |                                      |                              | Minor in Sociology;<br>Minor in Culture,<br>Creativity, and<br>Cities; MA and PhD<br>in Sociology                                                     |                      |
| Rania Salem     | Sociology,<br>100%<br>(UTSC) |                                      | Full membership<br>Sociology | All UTSC Sociology<br>programs:<br>Specialist, Major,<br>Minor in Sociology;<br>Minor in Critical<br>Migration Studies;<br>MA and PhD in<br>Sociology |                      |
| Ethan Fosse     | Sociology,<br>100%<br>(UTSC) |                                      | Full membership<br>Sociology | All UTSC Sociology<br>programs:<br>Specialist, Major,<br>Minor in Sociology;<br>MA and PhD in<br>Sociology                                            | SOCB22H3<br>SOCC70H3 |
| Nicholas Spence | Sociology,<br>51% (UTSC)     | Health and<br>Society, 49%<br>(UTSC) | Full membership<br>Sociology | All UTSC Sociology<br>programs:<br>Specialist, Major,<br>Minor in Sociology;<br>MA and PhD in<br>Sociology; Major<br>and Minor in Heath               | SOCB29H3<br>SOCC49H3 |

|                                                                                |                        |  |                           |                                                                                             |                                  |
|--------------------------------------------------------------------------------|------------------------|--|---------------------------|---------------------------------------------------------------------------------------------|----------------------------------|
|                                                                                |                        |  |                           | Policy (Health and Society)                                                                 |                                  |
| <b>Tenure Stream: Assistant Professor</b>                                      |                        |  |                           |                                                                                             |                                  |
| Angelina Grioryeva                                                             | Sociology, 100% (UTSC) |  | Full membership Sociology | All UTSC Sociology programs: Specialist, Major, Minor in Sociology; MA and PhD in Sociology | SOCB35H3<br>SOCB54H3<br>SOCB47H3 |
| Miray Phillips                                                                 | Sociology, 100% (UTSC) |  | Full membership Sociology | All UTSC Sociology programs: Specialist, Major, Minor in Sociology; MA and PhD in Sociology | SOCB30H3                         |
| <b>Tenure Stream: Assistant Professor (Conditional)</b>                        |                        |  |                           |                                                                                             |                                  |
|                                                                                |                        |  |                           |                                                                                             |                                  |
|                                                                                |                        |  |                           |                                                                                             |                                  |
| <b>Continuing Stream Teaching Stream: Professor, Teaching Stream</b>           |                        |  |                           |                                                                                             |                                  |
|                                                                                |                        |  |                           |                                                                                             |                                  |
| <b>Continuing Stream Teaching Stream: Assistant Professor, Teaching Stream</b> |                        |  |                           |                                                                                             |                                  |
| Danielle Kwan-Lafond                                                           | Sociology 100%, UTSC   |  |                           | All UTSC Sociology programs: Specialist, Major, Minor in Sociology                          | SOCA05H3<br>SOCC61H3<br>SOCB29H3 |
|                                                                                |                        |  |                           |                                                                                             |                                  |

|                                                                                                                           |  |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| <b>Continuing Stream Teaching Stream: Assistant Professor, Teaching Stream (Continuing)</b>                               |  |  |  |  |  |
|                                                                                                                           |  |  |  |  |  |
|                                                                                                                           |  |  |  |  |  |
| <b>Teaching Stream (CLTA, Part-time)</b>                                                                                  |  |  |  |  |  |
|                                                                                                                           |  |  |  |  |  |
| <b>Non-Tenure Stream (CLTA, Part-time)</b>                                                                                |  |  |  |  |  |
|                                                                                                                           |  |  |  |  |  |
|                                                                                                                           |  |  |  |  |  |
| <b>Sessional Lecturer</b>                                                                                                 |  |  |  |  |  |
|                                                                                                                           |  |  |  |  |  |
|                                                                                                                           |  |  |  |  |  |
| <b>Others (please specify, i.e., adjunct, status only, clinical faculty, visiting or other as per U of T definitions)</b> |  |  |  |  |  |
|                                                                                                                           |  |  |  |  |  |
|                                                                                                                           |  |  |  |  |  |

## 10.2 Resources: All Programs

Given the offering's planned/anticipated class sizes and cohorts as well as its program-level learning outcomes please discuss:

- a) Participation of a sufficient number and quality of core (i.e., appointed) faculty who are competent to teach and/or supervise in and achieve the goals of the offering and foster the appropriate academic environment.

The department currently has appointed tenure and teaching stream faculty who can teach all foundational and skills and applications courses, and these courses will be built into existing course workload rotations. Faculty teaching core courses are internationally recognised for their work in computational sciences, sociology theory and empirical methods.

- b) If applicable, discuss the role and approximate percentage of adjunct and sessional faculty/limited term appointments used in the delivery of the offering and the associated plans to ensure the sustainability of the offering and quality of the student experience.

Not applicable.

- c) If required, provision of supervision of experiential learning opportunities.

Several of the foundational and skills and applications courses in sociology (for example SOCB60H3 Issues in Critical Migration Studies and SOCC49H3 Indigenous Health) provide experiential learning opportunities and it is expected that these opportunities will expand as the Minor evolves and that they will be manageable within existing departmental resources.

- d) Adequacy of the administrative unit's planned utilization of existing human, physical and financial resources.

The Minor does not result in any requirements for any new physical facilities or administrative staff positions. However, sociology professor Ethan Fosse has submitted a proposal (with Bree McEwan, CMS) for COMPASS (Computational Platform for Accelerating the Social Sciences) that has been approved by the University for submission to the Canada Foundation for Innovation, with an updated budget of

\$11,767,080.00. If this proposal is successful, Sociology, CMS and UTSC will become the major research and teaching centre for social data science in Canada.

- e) Evidence that there are adequate resources to sustain the quality of scholarship and research activities produced by students, including library support, information technology support, and laboratory access.

In addition, the University of Toronto Libraries offers a wide range of resources and services to support the curriculum and research in the Social Data Minor at the Department of Sociology, University of Toronto Scarborough. [The Map and Data Library](#) holds a vast collection of maps and air photos, hundreds of numeric and statistical datasets, key data analysis and visualization software, and more. Librarians offer research support and deliver workshops throughout the year. Online tutorials and library guides are available to help students and faculty navigate their social data-related topics, such as “Critical Data and Maps” and “Data on Racialized Populations in Canada.” The University of Toronto Scarborough Library specifically offers unique services through [the Digital Scholarship Unit](#) (DSU). The DSU provides high quality experiential, curricular and co-curricular learning for students and collaborates with faculty to create digital scholarship assignments. The [Learn](#) and [Find](#) websites assist scholars and students to discover data workshops, datasets, and digital scholarship tools. The [data and digital literacy workshops](#) range in topics from organizing and cleaning data to digital storytelling which can be tailored to assignments or research projects and delivered by the Data and Digital Literacy Librarian and Sociology Liaison Librarian.

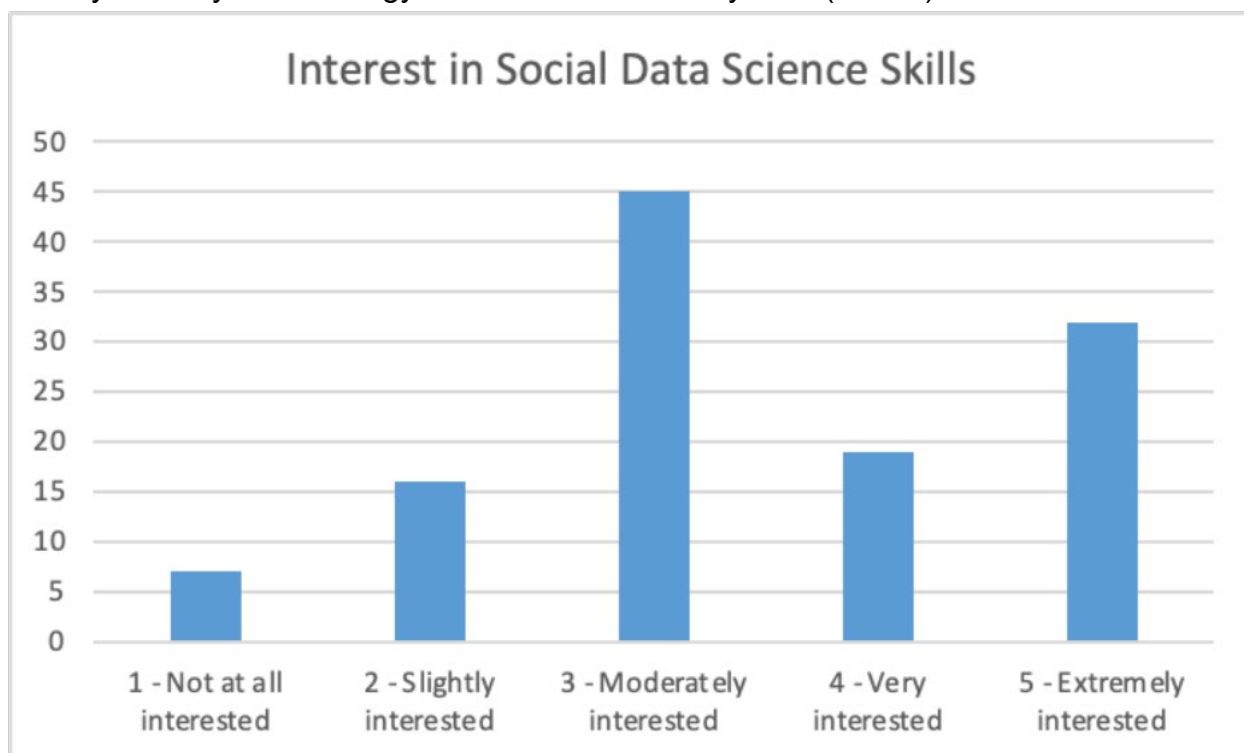
## 11 Consultation

Describe consultation with internal (faculty, students, cognate units, etc., as appropriate) and external stakeholders (alumni, community, or professional organizations, etc., as appropriate).

### Consultation within Department of Sociology and with Students

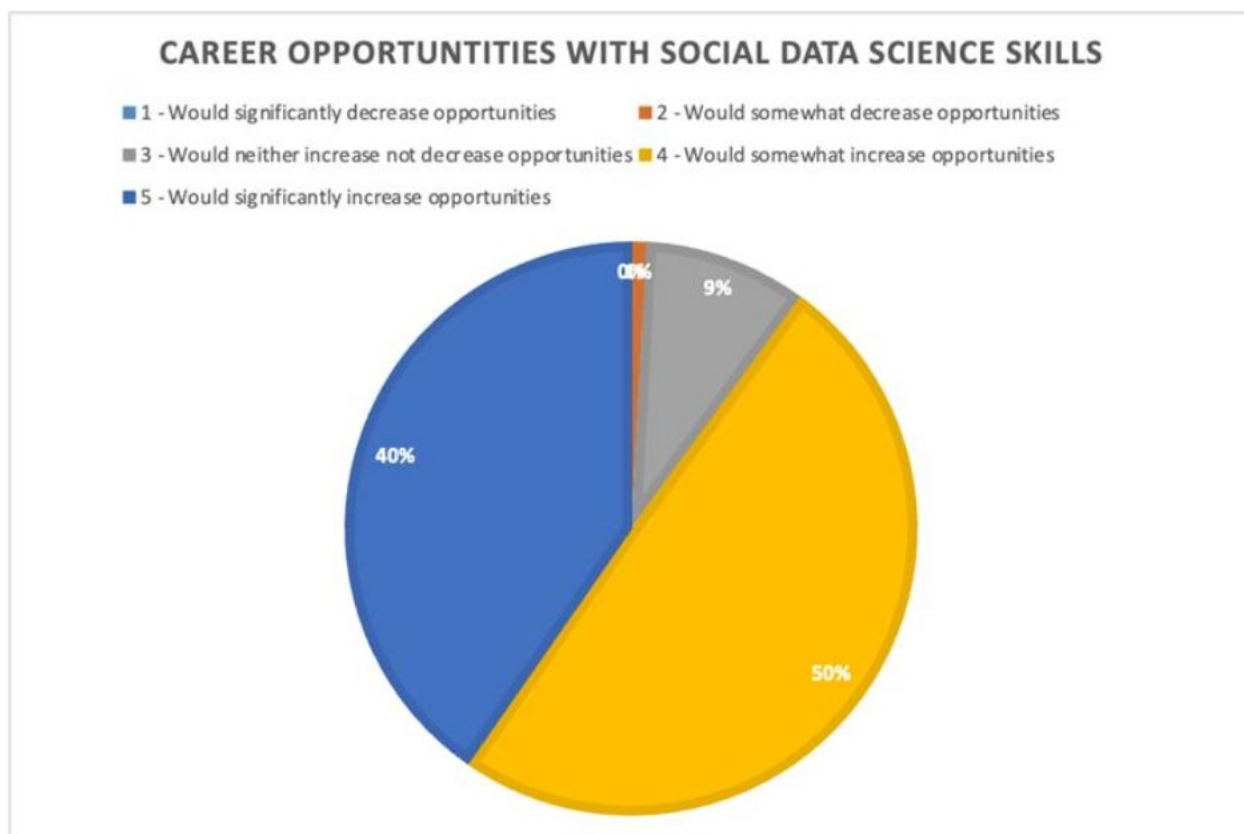
A detailed survey was carried out with all students who have taken the Intro to Sociology course SOCA05H3 within the last 2 years.

Survey of first year sociology students in the last 2 years. (n=140)



When asked “How interested are you in doing a minor that provides the following skills: the capacity to gather, process, and interpret data by using new computational methods and artificial intelligence (AI) systems as well as core skills such as programming, statistical analysis, machine learning, data visualization, natural language processing, and predictive modeling?”

The survey indicated that the minor is of strong interest to first year sociology students: 80 % stated that they were at least moderately interested, and 42% said they were very interested or extremely interested.



When asked “How do you think the skills of a social data science minor will impact your employment opportunities”, 90% of respondents stated that the minor would either increase opportunities (40%), or “significantly increase opportunities” (50%).

### **Consultation with Data Science Institute and UTSC Cognate Units**

Consultation was started in the Spring of 2025 with the Data Science Institute and colleagues who carry out data Science driven work. The following departments and units were consulted at various points during the late summer and early fall of 2025: Political Science (March 30), Department of Physical and Environmental Sciences (March 30; January 28), Computer and Mathematical Sciences (Oct 24<sup>th</sup>), Health and Society (September 14; January 28), Historical and Cultural Studies (September 25; December 2; January 28) , Language Studies April 25), Psychology (November 28;

January 28), and Anthropology (November 30,) Philosophy and CMS continue to be consulted as we move forward with our proposals as part of a cluster of AI programming at UTSC. The department participated in the Campus Curriculum Committee Meeting on September 29th to review overlaps and synergies between departments on all current proposals. In addition, individual faculty members who have expertise and/or teach in computational areas were also consulted: Chris Cochrane (Political Science), Jeffrey Hicks (Economics), Christopher Higgins (Human Geography) and Bree Larson (CMS). The Sociology librarian K-Lee Fraser was consulted and expressed excitement at the wide range of support for the new minor. The Registrar's Office was consulted on enrollment projections and found them realistic, and that the SDS Minor could be popular and very appealing to students. The Sociology chair sits on the Health Across the Disciplines campus committee and has discussed how the Minor would further contribute to Health Sciences related methodology and community connected research.

A more polished draft of the proposal was shared with the Department of Physical and Environmental Sciences, the Department of Health and Society, the Department of Historical and Cultural Studies, the Department of Language Studies, the Department of Biological Sciences, and the Department of Psychology in late January 2026. While there was no major feedback from these departments, the Department of Psychology suggested that PSYC06H3 Advanced Statistical Analysis for Psychology & Neuroscience, a new course to be offered in Fall 2026, be added as an elective for the proposed Minor. The Department of Anthropology agreed to add two additional courses as electives: ANTC62H3 Medical Anthropology: Biological and Population Perspectives and ANTC67H3 Foundations in Epidemiology. The Department of Historical and Cultural Studies sent questions about electives that they had offered the program, but which were ultimately not included. They were advised about the reasons for the decision (pertaining to lack of fit under the umbrella of "Skills and Applications").

A copy of this proposal was also shared with the Office of the Registrar for feedback. As a result of their feedback, taking into consideration enrolment controls to other UTSC programs, enrolment projections have been adjusted upward for the 2026-27 and 2027-28 academic years, reflecting the possibility that enrolment during the Minor's first year of offering could be much higher (e.g., total of 100 students vs. 30 initially projected).

### **Consultation with Other University of Toronto Divisions**

The proposal was circulated to the Faculty of Arts & Science (FAS) and the University of Toronto Mississauga (UTM) on January 26, 2026 for consultation and feedback. Within FAS, 22 academic units were invited to review the proposal, with the Department of Linguistics and the Department of Anthropology indicating that they had no concerns.

Feedback from UTM focused primarily on the scope and framing of the proposed Minor. Colleagues noted that the elective requirements appeared broad and suggested narrowing their scope. Some feedback also indicated that the program aligns more closely with data-focused approaches than artificial intelligence and recommended refining the positioning of the proposal accordingly. Additional suggestions included considering the inclusion of Economics, given its relevance to data analysis and policy evaluation, and incorporating Philosophy courses related to probability and reasoning under certainty as potential options to support the program requirements.

The proposal was also presented at the January 29, 2026 meeting of the Tri-campus Deans. At that meeting, several areas were identified for further reflection and consideration, including potential overlap with the Department of Sociology's existing programs, the role of retitled core courses in the proposed Minor, the extent of courses focusing on statistics and issues of computer science required for the Minor, and potential gaps in the proposed list of electives.

In response, further consultation was undertaken with the UTSC Office of the Registrar, and language has been added to the calendar description to explicitly advise students that a maximum of 1.0 Sociology credits can be used toward different Sociology programs. The role of retitled core courses in the proposed Minor have been confirmed: the changes do not refer to any change in course content but simply align the titles of required courses more clearly with the name of the proposed Minor. In addition, the presence of statistics and issues of computer science has been confirmed in several core and elective courses. Finally, further consultation was done with UTSC cognate programs such as Economics, who confirmed that they currently do not have any relevant electives to include in the proposed program.

## Appendix A: Courses

| Title                          | Course Code | Pre-requisites                                                                                                                                                                                   | Exclusions                                                                        | Breadth Requirement             | Calendar Description                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Sociology [Foundations]</b> |             |                                                                                                                                                                                                  |                                                                                   |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| The Sociological Imagination   | SOCA05H3    | None                                                                                                                                                                                             | (SOC101Y1),<br>(SOCA01H3),<br>(SOCA02H3),<br>(SOCA03Y3)                           | Social and Behavioural Sciences | Sociology focuses on explaining social patterns and how they impact individual lives. This course teaches students how to think sociologically, using empirical research methods and theories to make sense of society. Students will learn about the causes and consequences of inequalities, the ways in which our social worlds are constructed rather than natural, and the role of institutions in shaping our lives. |
| Logic of Social Inquiry        | SOCB05H3    | [SOCA05H3 or [(SOCA01H3) and (SOCA02H3)] or (SOCA03Y3)] and enrolment in a Sociology program] or [any 4.0 credits and enrolment in the Minor Critical Migration Studies] or [any 4.0 credits and | SOC150H1,<br>(SOC200H5),<br>(SOC200Y5),<br>SOC221H5,<br>(SOCB40H3),<br>(SOCB41H3) | Quantitative Reasoning          | This course introduces the logic of sociological research and surveys the major quantitative and qualitative methodologies. Students learn to evaluate the validity of research findings, develop research questions and select appropriate research designs.                                                                                                                                                              |

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|                                                                                     |          | enrolment in the Major Program in Public Law]                                                                                                                    |      |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Artificial Intelligence and Society*                                                | SOCB29H3 | [SOCA05H3 or [(SOCA01H3) and (SOCA02H3)] or (SOCA03Y3)] or enrolment in the Social Data Science minor                                                            | None | Social and Behavioural Sciences | <p>This course examines artificial intelligence (AI) through core sociological perspectives, analyzing its impact on social inequality, organizations, family dynamics, education, healthcare, and work. Students investigate how AI transforms social interactions, institutional processes, collective behaviour, and meaning-making while also considering power relations, inequality reproduction, and emerging forms of social organization.</p> <p>*Course to be offered Fall 2026 pending governance approval</p> |
| Numeracy and Society (Title change in progress: Foundations of Social Data Science) | SOCB35H3 | [SOCA05H3 or (SOCA03Y3) or [(SOCA01H3) and (SOCA02H3)]] or [any 4.0 credits and enrolment in the Major Program in Public Law] or enrolment in the Certificate in | None | Quantitative Reasoning          | <p>This course introduces the basic concepts and assumptions of quantitative reasoning, with a focus on using modern data science techniques and real-world data to answer key questions in sociology. It examines how numbers, counting, and statistics produce expertise, authority, and the social categories through which we define social</p>                                                                                                                                                                       |

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|                                                                                               |          | Computational Social Science.                                                                                                                 |      |                                 | reality. This course avoids advanced mathematical concepts and proofs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Models of the Social World* (new title in progress: Applied Modeling for Social Data Science) | SOCC70H3 | SOCB35H3 or [completion of 8.0 credits, including component 1 of the course requirements for the Certificate in Computational Social Science] | None | Social and Behavioural Sciences | This course examines how quantitative models can be used to understand the social world with a focus on social inequality and social change. Students will learn the fundamentals of modern computational techniques and data analysis, including how to effectively communicate findings using narratives and visualizations. Topics covered include data wrangling, graphic design, regression analysis, interactive modelling, and categorical data analysis. Methods will be taught using real-world examples in sociology with an emphasis on understanding key concepts rather than mathematical formulas. |
| <b>Sociology (Skills and Applications for Social Data Science)</b>                            |          |                                                                                                                                               |      |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| The City and the Fight Against Climate Change*                                                | SOCB20H3 | [SOCA05H3 or [(SOCA01H3) and (SOCA02H3)] or (SOCA03Y3)]                                                                                       | None | Social and Behavioural Sciences | Our societies must transform themselves to reduce dependence on fossil energy sources and protect from climate change impacts. Cities hold the lion's share of the capacity to foster these transformations, but they are also complex places where actions are fraught with contention. This seminar will critically examine urban policies and social innovations                                                                                                                                                                                                                                              |

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|                        |          |                                                                                   |                    |                                 | that have been enacted to address the climate crisis and how cities can foster justice while enacting climate action.<br><br><i>*Course to be offered Fall 2026, pending governance approval</i>                                                                                                                                             |
| Sociology of Gender    | SOCB22H3 | [SOCA5H3 or [(SOCA01H3) and (SOCA02H3)] or (SOCA03Y3)] or [WSTA01H3 and WSTA03H3] | None               | Social and Behavioural Sciences | This course examines gender as a sociological category that organizes and, at the same time, is organized by, micro and macro forces. By examining how gender intersects with race, ethnicity, class, sexuality, age, and other dimensions, we analyze the constitution and evolution of gendered ideology and practice.                     |
| Sociology of Education | SOCB26H3 | [SOCA05H3 or [(SOCA01H3) and (SOCA02H3)] or (SOCA03Y3)]                           | None               | Social and Behavioural Sciences | This course offers a sociological perspective on a familiar experience: attending school. It examines the stated and hidden purposes of schooling; explores how learning in schools is organized; evaluates the drop-out problem; the determinants of educational success and failure; and, it looks at connections between school and work. |
| Political Sociology    | SOCB30H3 | [SOCA05H3 or [(SOCA01H3) and (SOCA02H3)] or (SOCA03Y3)]                           | SOC260H1, SOC335H5 | Social and Behavioural Sciences | An examination of power in its social context. Specific attention is devoted to how and under what conditions power is exercised, reproduced and transformed, as well as the social                                                                                                                                                          |

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|                                    |          |                                                                                                                                                                                      |                                         |                                 | relations of domination, oppression, resistance and solidarity. Selected topics may include: nations, states, parties, institutions, citizenship, and social movements.                                                                                                                                             |
| Sociology of Cities and Urban Life | SOCB44H3 | [SOCA05H3 or [(SOCA01H3) and (SOCA02H3)] or (SOCA03Y3)] or [any 4.0 credits and enrolment in the Minor in Culture, Creativity, and Cities, or the Major/Major Co-op in City Studies] | (SOC205Y1), SOC205H1                    | Social and Behavioural Sciences | A theoretical and empirical examination of the processes of urbanization and suburbanization. Considers classic and contemporary approaches to the ecology and social organization of the pre-industrial, industrial, corporate and postmodern cities.                                                              |
| Social Inequality                  | SOCB47H3 | [SOCA05H3 or [(SOCA01H3) and (SOCA02H3)] or (SOCA03Y3)] or [any 4.0 credits and enrolment in the Major/Major Co-op in Public Policy]                                                 | SOC301Y                                 | Social and Behavioural Sciences | A sociological examination of the ways in which individuals and groups have been differentiated and ranked historically and cross-culturally. Systems of differentiation and devaluation examined may include gender, race, ethnicity, class, sexual orientation, citizenship/legal status, and ability/disability. |
| Sociology of Work                  | SOCB54H3 | [SOCA05H3 or [(SOCA01H3) and (SOCA02H3)] or (SOCA03Y3)]                                                                                                                              | SOC207H1, (SOC207Y), SOC227H5, GGRD16H3 | Social and Behavioural Sciences | Economic activity drives human society. This course explores the nature of work, how it is changing, and the impact of changes on the transition from youth to adult life. It also examines racism in the                                                                                                           |

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|                                      |          |                                                                                                                                                                                                                                                                       |      |                                 | workplace, female labour force participation, and why we call some jobs 'professions', but not others.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Issues in Critical Migration Studies | SOCB60H3 | [Completion of 1.0 credit from the following courses: [SOCA05H3 or [(SOCA01H3) and (SOCA02H3)] or (SOCA03Y3)], ANTA02H3, GGRA02H3, GASA01H3/HISA06 H3, GASA02H3, HISA04H3, or HISA05H3] or [any 4.0 credits and enrolment in the Minor in Critical Migration Studies] | None | Social and Behavioural Sciences | What are the causes and consequences of migration in today's world? This course will explore this question in two parts. First, we will examine how although people decide to migrate, they make these decisions under circumstances which are not of their own making. Then, we will focus specifically on the experiences of racialized and immigrant groups in Canada, with a particular focus on the repercussions of Black enslavement and ongoing settler-colonialism. As we explore these questions, we will also critically interrogate the primary response of the Canadian government to questions around racial and class inequality: multiculturalism. What is multiculturalism? Is it enough? Does it make matters worse? Students will come away from this course having critically thought about what types of social change would bring about a freer and more humane society. |
| Social Change                        | SOCB70H3 | [SOCA05H3 or (SOCA03Y3) or [(SOCA01H3) and                                                                                                                                                                                                                            | None |                                 | This course provides an introductory overview of the nature and causes of social change in contemporary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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|                                                              |          | (SOCA02H3))] or [IDSA01H3 and enrolment in the Specialist/Specialist Co-op/Major/Minor in International Development Studies (Arts)] |          | Social and Behavioural Sciences | societies. Topics covered include: changes in political ideology, cultural values, ethnic and sexual identities, religious affiliation, family formation, health, crime, social structure, and economic inequality.                                                                                                                                                                                                                                               |
| Work, Employment and Society                                 | SOCC15H3 | [SOCB05H3 or SOCB35H3] and [0.5 credit from the following: SOCB30H3, SOCB42H3, SOCB43H3, SOCB47H3]                                  | None     | Social and Behavioural Sciences | An upper-level course that examines a number of critical issues and important themes in the sociological study of work. Topics covered will include: the changing nature and organization of work, precarious employment, different forms of worker organizing and mobilization, the professions, the transition from school to work.                                                                                                                             |
| Research in Action: Gathering and Analyzing Qualitative Data | SOCC23H3 | 10.0 credits including [[SOCA05H3 or [(SOCA01H3) and (SOCA02H3)] or (SOCA03Y3)] and SOCB05H3] and a cumulative GPA of at least 2.3  | SOCD23H3 | Social and Behavioural Sciences | How do people navigate their everyday lives? Why do they do what they do? And how, as sociologists, can we draw meaningful conclusions about these processes and the larger, social world we live in? Qualitative research methods adhere to the interpretative paradigm. Sociologists use them to gain a richer understanding of the relationship between the minutiae of everyday life and larger societal patterns. This course will introduce students to the |

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|                                                                |          |                                                                                                                                                                  |          |                                 | qualitative methods that social scientists rely on, while also providing them with hands-on experience carrying out their own research. This course has been designated an Applied Writing Skills Course.                                                                                                                                                                                                                                   |
| Research in Action: Quantitative Data and Statistical Analysis | SOCC31H3 | [10.0 credits, including [SOCA05H3 or [(SOCA01H3) and (SOCA02H3)] or (SOCA03Y3)] and SOCB05H3 and [SOCB35H3 or (SOCB06H3)]] and a cumulative GPA of at least 2.3 | None     | Quantitative Reasoning          | This course provides students with hands-on experience conducting quantitative research. Each student will design and carry out a research project using secondary data. Students will select their own research questions, review the relevant sociological literature, develop a research design, conduct statistical analyses and write up and present their findings. This course has been designated an Applied Writing Skills Course. |
| Indigenous Health                                              | SOCC49H3 | HLTB41H3 or [[SOCB05H3 or SOCB35H3] and [0.5 credit from the following: SOCB30H3, SOCB42H3, SOCB43H3, SOCB47H3]]                                                 | HLTC49H3 | Social and Behavioural Sciences | This course will examine the health and well-being of Indigenous peoples, given historic and contemporary issues. A critical examination of the social determinants of health, including the cultural, socioeconomic and political landscape, as well as the legacy of colonialism, will be emphasized. An overview of methodologies and ethical issues working with Indigenous communities in health                                       |

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|                                                                                         |          |                                                                                                                                                                            |      |                                 | research and developing programs and policies will be provided. The focus will be on the Canadian context, but students will be exposed to the issues of Indigenous peoples worldwide.                                                                                                                                                                                              |
| The Sociology of the Truth and Reconciliation Commission                                | SOCC61H3 | [[SOCB05H3 or SOCB35H3] and [0.5 credit from the following: SOCB30H3, SOCB42H3, SOCB43H3, SOCB47H3]] or [any 8.0 credits and enrolment in the Major Program in Public Law] |      | Social and Behavioural Sciences | The Truth and Reconciliation Commission of Canada is an historic process that now directs a core area of Canadian politics and governance. This course examines the institutional and legal history, precedents, contradictions and consequences of the commission from a sociological perspective.                                                                                 |
| <b>Course from outside Sociology in Skills and Applications for Social Data Science</b> |          |                                                                                                                                                                            |      |                                 |                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Anthropology</b>                                                                     |          |                                                                                                                                                                            |      |                                 |                                                                                                                                                                                                                                                                                                                                                                                     |
| Medical Anthropology: Biological and Population Perspectives                            | ANTC62H3 | None                                                                                                                                                                       | None | Natural Sciences                | This course examines health and disease in the genus Homo from biological and population perspectives. Emphasis is placed on exploring the variability of populations in disease susceptibility, resistance, and outcomes. In addition, this course will introduce students to the basic concepts, principles and methods of medical anthropology and epidemiology. Science credit. |

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| Foundations in Epidemiology                                     | ANTC67H3 | None                                                                                                    | None       | Quantitative Reasoning          | Epidemiology is the study of disease and its determinants in populations. It is grounded in the biomedical paradigm, statistical reasoning, and that risk is context specific. This course will examine such issues as: methods of sampling, types of controls, analysis of data, and the investigation of epidemics. Science credit                                                                                                                                                                                                                                                                                                                                      |
| Ethnographic Methods in Anthropology: Past, Present, and Future | ANTC70H3 | ANTB19H3 and ANT B20H3 and [at least 0.5 credit at the C-level in socio-cultural anthropology courses]. | (ANTC60H3) | Social and Behavioural Sciences | This course is an exploration of the ongoing significance of the ethnographic method to the practice of research in socio-cultural anthropology. How and why have ethnographic methods become so central to anthropology, and what can we continue to learn with them? Students complement readings and lectures on theories and practices of ethnographic methods, both historical and contemporary, with exercises and assignments designed to provide first-hand experience in carrying out various techniques of ethnographic research. We also consider the unique ethical challenges of ethnographic methods and what it means to conduct ethically sound research. |
| <b>Biology</b>                                                  |          |                                                                                                         |            |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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| Introduction to Computational Biology            | BIOB20H3 | BIOA01H3 and BIOA02H3                                                                       | BIO259H5 | Quantitative Reasoning                   | This course explains the fundamental methods of quantitative reasoning, with applications in medicine, natural sciences, ecology and evolutionary biology. It covers the major aspects of statistics by working through concrete biological problems. The course will help students develop an understanding of key concepts through computer simulations, problem solving and interactive data visualisation using the R programming language (no prior skills with R or specialized math concepts are required). |
| <b>City Studies</b>                              |          |                                                                                             |          |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Researching the City: An Introduction to Methods | CITB05H3 | CITA01H3 and CITA02H3                                                                       | None     | Social and Behavioural Sciences          | This course introduces quantitative and qualitative methods in city studies. Students will engage in observation and interviews; descriptive data analysis and visualization; surveys and sampling; and document analysis.                                                                                                                                                                                                                                                                                         |
| <b>Historical and Cultural Studies</b>           |          |                                                                                             |          |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Ready for Research: HCS Skills Lab               | HCSB03H3 | Any 4.0 credits, including 0.5 credit at the A or B-level in CLA, GAS, HIS, or WST courses. |          | History, Philosophy and Cultural Studies | This course prepares students to actively use a wide variety of research methods in the Humanities. Students will develop hands-on skills in key methods and interpretive perspectives, cultivating skills and knowledge applicable to their future                                                                                                                                                                                                                                                                |

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|                                              |          |      |                  |                                          | research and professional lives. These will include textual, visual, and material analysis; digital humanities methods; community-engaged research; feminist research methods; archival research; and oral interviewing methods. The course also specifically prepares students to contribute to faculty-led research projects.                                                       |
| Critical Writing and Research for Historians | HISB03H3 | None | (HISB01H3)       | History, Philosophy and Cultural Studies | Practical training in critical writing and research in History. Through lectures, discussion and workshops, students will learn writing skills (including essay organization, argumentation, documentation and bibliographic style), an introduction to methodologies in history and basic source finding techniques.                                                                 |
| <b>Human Geography</b>                       |          |      |                  |                                          |                                                                                                                                                                                                                                                                                                                                                                                       |
| Fundamentals of GIS                          | GGRB30H3 | None | GGR272H, GGR278H |                                          | This course provides a practical introduction to digital mapping and spatial analysis using a geographic information system (GIS). The course is designed to provide hands-on experience using GIS to analyse spatial data, and create maps that effectively communicate data meanings. Students are instructed in GIS methods and approaches that are relevant not only to Geography |

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|                            |          |                                                   |         |                        | but also to many other disciplines. In the lectures, we discuss mapping and analysis concepts and how you can apply them using GIS software. In the practice exercises and assignments, you then learn how to do your own data analysis and mapping, gaining hands-on experience with ArcGIS software, the most widely used GIS software.                                                |
| Advanced GIS               | GGRC30H3 | GGRB32H3                                          | None    | Quantitative Reasoning | This course covers advanced theoretical and practical issues of using GIS systems for research and spatial analysis. Students will learn how to develop and manage GIS research projects, create and analyze three-dimensional surfaces, build geospatial models, visualize geospatial data, and perform advanced spatial analysis. Lectures introduce concepts and labs implement them. |
| Essential Spatial Analysis | GGRC32H3 | Any 8.0 credits including [STAB23H3 and GGRB30H3] | GGR276H | Quantitative Reasoning | This course builds on introductory statistics and GIS courses by introducing students to the core concepts and methods of spatial analysis. With an emphasis on spatial thinking in an urban context, topics such as distance decay, distance metrics, spatial interaction, spatial distributions, and spatial                                                                           |

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|                                      |          |                                                                                                          |            |                                 | autocorrelation will be used to quantify spatial patterns and identify spatial processes. These tools are the essential building blocks for the quantitative analysis of urban spatial data.                                                                                                                                                                                                                                                                                                  |
| <b>Health and Society</b>            |          |                                                                                                          |            |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Health Research Methodology          | HLTB15H3 | [HLTA02H3 and HLTA03H3] or [any 4.0 credits, including SOCB60H3]                                         | (HLTA10H3) | Social and Behavioural Sciences | The objective of this course is to introduce students to the main principles that are needed to undertake health-related research. Students will be introduced to the concepts and approaches to health research, the nature of scientific inquiry, the role of empirical research, and epidemiological research designs.                                                                                                                                                                     |
| Applied Statistics for Public Health | HLTB27H3 | [HLTA03H3 and STAB23H3] or [HLTA02H3 and STAB23H3 and enrollment in the Paramedicine Specialist Program] |            | Quantitative Reasoning          | This is a survey course in population health numeracy. This course will build upon foundational statistical knowledge and offers students the opportunity to both understand and apply a range of techniques to public health research. Topics include hypothesis testing, sensitivity/specificity, regression (e.g., logistic regression), diagnostics and model sitting, time-to-event analysis, basic probability theory including discrete and continuous random variables, sampling, and |

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|                             |          |          |                             |                                 | conditional probability and their use and application in public health.                                                                                                                                                                                                                                                                                                                                                                                                          |
| Qualitative Health Research | HLTC04H3 | HLTB15H3 | None                        | Social and Behavioural Sciences | This course explores qualitative research methodologies and methods in health research. From an interpretive lens, students will examine different qualitative research approaches (such as phenomenology, grounded theory or ethnography), learn data collection methods (such as focus groups, interviews, observational methods and document analysis), gain skills with data interpretation, and other aspects of ethical research practices in qualitative health research. |
| Health Information Systems  | HLTC16H3 | HLTB16H3 | None                        | Natural Sciences                | An introduction to the fundamental concepts in health informatics (HI) and the relevance of HI to current and future Canadian and international health systems. Students will be introduced to traditional hospital-based/clinician-based HI systems, as well as present and emerging applications in consumer and public HI, including global applications.                                                                                                                     |
| <b>Language Studies</b>     |          |          |                             |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Application of Linguistics  | LINA02H3 | None     | (LIN100Y), LIN101H, LIN102H | Arts, Literature and Language   | Application of the concepts and methods acquired in LINA01H3 to the study of, and research into, language                                                                                                                                                                                                                                                                                                                                                                        |

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|                                           |          |                                           |                                                  |                               | history and language change; the acquisition of languages; language disorders; the psychology of language; language and in the brain; and the sociology of language.                                                                                                                                                                                                                                                                                                                                                                                         |
| Quantitative Methods in Linguistics       | LINB29H3 | LINA02H3                                  |                                                  | Arts, Literature and Language | An introduction to experimental design and statistical analysis for linguists. Topics include both univariate and multivariate approaches to data analysis for acoustic phonetics, speech perception, psycholinguistics, language acquisition, language disorders, and sociolinguistics.                                                                                                                                                                                                                                                                     |
| Introduction to Computational Linguistics | LINC35H3 | LINB30H3 or with permission of instructor | (LINB35H3),<br>LIN340H5 (UTM),<br>LIN341H5 (UTM) | Quantitative Reasoning        | This course focuses on computational methods in linguistics. It is geared toward students with a background in linguistics but minimal background in computer science. This course offers students a foundational understanding of two domains of computational linguistics: cognitive modeling and natural language processing. Students will be introduced to the tools used by computational linguists in both these domains and to the fundamentals of computer programming in a way that highlights what is important for working with linguistic data. |
| <b>Philosophy</b>                         |          |                                           |                                                  |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

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| Ethics of Artificial Intelligence          | PHLB18H3 | None | None | History, Philosophy and Cultural Studies | This course will provide an accessible understanding of AI systems, such as ChatGPT, focusing on the ethical issues raised by ongoing advances in AI. These issues include the collection and use of big data, the use of AI to manipulate human beliefs and behaviour, its application in the workplace and its impact on the future of employment, as well as the ethical standing of autonomous AI systems.                                                                                                                                                                                 |
| <b>Physical and Environmental Sciences</b> |          |      |      |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Human Health and the Environment           | EESA10H3 | None | None | Natural Sciences                         | Because of pollution, our surroundings are becoming increasingly hazardous to our health. The past century has seen intense industrialization characterized by the widespread production and use of chemicals and the intentional and unintentional disposal of a wide range of waste materials. This course explores the relationship between the incidence of disease in human populations and the environmental pollution. Emphasis will be placed on understanding where and what pollutants are produced, how they are taken up by humans and their long term effects on health; the role |

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|                           |          |                                                    |                     |                  | of naturally-occurring carcinogens will also be examined. The course will include a view of risk assessment and toxicology using case studies. No prior knowledge of environmental or medical science is required.                                                                                                                                                                                                                                |
| Principles of Climatology | EESB03H3 | [EESA06H3 or EESA09H3] and [MATA29H3 or MAT A30H3] | GGR203H, GGR312H    | Natural Sciences | This is an overview of the physical and dynamic nature of meteorology, climatology and related aspects of oceanography. Major topics include: atmospheric composition, nature of atmospheric radiation, atmospheric moisture and cloud development, atmospheric motion including air masses, front formation and upper air circulation, weather forecasting, ocean circulation, climate classification, climate change theory and global warming. |
| Natural Hazards           | EESB18H3 | None                                               | (EESA05H3), GLG103H | Natural Sciences | This course is an investigation of the geological background and possible solutions to major hazards in the environment. Environmental hazards to be studied include: landslides, erosion, earthquakes, volcanic eruptions, asteroid impacts, flooding, glaciation, future climate change, subsidence, and the disposal of toxic wastes. This may be of interest to a wide range of students in the life, social, and                             |

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|                   |          |                                                                         |      |                  | physical sciences; an opportunity for the non-specialist to understand headline-making geological events of topical interest. No prior knowledge of the Earth Sciences is required.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Urban Climatology | EESC25H3 | A minimum of 6.0 credits, including at least 2.0 credits in EES courses | None | Natural Sciences | This course will focus on how urban areas modify the local environment, particularly the climates of cities. The physical basis of urban climatology will be examined considering the energy balance of urban surfaces. The urban heat island phenomenon and its modelling will be studied based on conceptual and applied urban-climate research. The impact of climate change on urban sectors such as urban energy systems, water and wastewater systems, and urban transportation and health systems will be examined through case studies. Students will have the opportunity to choose their own areas of interest to apply the knowledge they learn throughout the course and demonstrate their understanding in tutorial-based discussions. The students will be required to work with community or industry partners on a project to assess the impacts or urban climate change. |

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| Climate Science for Everyone | ESTB05H3              | Any 4.0 credits                                                               | GGR314H1,<br>GGR377H5 | Natural Sciences | This course provides a conceptual and qualitative overview of climate science and a discussion of climate science misinformation. The course is intended to be accessible to arts and humanities students seeking to better understand and gain fluency in the physical science basis of climate change. Major topics will include the Earth's climate system, reconstruction of past climates, factors that impact the Earth's climate, climate measurements and models, and future climate change scenarios.                                                     |
| The Anthropocene             | ESTC38H3/<br>EESC28H3 | ESTB01H3 and [1.0 credit from the following: EESB03H3 EESB04H3 and EES B05H3] |                       | Natural Sciences | "The Anthropocene" is a term that now frames wide-ranging scientific and cultural debates and research, surrounding how humans have fundamentally altered Earth's biotic and abiotic environment. This course explores the scientific basis of the Anthropocene, with a focus on how anthropogenic alterations to Earth's atmosphere, biosphere, cryosphere, lithosphere, and hydrosphere, have shifted Earth into a novel geological epoch. Students in this course will also discuss and debate how accepting the Anthropocene hypothesis, entails a fundamental |

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|                                                                |          |                 |                                         |                                 | shift in how humans view and manage the natural world.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Environmental Science and Technology in Society                | ESTC35H3 | ESTB01H3        | None                                    | Social and Behavioural Sciences | In this course students will engage critically, practically and creatively with environmental controversies and urgent environmental issues from the standpoint of the sociology of science and technology (STS). This course will contribute to a better understanding of the social and political construction of environmental science and technology.                                                                                                                                                                                                                                         |
| <b>Political Science</b>                                       |          |                 |                                         |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Quantitative Reasoning for Political Science and Public Policy | POLB40H3 | Any 4.0 credits | POL222H1, SOCB 35H3, STAB22H3, STAB23H3 | Quantitative Reasoning          | This course introduces students to tools and foundational strategies for developing evidence-based understandings of politics and public policy. The course covers cognitive and other biases that distort interpretation. It then progresses to methodological approaches to evidence gathering and evaluation, including sampling techniques, statistical uncertainty, and deductive and inductive methods. The course concludes by introducing tools used in advanced political science and public policy courses.<br>Areas of Focus: Public Policy, and Quantitative and Qualitative Analysis |

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| Applied Statistics for Politics and Public Policy          | POLC11H3 | STAB23H3 or equivalent                                       | (POLB11H3)                                            | Quantitative Reasoning | In this course, students learn to apply data analysis techniques to examples drawn from political science and public policy. Students will learn to complete original analyses using quantitative techniques commonly employed by political scientists to study public opinion and government policies. Rather than stressing mathematical concepts, the emphasis of the course will be on the application and interpretation of the data as students learn to communicate their results through papers and/or presentations. |
| Politics and Computational Social Science                  | POLD56H3 | [STAB23H3 or equivalent] and 1.5 credit at the C-level       |                                                       | Quantitative Reasoning | This course applies tools from computational social science to the collection and analysis of political data, with a particular focus on the computational analysis of text. Students are expected to propose, develop, carry out, and present a research project in the field of computational social science.                                                                                                                                                                                                               |
| <b>Psychology</b>                                          |          |                                                              |                                                       |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Applied Statistical Analysis for Psychology & Neuroscience | PSYB06H3 | PSYA01H3 and PSYA02H3 and [PSYA06H3 or STAB22H3 or STAB23H3] | (PSYB07H3), (PSYC08H3), HLTB27H3, LINB29H3, MGEB11H3, | Quantitative Reasoning | This course covers the application of statistical methods to support the interpretation of data. Students will learn to conduct and interpret statistical tests using software and                                                                                                                                                                                                                                                                                                                                            |

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|                                                                      |          |                                             | STAB27H3,<br>STAB57H3,<br>BIO360H5,<br>EEB225H1,<br>ECO220Y1/ECO22<br>0Y5,<br>ECO227Y5, PSY20<br>2H1/PSY202H5,<br>SOC252H1,<br>STA221H1/<br>STA221H5 |                           | draw valid conclusions<br>from psychological and<br>neuroscientific data. Topics include <i>t</i> -<br>tests, analysis of variance, multiple<br>comparison tests, simple regression,<br>chi-squared tests and other non-<br>parametric tests.                                                                                                                                                                                                                                       |
| Advanced Statistical<br>Analysis for<br>Psychology &<br>Neuroscience | PSYC06H3 | [PSYB06H3 or<br>(PSYB07H3)] and<br>PSYB70H3 | (PSYC08H3),<br>(PSYC09H3),<br>LINC29H3,<br>STAC67H3,<br>ECO220Y1,<br>ECO227Y1                                                                        | Quantitative<br>Reasoning | This course extends foundational<br>statistical methods to more complex<br>designs and models, including<br>elaborations of the analysis of<br>variance and multiple regression,<br>with extensions to multivariate<br>analyses.                                                                                                                                                                                                                                                    |
| <b>Statistics</b>                                                    |          |                                             |                                                                                                                                                      |                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Introduction to<br>Statistics for the<br>Social Sciences             | STAB23H3 | None                                        | (ANTC35H3), MGE<br>B11H3/(ECMB11H<br>3),<br>(POLB11H3), PSY<br>B07H3,<br>(SOCB06H3), STA<br>B22H3, STAB52H3<br>, STAB57H3,<br>STA220H,<br>STA250H    | Quantitative<br>Reasoning | This course covers the basic<br>concepts of statistics and the<br>statistical methods most commonly<br>used in the social sciences. The first<br>half of the course introduces<br>descriptive statistics, contingency<br>tables, normal probability distribution,<br>and sampling distributions. The<br>second half of the course introduces<br>inferential statistical methods. These<br>topics include significance test for a<br>mean ( <i>t</i> -test), significance test for a |

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|  |  |  |  |  | proportion, comparing two groups (e.g., comparing two proportions, comparing two means), associations between categorical variables (e.g., Chi-square test of independence), and simple linear regression. |
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