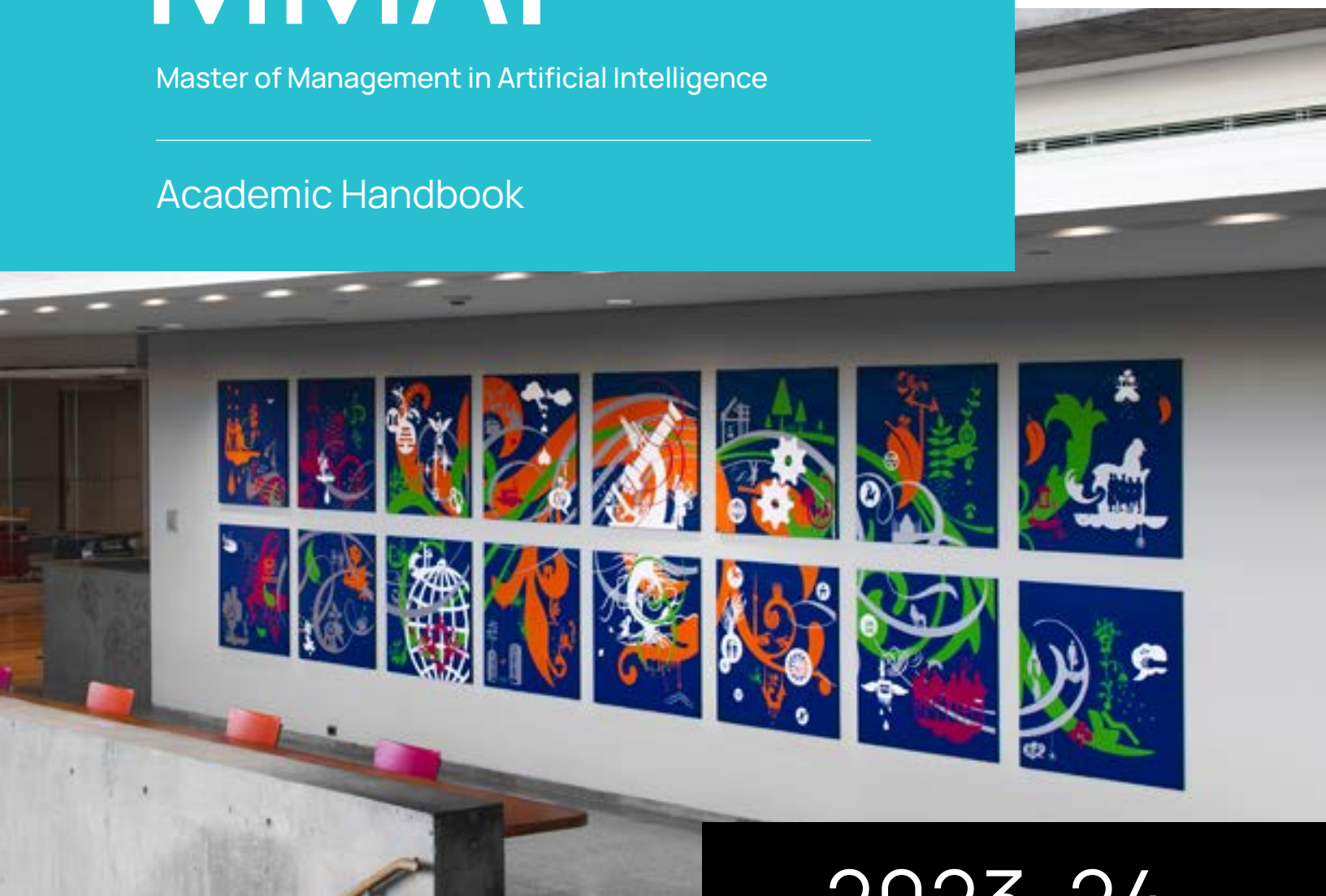


MMAI

Master of Management in Artificial Intelligence

Academic Handbook



2023-24

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Can't find what you're looking for? Check the Graduate Academic Handbook!



Review important information about:

- Tuition and fees
- Scholarships and financial aid
- Exams, grades and conduct
- Petitions and appeals
- Student services and enrolment
- Student life and clubs
- Libraries, transit, childcare, health services

Available on the [Academic Resources webpage](#)

Disclaimer

The material contained in this Handbook has been submitted by the administrative departments and academic units concerned. All general information and course references have been checked for accuracy as much as possible. If errors or inconsistencies do occur, please bring these to the attention of the responsible department. York University reserves the right to make changes to the information contained in this publication without prior notice.

It is the responsibility of all students to familiarize themselves each year with the information contained in this handbook, as well as with any additional regulations relating to academic policy as communicated by the Division of Student Services and International Relations in the Schulich School of Business.

It is the responsibility of all students to be familiar with the specific requirements associated with the degree, diploma or certificate sought. While advice and counseling are available, it is the responsibility of each student to ensure that the courses in which registration is affected are appropriate to the program requirements of the Schulich School of Business.

While the University will make every reasonable effort to offer courses and classes as required within programs, student should note that admission to a degree or other program does not guarantee admission to any given course or class.

Every student agrees by the act of registration to be bound by the regulations and policies of York University and of the Schulich School of Business.

In the event of an inconsistency between the general academic regulations and policies published in student handbooks and calendars, and such regulations and policies as established by the Schulich School of Business and Senate, the version of such material as established by the Schulich School of Business and the Senate shall prevail.

York University Policies

York University disclaims all responsibility and liability for loss or damage suffered or incurred by any student or other party as a result of delays in or termination of its services, courses, or classes by reason of force majeure, fire, flood, riots, war, strikes, lock-outs, damage to University property, financial exigency or other events beyond the reasonable control of the University.

York University disclaims any and all liability for damages arising as a result of errors, interruptions or disruptions to operations or connected with its operations or its campuses, arising out of computer failure or non-compliance of its computing systems.

York University is a smoke-free institution. Smoking is permitted in designated areas only.

Important Websites

Resource	URL	Go here for...
The Schulich School of Business official website	schulich.yorku.ca	Program Information, Financial Aid, International Opportunities, Career Development Centre, MySchulich student portal
Schulich Current Graduate Students page	schulich.yorku.ca/current-students/graduate-students	Important Dates, Course Offerings, Wait List, Upcoming Events, Enrolment Details, Academic Petitions and Appeals
Student Services GradBlog	gradblog.schulich.yorku.ca	Student stories, Regular updates about courses, important dates, enrolment and events
York Online Services	currentstudents.yorku.ca	Enrolment & fees, Housing & Transportation, Academic Regulations & Grade Reports
Student Accessibility Services	accessibility.students.yorku.ca	Resources for academic and personal development, individual and group counselling, Learning Skills Workshops
Graduate Business Council	gbcschulich.ca	Mission statement, executive reps, student clubs, services and events

2023-2024 Sessional Dates

SUMMER 2023			
Activity	Term S	Term E	Term G
Class Start Date	May 8	May 8	Jun 26
Class End Date	Aug 4	Jun 23	Aug 4
Reading Week	N/A	N/A	N/A
Examinations	Aug 8 - 14	Jun 30	Aug 8 - 14
Last date to enrol without permission	May 15	May 15	Jul 3
Last date to enrol with permission	May 22	May 22	Jul 10
Last date to drop courses	Jun 12	May 29	Jul 17

FALL 2023			
Activity	Term F2	Term A	Term M
Class Start Date	Sept 11	Sept 11	Oct 30
Class End Date	Dec 8	Oct 23	Dec 8
Reading Week	Oct 24 - 27	N/A	N/A
Examinations	Dec 11 - 15	Oct 24 - 27	Dec 11 - 15
Last date to enrol without permission	Sept 18	Sept 18	Nov 6
Last date to enrol with permission	Sept 25	Sept 25	Nov 13
Last date to drop courses	Oct 16	Oct 2	Nov 20

WINTER 2024			
Activity	Term W2	Term C	Term N
Class Start Date	Jan 8	Jan 8	Feb 26
Class End Date	Apr 8	Feb 16	Apr 8
Reading Week	Feb 20 - 23	N/A	N/A
Examinations	Apr 10 - 16	Feb 20 - 23	Apr 10 - 16
Last date to enrol without permission	Jan 15	Jan 15	Mar 4
Last date to enrol with permission	Jan 22	Jan 22	Mar 11
Last date to drop courses	Feb 12	Jan 29	Mar 18

2023-2024 Important Dates

DATE	REMINDER
May 8	First day of Summer classes
May 10	Summer Term fees due
May 22	Victoria Day (university closed)
May 26	Mandatory Make-up Day (in lieu of Victoria Day)
July 1	Canada Day (university closed)
July 3	Additional statutory holiday (university closed)
July 7	Mandatory Make-Up Day (in lieu of Canada Day)
August 7	Civic Holiday (university closed)
September 4	Labour Day (university closed)
September 10	Fall Term fees due
September 11	First day of Fall classes
October 9	Thanksgiving (university closed)
December 8	Last day of Fall classes

Find Important Dates online!
[schulich.yorku.ca/current-students/graduate-students/
key-dates](https://schulich.yorku.ca/current-students/graduate-students/key-dates)



Contact Us

The School's Division of Student Services & International Relations should be consulted on questions related to admissions, enrolment, registration, grade or course problems, financial assistance or special advising.



MEET US ONLINE!

schulich.yorku.ca/student-enrolment-services

TITLE	NAME	E-MAIL
Associate Dean, Students	Kiridaran (Giri) Kanagaretnam	kkanagaretnam@schulich.yorku.ca
Financial Administrative Assistant	Heidi Furcha	hfurcha@schulich.yorku.ca
STUDENT & ENROLMENT SERVICES		
Director, Student & Enrolment Services	Luba Pan	panlyuba@schulich.yorku.ca
Manager, Student Success	Cathlin Sullivan	cathlin@schulich.yorku.ca
Manager, Communications	Beth Gallagher	bethlg@schulich.yorku.ca
Records & Promotion Assistant	Sophia Yu	sophyu@schulich.yorku.ca
Student Success Coordinator	Fern Best	fbest@schulich.yorku.ca
Student Success Coordinator	Lyndsay Vair	vairl@schulich.yorku.ca
Registration & Academic Service Assistant	Kareene Martin	studentservices@schulich.yorku.ca
Student Service Assistant	Maria Rizzuto	studentservices@schulich.yorku.ca
Systems Coordinator	Vivian Sun	studentservices@schulich.yorku.ca
Communications Coordinator	Nikeeta Machado	nikeeta@schulich.yorku.ca
FINANCIAL AID		
Assistant Director Admissions & Financial Aid	Doris Mak (on leave)	finaid@schulich.yorku.ca
Financial Aid Officer	Anne Caulfield	finaid@schulich.yorku.ca
INTERNATIONAL RELATIONS		
Associate Director, International Relations	Ann Welsh	awelsh@schulich.yorku.ca
Graduate International Program Coordinator	Cheryl Sticklely	cstickley@schulich.yorku.ca
International Information Assistant	Lan Yu	intlrelations@schulich.yorku.ca
International Student Support Specialist	Vino Shanmuganathan	vshan@schulich.yorku.ca
International Student Support Specialist	Sophie Yang	yangjy@schulich.yorku.ca

Julian Scott Yeomans

Program Director
BAdmin & BSc (Regina); MASC
(Toronto); PhD (McMaster)
Professor of Operations
Management and Information
Systems
syeomans@yorku.ca

Denise Dunbar

Program Coordinator
MBAN, MMAI & MSCM
MB 230
416-736-2100 ext.44681
denise1@schulich.yorku.ca

Fern Best

Lyndsay Vair
Student Success Coordinator
Student & Enrolment Services
studentservices@schulich.yorku.ca

Enrolment

Registration and Enrolment

- The course enrolment process at York is completed by students online
- The process of making enrolment changes at York is also automated (e.g. changing course sections, substituting one course for another by dropping one and adding another, or dropping a course)
- Students without immediate access to a computer may use on-campus terminals, including the library, computer lab, or the computers in the Schulich Student & Enrolment Services Office, W263
- Students normally enrol for Summer term courses in March and for Fall and Winter courses in June
- Enrolment is on a first-come, first-served basis
- Students cannot add or drop courses after the deadline (see page 4 for details)

Enrolment Blocks

All students having an outstanding balance of \$1,000.00 or more will be blocked from enrolling in the Summer, Fall and/or Winter terms.

Enrolment Access Notification

A student's Enrolment Access Period begins on the date and time posted online at currentstudents.yorku.ca. Enrolment access start dates are posted on the Registrar's Office website (registrar.yorku.ca) by selecting "Find out when I can enrol." Enrolment access times are determined according to the number of completed credits a student obtains. Schulich access periods begin on different days. Students with the highest number of credits completed begin first. Once the enrolment access has begun, it continues until the final date to enrol in courses for that term.

We recommend that students enrol as early as possible once their access period begins. We also encourage students to verify their enrolment periodically online.

Course Offerings And Withdrawals

The Master of Management in Artificial Intelligence is a one year, full-time program with a specialized set of courses. Students are not permitted to take additional courses within the MMAI program at Schulich or out of Faculty, except by permission from the program director.

Course Withdrawals

- Dropping one or more courses will prevent a full-time student from completing the MMAI degree program within the prescribed program length and will result in withdrawal from the program
- See your academic advisor ahead of time to discuss the implications of dropping a course
- This program is offered on a full-time basis only

Course Cancellations

If a course is cancelled, Student & Enrolment Services immediately informs those enrolled via their Schulich e-mail.

Revised Course Offerings

Revisions to course offerings are also posted on the [Schulich Course Offerings database](#).

Revisions can include:

- cancelled courses
- new courses
- schedule changes (day/time)
- room changes
- new instructors

Additional enrolment information can be found in the Graduate Academic Policy Handbook: schulich.yorku.ca/handbooks.

Enrolment updates are also communicated to students via their academic advisors and e-mail updates from the Director, Student & Enrolment Services.

Master of Management in Artificial Intelligence (MMAI)

Artificial Intelligence (AI) is undergoing a landmark evolution, transforming the private and public sectors. As organizations adopt and invest in AI technology, a new style of management is needed – one that pairs a leader’s vision with a scientist’s mastery over a growing body of specialized knowledge.

The 12-month full-time Master of Management in Artificial Intelligence (MMAI)* is designed to meet the growing need for talented professionals with the skills and advanced applied knowledge to develop, evaluate, refine and implement AI-related applications and technologies. The capstone Artificial Intelligence Consulting Project (AICP) provides students with an opportunity to solve a significant business problem by designing an AI-centered approach. Working in the Deloitte Cognitive Analytics and Visualization Lab student teams will deliver a solution to a client organization, interacting with industry managers, technicians, suppliers and other stakeholders.



PROGRAM LENGTH

- 12 months, 45.00 credits

GRADUATION REQUIREMENTS

To graduate, a student must achieve an overall GPA of at least 4.40 (B-). Students must complete the following to be eligible to graduate from the program(s):

- 45.00 credits of Required Core Courses

ORIENTATION

- Attendance is mandatory for MMAI orientation in September.

Academic Advisor

Fern Best
Student Success Coordinator
studentservices@schulich.yorku.ca



Lyndsay Vair
Student Success Coordinator
studentservices@schulich.yorku.ca

Career Opportunities

Graduates will possess a competitive combination of management skills, technical expertise and the ethical sensibilities required to execute solutions to business challenges.

Career support is embedded throughout the MMAI program journey, with structured training in Apache Hadoop, Structured Query Language (SQL), Tableau Data Visualization and Microsoft Azure.

Please contact Ricardo Luhm, MMAI Corporate Leads & Projects, with any career related questions:

MMAI Corporate Lead & Projects
Ricardo Luhm
career@schulich.yorku.ca



FIND PROGRAM DETAILS ONLINE!
schulich.yorku.ca/programs/mmai

Promotion Standards

1. Students enrolled in the Master of Management in Artificial Intelligence (MMAI) program will be reviewed as follows to determine whether or not they have met promotion requirements below:

- initial review upon completion of Term 2
- subsequent review at the end of each following term

2. To maintain their standing in the program, all students must maintain a GPA of at least 4.20 and not receive a grade of F in more than 3.00 credits of course work.

3. Students who do not meet these requirements will be withdrawn.

4. Students who fail a required course must retake it. Students who fail an elective course may retake it, or may elect to take another course. Students who re-take a failed course and receive a second failing grade will be withdrawn.

5. A student who has been withdrawn from the program is advised to seek the help of their Academic Advisor to discuss the best way forward. The student may petition to the Student Affairs Committee to be allowed to continue in the program without having met the promotion requirements.

STUDENTS STARTING THE MMAI PROGRAM IN FALL 2022

Master of Management in Artificial Intelligence (MMAI)		
Term 1 (Fall) 15.00 credits	Term 2 (Winter) 15.00 credits	Term 3 (Summer) 15.00 credits
MMAI 5000 3.00 Artificial Intelligence Fundamentals	MMAI 5040 3.00 Business Applications of Artificial Intelligence I	MMAI 5090 3.00 Business Applications of Artificial Intelligence II
MMAI 5100 3.00 Database Fundamentals	MBAN 5140 3.00 Visual Analytics & Modelling	MMAI 5400 3.00 Natural Language Processing
MMAI 5200 3.00 Algorithms for Business Analysis	MGMT 6700 3.00 Project Management	MMAI 5500 3.00 Applications of Neural Networks & Deep Learning In Business
MGMT 6300 3.00 Case Analysis & Presentation Skills	ORGS 6350 3.00 Managing Change	ORGS 6500 3.00 Interpersonal Managerial Skills
GS/PHIL 5340 3.00 Ethics & Societal Implications of Artificial Intelligence	MMAI 6050 6.00 AI Consulting Project	

Note: Courses and sequencing subject to change.

STUDENTS STARTING THE MMAI PROGRAM IN SUMMER 2023

Master of Management in Artificial Intelligence (MMAI)		
Term 1 (Summer) 15.00 credits	Term 2 (Fall) 15.00 credits	Term 3 (Winter) 15.00 credits
MMAI 5000 3.00 Artificial Intelligence Fundamentals	MMAI 5040 3.00 Business Applications of Artificial Intelligence I	MMAI 5090 3.00 Business Applications of Artificial Intelligence II
MMAI 5100 3.00 Database Fundamentals	MMAI 5400 3.00 Natural Language Processing	MMAI 5140 3.00 Visual Analytics & Modelling
MBAN 6110 3.00 Data Science I	MMAI 5500 3.00 Applications of Neural Networks & Deep Learning in Business	MMAI 5200 3.00 Algorithms for Business Analysis
MGMT 6300 3.00 Case Analysis & Presentation Skills	MBAN 5110 3.00 Predictive Modelling	GS/PHIL 5340 3.00 Ethics & Societal Implications of Artificial Intelligence
OMIS 6750 3.00 Project Management	MMAI 6050 6.00 AI Consulting Project	

Note: Courses and sequencing subject to change.

Academic Requirements:

REQUIRED COURSES (45.00 credits)

MBAN 5110 3.00	Predictive Modelling
MBAN 6110 3.00	Data Science
MMAI 5000 3.00	Artificial Intelligence Fundamentals
MMAI 5040 3.00	Business Applications of Artificial Intelligence I
MMAI 5090 3.00	Business Applications of Artificial Intelligence II
MMAI 5100 3.00	Database Fundamentals
MMAI 5140 3.00	Visual Analytics & Modelling
MMAI 5200 3.00	Algorithms for Business Analysis
MMAI 5400 3.00	Natural Language Processing
MMAI 5500 3.00	Applications of Neural Networks & Deep Learning In Business
MMAI 6050 6.00	AI Consulting Project
MGMT 6300 3.00	Case Analysis & Presentation Skills
OMIS 6750 3.00	Project Management
GS/PHIL 5340 3.00	Ethics & Societal Implications of Artificial Intelligence

Co-curricular Experience:

REQUIRED WORKSHOPS

Analytics and Professional Development workshops augment academic learning, promote professional development, and are facilitated by industry experts. Participation is expected.

Workshops will be offered over the course of the academic year, and may require single day or multiple day scheduling. Though workshops will not be offered each week, the expectation is that students will be available and attend workshops as they are scheduled. Additionally, some workshops may extend to the weekend.

Students will be informed of upcoming workshops by the MBAN/MMAI Program Office.

PROFESSIONAL DEVELOPMENT SERIES

MMAI students have access to a variety of specialized services and resources that will support them in their success.

MMAI career related activities include:

- networking events
- information sessions
- interviews
- workshops
- résumé book

MMAI Faculty

Program Director

Julian Scott Yeomans
MAsc (Toronto); BAdmin
& BSc (Regina); PhD
(MacMaster)
Professor of Operations
Management and
Information Systems

Murat Kristal

BSc (METS, Turkey); MBA
(Bilkent, Turkey); PhD (North
Carolina)
Associate Professor of
Operations Management
and Information Systems;
Director, Centre of Excellence
in Analytics & AI Leadership,
Schulich Executive Education
Centre; Special Advisor, AI &
Business Analytics

Markus Biehl

MS (Kaiserslautern,
Germany); MS & PhD
(Georgia Institute of
Technology)
Professor of Operations
Management and
Information Systems

Adam Diamant

BSc (Toronto); MSc (Boston);
PhD (Toronto)
Associate Professor of
Operations Management and
Information Systems

David Elsner

Associate Director, MBAN
Program
Adjunct Professor, Master
of Management in Artificial
Intelligence (MMAI) Program
and Master of Business
Analytics (MBAN) Program;
President, DHE Consulting;
Managing Partner, illuminaite

Richard H. Irving

Professor Emeritus of
Operations Management and
Information Systems

Henry M. Kim

BASc (Toronto); MEng
(Michigan); PhD (Toronto)
Associate Professor of
Operations Management and
Information Systems

Moren Levesque

BSc & MSc (Laval); PhD
(British Columbia)
Professor of Operations
Management and
Information Systems;
Certified General
Accountants of Ontario Chair
in International
Entrepreneurship; Co-director
of Entrepreneurial Studies

Zhepeng (Lionel) Li

B.Sc. (University of
Technology, Hefei, China);
M.S. (University of Science
and Technology, Hefei,
China); Ph.D. (University of
Utah)
Assistant Professor of
Operations Management and
Information Systems

Wade D. Cook

MSc (Queens); BSc (Mt.
Allison); PhD (Dalhousie)
Professor of Operations
Management and
Information Systems; Gordon
Charlton Shaw Professor of
Management Science

Hemant Sangwan

Lecturer, Master of Business
Analytics and Master of
Management in Artificial
Intelligence

Hjalmar Turesson

Associate Director, MMAI
Program
Deloitte Data Scientist;
Lecturer, Master of Business
Analytics and Master of
Management in Artificial
Intelligence



MMAI Advisory Board

Chair Julian Scott Yeomans BAdmin & BSc (Regina); MASc (Toronto); PhD (McMaster) Professor of Operations Management and Information Systems; Program Director, Master of Management in Artificial Intelligence	David Beaton Senior Partner, Custometrics, Inc. Connie Bonello Insights and Data Financial Services Leader Capgemini Angela Brown President and CEO, Moneris Solutions Corporation	Neil Freyke Senior Vice President and Chief Information Officer Manulife Financial Corporation Victor Garcia Managing Director, ABC Live Corporation Silvia Gonzalez-Zamora P&C Director, Organizational Behaviour and Data Business Transformations National Consulting Financial Services, KPMG LLP	Shohreh Mouri VP, RBC Engineering Solutions Innovation & Technology Chris Mendes Managing Director, BMO Enterprise Data Strategy Capabilities & Product Management
Pavel Abdur-Rahman Data Scientist & Associate Partner, IBM Cognitive & Robotics Solutions	Justin DeLuca Regional Vice President, Labatt Breweries of Canada	Hershel Harris CTO, Georgian Partners	
Sami Ahmed Senior Vice President & Advanced Analytics, OMERS	Nat D'Ercole Partner, Deloitte Victor Dudemaine Assistant Vice President, Enterprise Data Services, OPTrust	Peter Husar VP, Enterprise Customer Data and Analytics, TD Bank Group	
Jim Anderson VP Innovation Hub and Senior Consultant, Envionics Analytics Waleed Ayoub Chief Technology Officer, Rubikloud Technologies	Pat Finerty Vice President, Alliances and Business Development, SAS Institute (Canada) Inc	Steven Karan Senior Director, Consulting-Data & Analytics	
Ilya Bahar M.Sc & B.Sc Industrial Engineering & Management	Dana Fox Founder, Waterloo Institute for Smarter Government		

Course Descriptions

Fall 2022

REMINDER



Not all courses listed are offered every term. For full course details, visit the [Schulich Course Offerings database](#).

Term 1

MMAI 5000 3.00 Artificial Intelligence Fundamentals

This course introduces students to the field of artificial intelligence, with a focus on AI-driven business applications. It provides a historical perspective tracing the emergence of basic concepts of contemporary AI. Students learn key artificial intelligence techniques including knowledge representation and symbolic reasoning, biologically inspired approaches to AI, supervised, unsupervised and reinforcement learning, multi-agent systems and natural language processing.

MMAI 5100 3.00 Database Fundamentals

Database Management Systems are computer-based systems used by organizations to manage the vast amount of data that accompany daily operations, support data analysis, and enable intelligent decision making. This course provides an applied introduction to database management systems and their use in the business environment. The course covers the fundamentals of database analysis and design.

MMAI 5200 3.00 Algorithms for Business Analysis

The course covers main approaches to design and analysis of algorithms used in business contexts, including important algorithms and data structures, and results in complexity and computability. This course is a pre-requisite for MMAI 5300.

MGMT 6300 3.00 Case Analysis & Presentation Skills

This course is designed to give students the opportunity to practice and develop their analytical thinking and presentation skills. The key objective of the course is to train students to successfully participate in national and international case competitions. A secondary objective is to prepare students to successfully interview for management consulting positions. Second-year MBA students who enjoy analyzing cases and delivering presentations are encouraged to take the course.

Corequisite: SB/SGMT 6000 3.00

GS/PHIL 5340 3.00 Ethics & Societal Implications of Artificial Intelligence

This course is intended for students with professional interest in the social and ethical implications of AI. Topics include theoretical issues (could AI ever have moral rights?), practical issues (algorithmic bias, labour automation, data privacy), and professional issues (tech industry social responsibility).

Term 2

MMAI 5040 3.00 Business Applications Of Artificial Intelligence I

This course focuses on understanding the opportunities that artificial intelligence offers an organization to improve value creation. Students learn skills to develop, analyse and integrate artificial intelligence into business decision-making. Using case studies and hands-on in-class exercises students will be able to use machine learning to analyse text and social networks using Python and R.

MBAN 5140 3.00 Visual Analytics & Modelling

This course is an introduction to the fundamental theories of visual communication design applied in data visualization and visual analytics. Students become familiar with data-driven decision making workflows and storytelling best practices. Major areas for discussion include visual design principals, data structures, taxonomy of data visualization models and weekly technical tutorials using the Tableau software.

MGMT 6700 3.00 **Project Management**

This course covers the strategic, organizational and operational aspects of managing projects. Students learn to manage the technical, behavioural, political and cultural aspects of temporary groups performing unique tasks. Topics covered include: defining deliverables, formulating project strategy, effective group organization and management, dynamically allocating resources, managing without authority, and resolving conflict. Traditional cost and time management techniques are covered using contemporary software packages.

Prerequisite: All 5100-series Required Foundations of Management Core Courses.

ORGS 6350 3.00 **Managing Change**

As the environment of many business and nonprofit organizations becomes increasingly complex and unstable, it is imperative that top managers be able to create a climate of flexibility and adaptability in their operations. Organizations must be able to undertake major change without destructive side effects to be truly successful. This course surveys the major methods available to the modern manager for effectively managing the process of change and creating a general climate in which needed changes are sought and welcomed throughout the organization. The course emphasizes case studies and the discussion of alternative change management models.

Prerequisite: SB/ORGS 5100 3.00 or INTL 5220 for IMBA students

MMAI 6050 6.00 **AI Consulting Project**

The AI Consulting Project is an intensive, 2-term course where groups of 4 students undertake a comprehensive artificial intelligence (AI) project of an organization and provide business insights to enhance the site's success. At the conclusion of the project students present their work to a panel of at least two experts, including the course director, and to the client site.

Term 3**MMAI 5090 3.00** **Business Applications of Artificial Intelligence II**

This course bridges the theoretical foundation and the business applications of artificial intelligence technology. Through in-class lecturing and hands-on activities, students learn fundamentals of AI technology, formulate business problems in AI paradigm and Applications of AI in addressing business problems. The class covers up-to-date AI applications such as Recommendation Systems, FinTech, Social Network Analytics, Sentiment Analysis etc.

MMAI 5400 3.00 **Natural Language Processing**

This course focuses on the principles and technologies of statistical machine-learning-based natural language processing and their application in text analytics, including retrieval, extraction, recognition, and analysis of information from large textual collections. Prerequisite: MMAI 5040 3.00 Business Applications of Artificial Intelligence I and MMAI 5300 3.00 Numerical Analysis.

MMAI 5500 3.00 **Applications of Neural Networks and Deep Learning In Business**

Deep learning systems, embodied by a variety of neural network models, are used increasingly in modern business applications. Students will learn about the basics of neural network and deep learning, and their applications to a range of business issues. By the end of the course, students will have sufficient domain knowledge to address practical business problems.

ORGS 6500 3.00 **Interpersonal Managerial Skills**

Research demonstrates that people and their ability to work effectively together are critical success factors for organizations. This course focuses on specific personal and interpersonal skills for organizational (and professional) effectiveness. With an emphasis on experiential exercises, the course helps students develop skills such as communication; time, conflict and stress management; performance management; gaining influence; and self-awareness (including emotional intelligence).

Prerequisite: SB/ORGS 5100 3.0 and SB/ORGS MGMT 5150 3.00

Course Descriptions

Summer 2023

REMINDER



Not all courses listed are offered every term. For full course details, visit the [Schulich Course Offerings database](#).

Term 1

MMAI 5000 3.00 Artificial Intelligence Fundamentals

This course introduces students to the field of artificial intelligence, with a focus on AI-driven business applications. It provides a historical perspective tracing the emergence of basic concepts of contemporary AI. Students learn key artificial intelligence techniques including knowledge representation and symbolic reasoning, biologically inspired approaches to AI, supervised, unsupervised and reinforcement learning, multi-agent systems and natural language processing.

MMAI 5100 3.00 Database Fundamentals

Database Management Systems are computer-based systems used by organizations to manage the vast amount of data that accompany daily operations, support data analysis, and enable intelligent decision making. This course provides an applied introduction to database management systems and their use in the business environment. The course covers the fundamentals of database analysis and design.

MBAN 6110 3.00 Data Science I

An introduction to data science techniques designed for students who will work with data scientists or invest in related ventures. The course introduces fundamental concepts and techniques for the analysis of data-centered business problems, the creation and evaluation of solutions, the data science strategies, the basic cycle of a data-mining project, and the integration into business strategies.

MGMT 6300 3.00 Case Analysis & Presentation Skills

This course is designed to give students the opportunity to practice and develop their analytical thinking and presentation skills. The key objective of the course is to train students to successfully participate in national and international case competitions. A secondary objective is to prepare students to successfully interview for management consulting positions. Second-year MBA students who enjoy analyzing cases and delivering presentations are encouraged to take the course.

Corequisite: SB/SGMT 6000 3.00

OMIS 6750 3.00 Project Management

Previously MGMT 6700 3.00

This course covers the strategic, organizational and operational aspects of managing projects. Students learn to manage the technical, behavioral, political and cultural aspects of temporary groups performing unique tasks. Topics covered include: defining deliverables, formulating project strategy, effective group organization, and management, dynamically allocating resources, managing without authority and resolving conflict. Traditional cost and time management techniques are covered using Microsoft Office and open-source, free project management software.

Course Credit Exclusion: SB/MGMT 6700 3.00

Term 2

MMAI 5040 3.00 Business Applications Of Artificial Intelligence I

This course focuses on understanding the opportunities that artificial intelligence offers an organization to improve value creation. Students learn skills to develop, analyse and integrate artificial intelligence into business decision-making. Using case studies and hands-on in-class exercises students will be able to use machine learning to analyse text and social networks using Python and R.

MMAI 5400 3.00 Natural Language Processing

This course focuses on the principles and technologies of statistical machine-learning-based natural language processing and their application in text analytics, including retrieval, extraction, recognition, and analysis

of information from large textual collections.

Prerequisite: MMAI 5040 3.00 Business Applications of Artificial Intelligence I and MMAI 5300 3.00 Numerical Analysis.

MMAI 5500 3.00 Applications of Neural Networks and Deep Learning In Business

Deep learning systems, embodied by a variety of neural network models, are used increasingly in modern business applications. Students will learn about the basics of neural network and deep learning, and their applications to a range of business issues. By the end of the course, students will have sufficient domain knowledge to address practical business problems.

MBAN 5110 3.00 Predictive Modelling

This course provides the tools needed to build models from data sets, validate models, and make predictions. The course emphasises the SAS environment. Major areas for discussion include analysis of variance, regression, categorical data analysis, and predictive modelling. The course emphasizes both theory and practice, allowing students to use statistical theory for purposes of business case analysis.

MMAI 6050 6.00 AI Consulting Project

The AI Consulting Project is an intensive, 2-term course where groups of 4 students undertake a comprehensive artificial intelligence (AI) project of an organization and provide business insights to enhance the site's success. At the conclusion of the project students present their work to a panel of at least two experts, including the course director, and to the client site.

Term 3

MMAI 5090 3.00 Business Applications of Artificial Intelligence II

This course bridges the theoretical foundation and the business applications of artificial intelligence technology. Through in-class lecturing and hands-on activities, students learn fundamentals of AI technology, formulate business problems in AI paradigm and Applications of AI in addressing business problems. The class covers up-to-date AI applications such as Recommendation Systems, FinTech, Social Network Analytics, Sentiment Analysis etc.

MBAN 5140 3.00 Visual Analytics & Modelling

This course is an introduction to the fundamental theories of visual communication design applied in data visualization and visual analytics. Students become familiar with data-driven decision making workflows and storytelling best practices. Major areas for discussion include visual design principals, data structures, taxonomy of data visualization models and weekly technical tutorials using the Tableau software.

MMAI 5200 3.00 Algorithms for Business Analysis

The course covers main approaches to design and analysis of algorithms used in business contexts, including important algorithms and data structures, and results in complexity and computability. This course is a pre-requisite for MMAI 5300.

GS/PHIL 5340 3.00 Ethics & Societal Implications of Artificial Intelligence

This course is intended for students with professional interest in the social and ethical implications of AI. Topics include theoretical issues (could AI ever have moral rights?), practical issues (algorithmic bias, labour automation, data privacy), and professional issues (tech industry social responsibility).

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2023-24

CONNECT:

Student Services &
International Relations

studentservices@schulich.yorku.ca
SSB W263 | 416-736-5303

Last Updated: May 5, 2023

