

Precision Retailing for Health, Wellbeing, and Wealth Through Sustainable Investment, Production, and Consumption

A Behaviorally-Informed, System-Competent, and AI-Powered Hub for Translational Science and Experiential Learning

PRELIMINARY - Syllabus

Course ID:	MRKT 705 (Ph.D.)	
Title:	Precision Retailing	
Prerequisites:	Instructor Permission	
Date & Time:	Tuesdays and Thursdays, 8:30am to 11:30 am	
Location:	Room 310 Desautels Faculty of Management 1001 Sherbrooke St West, Montreal, QC	
Instructor:	Laurette Dubé James McGill Chair Consumer and Lifestyle Psychology and Marketing Office: Bronfman, 512 Office hours: By appointment laurette.dube@mcgill.ca	
Collaborators:	Shawn Brown, PhD Associate Director of Research Software Development McGill Centre for Integrative Neurosciences (MCIN), Healthy Brain for Health Lives (HBHL) Office: 527 Avenue de Pins, Rm 106 Office hours: By appointment stbrown@mcin.ca	Andre K. Portella, MD PhD Research Associate, Neuroscience McGill Centre for the Convergence of Health and Economics Office: 3430 McTavish Street, 2 nd floor Office hours: By appointment andre.portella@mcgill.ca

Overview

Precision Retailing (PR) bridges disciplines and sectors for a translational, behaviorally-informed, and artificial intelligence (AI)-powered transformation of innovation, strategy, process, and practice at professional, organizational, institutional and system levels. The ultimate goal is to accelerate individual and collective health, wealth, and wellbeing through PR for more precisely targeted, better differentiated, and impactful solutions to society's most-pressing wicked problems. This doctoral seminar will initiate disciplinary trainees to the key methods and methods of PR and apply these to advance their respective research program.

Context

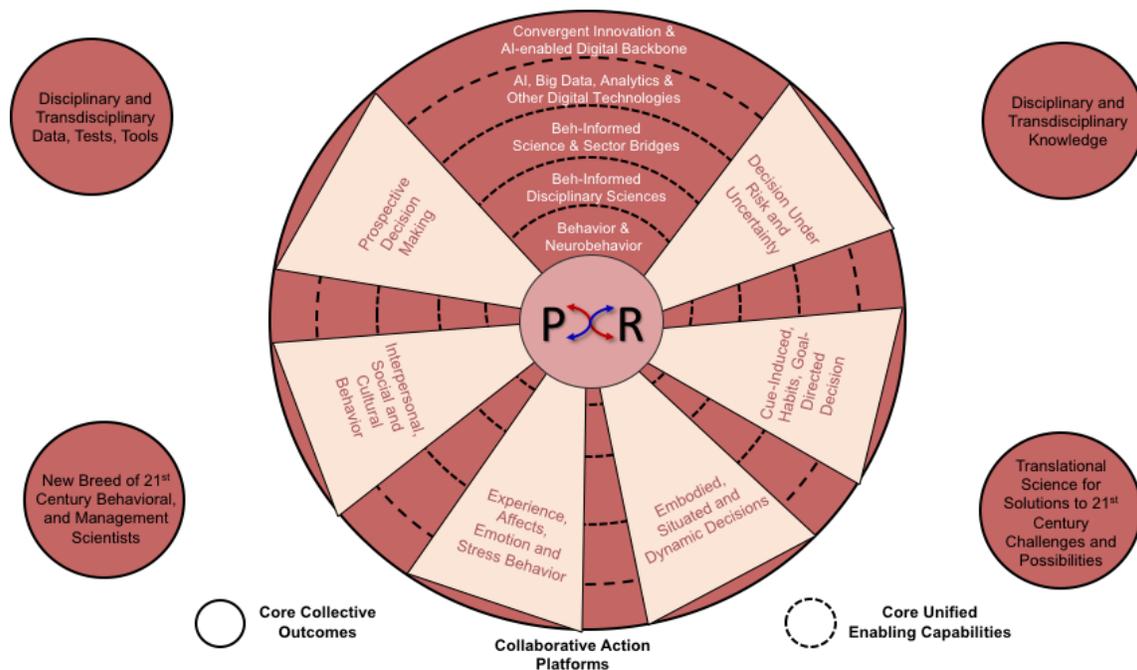
The ability of nearly all strategy, process, or practice to achieve individual and collective goals hinges on the normative and adaptive quality of human behavior, be these being deployed at professional, organizational, institutional, system or policy levels. This is particularly the case if these goals are to contribute to individual and collective health, wealth and wellbeing for immediately concerned decision instances and throughout society. Beyond this central role in work domains, changes in many everyday human behaviors on the personal side of life is also a pressing prerequisite to solutions at scale for the wicked problems still facing the world today (e.g. pollution, natural resource depletion, global warming, nuclear proliferation, poverty, social injustice, hunger, pandemics of lifestyle-related diseases, bulging healthcare costs, and so on). Challenges arise in both personal and professional domains with the full diversities, complexities, interdependencies and dynamic aspects of human behavior in context, with the human brain having to guide decision in real time and real-world contexts characterized by unprecedented speed and connectivity.

Pioneer work by Herbert Simons in the 1960's on bounded rationality and later work on behavioral decision making, economic, and finance by Kahneman, Shiller, Deaton, Thaler and others --- combined with parallel work on cognition and reasoning --- provides altogether a strong foundation for the scientific study of human decision making that accounts for the diversity of rational and less-rational motives and processes impacting human choice and behavior at the individual and aggregate level. More recently, the digital revolution, now powered by a unique combination of big data and artificial intelligence (AI), has transformed all of science and society to open new frontiers. Combining *omics* with other aspects of the digital revolution, neuroinformatics is now bringing to a next level the insights that neuroeconomics and decision neuroscience have contributed thus far to the neurobiological basis of human decision making and behavior by not only bringing to bear the full neuroscience portfolio and enabling real-time assessment of neurobehavioral and psychological processes in diverse and changing contexts. At the same time, AI, big data, analytics and other digital technologies have also become ubiquitous in innovation, strategy, process, or practice deployed at professional, organizational, institutional, system and policy level throughout all social and economic sectors of society (what has been called industrial revolution 4.0). We have coined the term **Precision Retailing (PR)** for a 21st century translational science hub that bridges these disciplinary and transdisciplinary breakthroughs for a behaviorally-informed and AI-enabled transformation of science and action through, innovation, strategy, process, and practice at professional, professional, organizational, institutional or system with the ultimate goal to accelerate individual and collective health, wealth, and wellbeing for all.

Precision Retailing: Conceptual framework and objectives

Precision Retailing takes an enriched view of retail as the gateway between individuals and the professions, organizations, institutions, systems, and policies that support them in guiding real-world adaptive behavior in diverse and ever-changing contexts. PR borrows from medicine and other disciplines where *omics* and other AI-enabled technologies have supported more precisely targeted, better differentiated, and more impactful solutions than prior standard practice. We extend this to the behavioral domain and to what actors in society can do to support normative and adaptive real-world behavior in as real-time as possible. This new doctoral seminar, proposed as an addition to the marketing offering of the Montreal joint doctoral program in management, builds upon almost two decades of intellectual development by an international network of scientists hailing from a rich portfolio of disciplines spearheaded by the lead instructor. It is designed to play a trailblazing role in the training of a new breed of disciplinary scientists, in management and others, who excel in the creation of their respective breakthrough knowledge and are equipped with bridging frames, mindsets, theories, and methods to understand and contribute to societal-scale behavioral change and ecosystem transformation.

PR builds upon the most recent advances in the science of behavior in real-world contexts with the objective to embed this knowledge into and enrich disciplinary and sectoral science, innovation, process and practice at professional, organizational, institutional or system in all domains that contribute to individual and collective health, wealth and well-being. The seminar is organized around six types of behavior that cover both rational and non-rational components of human decision making whose underlying neurobehavioral and psychological processes have been the object of a twin doctoral seminar (MKT 709). This new PR seminar, which can be taken independently of this twin course, is anchored into “primer briefing” of each structuring behavior type to progressively proceed to their AI-enabled embeddedness into key disciplinary and transdisciplinary sciences and action.



As diverse facets of industrial revolution 1.0 still prevail in many domains, PR fully embraces industry 4.0 that blurs the boundaries between the physical, biological and digital spheres to rely on the integrative capabilities of big data, analytics, artificial intelligence and other computer and complexity sciences and technologies to advance and bridge knowledge across discipline, sector, and scale. As AI is at an inflection point, moving into the open world in all direction, nowhere is this exercise more relevant than in the core retail and marketing science and practice itself. They occupy a key interface position between the core consumers and the supply-demand systems that deserve them through either or both physical and digital channels. Traditional linear linkages have been severed for long, and forces of changes beyond technologies are many: demographic, economic, shift in values, etc.

Learning Objectives

- Provide the participants with the foundations of a translational framework that maps key behavioral constructs and their most recent advances into disciplinary and interdisciplinary knowledge and sectoral innovation, process and practice in management and other disciplines contributing to individual and collective health, wealth, and wellbeing.

- Discover a portfolio of integrative characterization tools as well as statistical, and computational models of underlying mechanisms for decision-making and behavior in diverse and dynamic conditions observed in experimental and naturalistic real-world physical and virtual contexts.
- Acquire hands-on experience of struggling to get out of their respective disciplinary comfort zone and succeeding in this venture to enrich their own work by transdisciplinary methods and understand the positioning of their disciplinary work in the broader context of related complex scientific and societal challenges.

Target audience and course organization

This seminar is designed to be part of the joint Ph.D. program's training in translational interdisciplinary science. This course is to be offered to graduate and post-graduate students in the discipline of consumer behavior, marketing, retailing, information systems, finances, strategy, and other management disciplines where understanding human decision-making and behavior are key components in achieving performance at professional, organization or institutional levels. In addition to these core disciplinary targets in the management sciences, the seminar is also designed for three complementary disciplinary audiences: (1) trainees in medicine and health, education, political sciences, economics and other social sciences whose respective domains of research and practice are also to benefit from the behavioral-informed and AI-enabled approach that characterizes PR; (2) neuroscience and psychology trainees interested to enrich their disciplinary training by articulating reciprocal pathways with social sciences; (3) data, computer science, and artificial intelligence students interesting in understanding the complexity and dynamic real-world context that next-generation AI and other digital technologies may support more effectively by being both behaviorally informed and embedded within the human, social and economic fabric of society. Altogether, these disciplinary target audience will be trained into and partake to the co-creation of the full translational science hub that is PR to inform real-world decision-making in a diversity of contexts.

The course is organized in two core sections, a first (sessions 2 to 6) that familiarizes the student to the portfolio of core integrative PR concepts and methods as well as to real-world contexts where they are deployed to facilitate the integration of behavioral-informed and AI-enabled perspectives into their disciplinary knowledge. The second section (sessions 7 to 13) cover disciplinary and PR concepts and methods that are brought together around the six structuring behavior types. Reading material (presented in companion file) has been carefully chosen to accommodate the progressive embedding of transdisciplinary training into each of the target audience's disciplinary knowledge, with core and complementary readings covering five different disciplinary target audiences: core retailing/marketing/consumer behavior; other management disciplines; medicine/health/education and other social sciences; neuroscience and psychology; data/computer/AI.

Tentative Course Schedule

Schedule	Session Theme	Presenters <i>Italicized: remote</i> *Confirmed *To be confirmed
Session 1, May 2	Introduction: From Behavioral Economics to Neuroeconomics to Decision Neuroscience to Precision Retailing	<i>Pierre Chandon*</i>

Translational Contexts and Methods		
Session 2, May 7	On-line Retailing (Loblaw Digital), Marketing Analytics and Transactional Platform Design--- Briefing EEG and DARC toolbox- <u>Delayed and risky choice</u>)	Aaron Fernandez* Genevieve Basselier* Jia Yuan Yu** Andre Portella (Briefing)*
Session 3, May 9	AI-powered Banking and Financial Service Platforms (IBM), Framing the Future, Economics of Personal Plans----Briefing-Neuroforecasting	Bassem Monla* <i>Hengchen Dai</i> ** Andre Portella (Briefing)*
Session 4, May 14	Person-Centered Self-management platforms (LoseIt, Capsana), Behavioral Analytics and Design for Social Diffusion and Long-term commitment-Briefing Briefing AI-powered behavioral composition	Nathan Yang* Steve Christodoulopoulos ** Shawn Brown (Briefing)*
Session 5, May 16	Health and health systems modeling in the age of big data (IEpi-Ethica): Dynamic multiscale mechanisms for adaptive human and organizational behavior- Briefing systems modeling	Nathaniel Osgood*(briefing and translational session) Anna Kim* Tibor Schuster*
Session 6, May 21	Behaviorally-Informed Food Policy, Policy Coherence and Multi-scale Multi-Sector Policy Convergence- Briefing synthetic ecosystem and nested agent-based models	Dilip Soman* Raphael Lencucha* Alain Dagher** Shawn Brown*(Briefing)
Translational BtS Behavior-Specific		
Session 7, May 23	Experience/emotion/stress behavior (core neuropsychological foundation and translational context for multimodal design and management of computer and serious games and multiscale virtual reality)	Jorge Armory* Yu Ma* <i>Tiago Falk</i> * Laurent Charlin**
Session 8, May 28	Interpersonal processes, challenges and possibilities of real-time and long-term engagement in social media, peer-to-peer, and other digital platforms (core neuropsychological foundation and translational context into design and management)	Jui Ramaprasad* Ashesh Mukherjee* Philippe Langlais**
Session 9, May 29	Prospective Decision Making and Self-Processing Brain systems with as translational context, integration into organizational practice and strategy	Nathan Spreng* Melaina Vinski* Saku Mantere**
Session 10, Jun 4	Sensory processing and multi-sensory integration in experience and decision making (core neuropsychological foundation and translational context in multimodal e-communication design for effective transaction and long-term consumer engagement)	Ryan Webb* Sylvain Senecal* Paul Cisek**
Session 11, June 6	Trust and multiscale dynamic organizational decision making, system design and optimization under risk and uncertainty	Wally Trenholm* <i>Peter Darke</i> ** Mehmet Gumus* Doina Precup**

Session 12, June 11	Cue-induced/goal directed decision making and self-control/self-regulation (core neuropsychological foundation and translational context for integration into self-management and professional practice)	<i>Hilke Plassmann*</i> <i>Jeremie Vernon**</i> <i>Sara Ahmed**</i> <i>Audrey Durand**</i>
Session 13, June 13	Neuroeconomics, computational behavioral science, and wealth creation through sustainable investment, production and consumption: (core neuropsychological foundations and translational context of integration into agile innovation and robust action)	<i>Ale Smidts*</i> <i>Ross Otto**</i> <i>Xavier Debane**</i> <i>Dror Etzion **</i>
Session 14, June 18	Term Project Presentation	

Course Readings

To ensure a tractable and successful learning process within 3-credit course parameters, students are invited at the beginning of the course to select a research domain/question/program in their respective discipline that could be enriched by or could contribute to the PR approach. The nature and format of disciplinary choice are made as a function of the student's doctoral program stage. Students are to prepare the following for each session:

1. **Core articles** brought together as foundations for the PR translational research live case discussion. Students have to **review the 2 most relevant** to enrich their disciplinary work in each session with the class briefing and translational live cases providing an actionable synthesis of all papers for on-going integration into the student's term project disciplinary enrichment journey. They will be expected to contribute actively to the discussion with a focus on the article they have chosen to read.
2. **Complementary disciplinary and transdisciplinary articles** from which each student **picks 1 in 5 sessions** to produce a written brief on the paper contribution and what angle of this research provide insights into the student's disciplinary enrichment journey. **Each student presents 2 of these 5 briefs for class discussion.** This comprehensive list will also serve more generally for the term project and longer-term knowledge building.

The first six sessions are briefing sessions on key integrative translational methods underlying PR and the student participation to the class discussion during these sessions is to be made on the basis of their customized reading choice and will be embedded throughout the sessions for an equivalent of 1 hour of student participation out of each 3-hour session. The remaining sessions will consist of, for two-thirds of its time, a combination of PR methods briefing and translational exercises with scientists and practitioners. The last third of each of session 7 to 13 is devoted to student reports of their PR translational research journey. Appendix 2 presents the personalized reading list completed by each student as a function of discipline and interest.

Course Requirements and Grades

Students are responsible for all announcements or schedule changes made in class, whether or not they are in attendance.

Required Texts: No textbook required. Articles are provided in the companion file.

Examinations and Grading: The final grade in the course will be based on the following weights:

Strategic briefs on PR integration	5 strategic briefs	25% (5% each)
Class presentations on PR integration	2 presentations from 5	10% (5% each)
Class participation		25%
Final term project & presentation		40%
Final grade		100%

Strategic Briefs (5): There will be five translational short essay assignments (600-word limit) for every session, except for session 1 and 14. For these essays, you choose one of the papers featured in the complementary disciplinary article lists. You can choose from the sub-category where your discipline belongs or from other categories. You first review and comment on the disciplinary contribution of the paper and then address whether and how its scientific and societal contribution to the session's targeted decision making/behavior could be improved through disciplinary and/or interdisciplinary translational research (with your own research or other disciplines). You may choose to submit these essays weekly, and the best five will be taken, or you can submit only five. The grade will reflect the depth of thinking, insights originality and analysis/writing clarity. These essays are due at 5 pm the day before class sessions.

Class Presentations of Strategic Briefs (2): For two of the 5 essays above, students are to present and comment on both the article they review and how it relates to their disciplinary topic. Presentations are to be clear, concise, organized, and reflective of an understanding of the potential disciplinary interfaces that can lead to novel PR translational research. The grade will also reflect the extent to which you can engage the class in a deep and useful discussion and answer questions posed by other students or faculty members in a thoughtful and responsive manner. Sessions and papers are to be selected by session 2.

Class Participation: You will be evaluated based on your overall assessment of the amount and quality of the individual's comments. High-quality contributions will reflect both a depth and breadth of knowledge gained from the assigned readings, will be clearly stated and effectively communicated, and will be insightful and relevant to the issues under discussion. Although the quantity of comments is important, students should refrain from monopolizing discussions and should aim to be succinct.

Final Project & Presentation: The term project is focused on the disciplinary topic chosen at the beginning of the session, reflects the PR integration journey performed over the semester and advance in more depth the focal research question. The project may take one of three forms:

- Theoretical development and/or analytical work on translational research live cases discussed in class that address PR mechanisms, real-time, and/or long-term processes and outcomes;
- Comprehensive disciplinary literature review that identifies important research gap(s) of scientific and societal significance in providing science-based solutions to one of the targeted decision making/behavior types that could benefit from a PR translational research approach; and
- Research protocol developed to address specific research question(s) of scientific.

Course Materials

All the articles will be available at Slack, which is a software that you can download or use in your browser (<https://slack.com/signin>). A team called MRKTXXX has been created and will invite you

to join the team. You will receive an email with the invitation. Please click on 'Join MRKTXXX' and set your password. As soon as you accept the invitation and create your password, you will be able to see our team page, share files and also send messages to one person in particular (in DIRECT MESSAGES) or the whole group (in CHANNELS #general). Our Slack domain is: MRKTXXX.slack.com (this is request for sign in). In our team page, all the articles' files will be named according to the session (e.g., S1, S2...) and the "author_publication date." You will be able to find the articles by clicking on the button (...) located at the top right of the page and, after, in the link "All files." If you have any questions, please contact Andre Portella (andre.portella@mcgill.ca).

Statement for Students with Disabilities

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester.

Statement on Academic Integrity

McGill seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles.

Appendix 1: Invited Presenters' Title and Affiliation

Name	Title, Affiliation
Aaron Fernandez	Senior Director, Digital Services at Loblaw Digital
Alain Dagher	Professor, Department of Neurology and Neurosurgery at Montreal Neurological Institute, McGill University
Ale Smidts	Professor, Marketing Research, Rotterdam School of Management
Andre Portella	Research Associate, McGill Centre for the Convergence of Health and Economics, McGill University
Anna Kim	Assistant Professor, Department Of Management, HEC Montreal
Ashesh Mukherjee	Associate Professor, Marketing, McGill University
Audrey Durand	Postdoctoral Researcher, McGill University
Bassem Monla	Artificial Intelligence Subject Matter Expert, IBM
Dilip Soman	Professor of Marketing, Rotman School, University of Toronto
Doina Precup	Associate Professor, School of Computer Science, McGill University
Dror Etzion	Associate Professor, Strategy & Organization, Desautels Faculty of Management, McGill University
Genevieve Basselier	Associate Professor, Information Systems, McGill University
Hilke Plassmann	INSEAD Chaired Professor of Decision Neuroscience
Hengchen Dai	Assistant Professor of Management and Organizations and Behavioral Decision Making, UCLA
Jeremie Vernon	Postdoctoral Fellow, Department of Psychology, McGill University
Jia Yuan Yu	Associate Professor, Concordia Institute of Information System Engineering, Concordia University
Jorge Armory	Canada Research Chair in Affective Neuroscience, Department of Psychiatry, McGill University
Jui Ramaprasad	Associate Professor, Information Systems, McGill University
Katherine L. Milkman	Professor of Operations, Information and Decisions, Wharton School of the University of Pennsylvania
Laurent Charlin	Assistant Professor, Department of Decision Sciences, HEC Montreal
Mehmet Gumus	Associate Professor, Operations Management; Desautels Faculty of Management, McGill University

Melaina Vinski	Behavioural Insights Lead, PWC Consulting
Nathan Spreng	Associate Professor, Department of Neurology and Neurosurgery, Montreal Neurological Institute, McGill University; Director, Laboratory of Brain and Cognition, McGill University
Nathan Yang	Associate Professor, Marketing, Desautels Faculty of Management, McGill University
Nathaniel Osgood	Professor, Computer Science, University of Saskatchewan
Paul Cisek	Professor of Neuroscience, University of Montréal
Peter Darke	Professor of Marketing, Schulich School of Business, York University
Philippe Langlais	Professor, Computer Science, University of Montreal
Pierre Chandon	Director, INSEAD Sorbonne University Behavioural Lab
Raphael Lencucha	Assistant Professor, Phy & Occ Therapy, McGill University
Ross Otto	Assistant Professor, Department of Psychology, McGill University
Ryan Webb	Assistant Professor, Department of Marketing, Rotman School of Management, University of Toronto
Saku Mantere	Associate Professor of Strategy & Organization; Director, Marcel Desautels Institute for Integrated Management, McGill University
Sara Ahmed	Associate Professor, Faculty of Medicine, McGill University
Shawn Brown	Associate Director of Research Software Development, McGill Centre for Integrative Neurosciences (MCIN)
Steve Christodoulopoulos	Senior Director, e-Health Innovations, Business Development & IT
Sylvain Senecal	Professor, Department of Marketing, HEC Montreal
Tiago Falk	Associate Professor, Institut National de la Recherche Scientifique (INRS), Montreal
Tibor Schuster	Assistant Professor, Department of Family Medicine, McGill University
Wally Trenholm	Founder and CEO, Sightline Innovation
Xavier Debane	Head, Innovation & Agile, Manulife
Yu Ma	Associate Professor, Desautels Faculty of Management, McGill University

Appendix 2
MRKT 705
Summer 2019

PERSONALIZED DISCIPLINARY RESEARCH DOMAIN AND READING LIST

Name _____

Discipline _____

Disciplinary research domain (can go from general research question to protocol)	Short Description (be as specific as you can)

Course Readings

To ensure a tractable and successful learning process within 3-credit course parameters, students are invited at the beginning of the course to select a research domain/question/program in their respective discipline that could be enriched by or could contribute to the PR approach. The nature and format of disciplinary choice are made as a function of the student's doctoral program stage. Students are to prepare the following for each session:

1. **Core articles** brought together as foundations for the PR translational research live case discussion. Students have to **review the 2 most relevant** to enrich their disciplinary work in each session with the class briefing and translational live cases providing an actionable synthesis of all papers for on-going integration into the student's term project disciplinary enrichment journey. They will be expected to contribute actively to the discussion with a focus on the article they have chosen to read.
2. **Complementary disciplinary and transdisciplinary articles** from which each student **picks 1 in 5 sessions** to produce a written brief on the paper contribution and what angle of this research provide insights into the student's disciplinary enrichment journey. **Each student presents 2 of these 5 briefs for class discussion.** This comprehensive list will also serve more generally for the term project and longer-term knowledge building.

The first six sessions are briefing sessions on key integrative translational methods underlying PR. The remaining sessions will consist of, for two-thirds of its time, a combination of PR methods briefing and translational exercises with scientists and practitioners. The last third of each of session 7 to 13 is devoted to student reports of their PR translational research journey.

Sessions Title	2 Most Relevant Core Articles (Select 2 for each session)	Select one per session for minimum 5 sessions for preparing strategic disciplinary brief and indicate with a star (*) 2 sessions between session 7 and 13 where you would like to present
Session 2. On-line Retailing (Loblaw Digital), Marketing Analytics and Transactional Platform Design		
Session 3. AI-powered Banking and Financial Service Platforms (IBM), Framing the Future, Economics of Personal Plans.		
Session 4. Person-Centered Self-management platforms (Loselt, Capsana), Behavioral Analytics and Design for Social Diffusion and Long-term commitment.		
Session 5. Health and health systems modeling in the age of big data (IEpi/Ethica): Dynamic multiscale mechanism for adaptive human and organizational behavior.		
Session 6. Behaviorally-Informed Food Policy, Policy Coherence and Multi-scale Multi-Sector Policy Convergence		
Session 7. Experience/emotion/stress behavior (core neuropsychological foundation and translational context for multimodal design and management of computer and serious games and multiscale virtual reality)		
Session 8. Interpersonal processes, challenge and possibilities in real-time and long-term engagement in social media, peer-to-peer, and other digital platforms (core neuropsychological foundation and translational context into design and management)		
Session 9. Prospective Decision Making and Self-Processing Brain systems with as translational context, integration into organizational practice and strategy.		
Session 10. Sensory processing and multi-sensory integration in experience and decision making (core neuropsychological foundation and translational context in		

multimodal e-communication design for effective transaction and long-term consumer engagement).		
Session 11. Trust and multiscale dynamic organizational decision making, system design and optimization under risk and uncertainty		
Session 12. Cue-induced/goal directed valuation, decision making and self-control/self-regulation (core neuropsychological foundation and translational context for integration into professional practices and digital innovation.		
Session 13. Prospective decision making and behavior: Future cognition, mind wandering, creativity, foresight, and prediction for science and practice shaping a future of individual and collective health, wealth and wellbeing		