



Odette School of Business  
University of Windsor

# Master of Management



## BSMM-8740 Data Analytic Methods & Algorithms Master of Management Fall 2024

<b>Class Meetings:</b>	Section 2: Wednesdays, 11:30am – 2:20pm   Odette Building 507		
<b>Instructor:</b>	Dr. Lou Odette		
<b>Office Hours:</b>	Wednesdays, 2:30-3:30pm	<b>Office:</b>	TBD
<b>Telephone:</b>		<b>Email:</b>	lodette@uwindsor.ca
<b>Course Website:</b>	<a href="https://brightspace.uwindsor.ca">https://brightspace.uwindsor.ca</a>		
<b>Course Format:</b>	In-person teaching		
<b>Textbook:</b>	The Elements of Statistical Learning - Data Mining, Inference, and Prediction. Second Edition by Trevor Hastie, Robert Tibshirani, and Jerome Friedman. Available for free at <a href="https://web.stanford.edu/~hastie/ElemStatLearn/">https://web.stanford.edu/~hastie/ElemStatLearn/</a>		
<b>Academic Director:</b>	Dr. Brent Furneaux	<b>Email:</b>	<a href="mailto:brent.furneaux@uwindsor.ca">brent.furneaux@uwindsor.ca</a>
<b>Program Administrator:</b>	Sharon Racicot	<b>Email:</b>	<a href="mailto:sracicot@uwindsor.ca">sracicot@uwindsor.ca</a>
<b>Student Experience Coordinator:</b>	Brooklyn Groves	<b>Email:</b>	<a href="mailto:brooklyn.groves@uwindsor.ca">brooklyn.groves@uwindsor.ca</a>
<b>Career Advising Coordinator:</b>	TBD	<b>Email:</b>	
<b>Graduate Secretary:</b>	Lisa Power	<b>Email:</b>	<a href="mailto:lisa.power@uwindsor.ca">lisa.power@uwindsor.ca</a>

---

***The University of Windsor sits on the traditional territory of the Three Fires Confederacy of First Nations, which includes the Ojibwa, the Odawa, and the Potawatomi. We respect the longstanding relationships with First Nations people in this place in the 100-mile Windsor-Essex peninsula and the straits – les détroits – of Detroit.***

#### 1.0 - RECORDING:

Recording or reproduction of class sessions in whole or in part in any format including audio, video, or photographic format is not permitted without prior written permission from the course instructor or presenter. In addition, course materials cannot be shared, distributed, emailed, posted online, or otherwise disseminated or communicated in any form to any other person (including fellow classmates) unless written consent has first been obtained from the instructor or presenter. Course materials include but are not limited to slides, instructor notes, assignment instructions, tests and exams, audio and video recordings of course lectures, and audio and video recordings of software demonstrations.

#### 2.0 - CALENDAR DESCRIPTION:

This course is the exploration of an analytical framework for method selection and model building to help students develop professional capability in data-based techniques of data analytics. A focus will be placed on comparing and selecting appropriate methodology to conduct advanced statistical analysis and on building predictive modeling in order to create a competitive advantage in business operations with efficient analytical methods and data modeling.

#### 3.0 - LEARNING OBJECTIVES:

The general objectives of this course are to:

- Describe the concepts and issues associated with analytical framework for method selection and model building
- Describe the assumptions, limitations, and advantages of various statistical techniques for building predictive models
- Develop an understanding of various data analytics algorithms
- Demonstrate a capacity for interpersonal interactions

#### 4.0 - MASTER OF MANAGEMENT COMPETENCIES:

Each Odette Program has Learning competencies. Together, these define the knowledge, skills, and values possessed by our graduates.

For BSMM-8740 the following competencies are taught:

Program Competencies	Course Competencies	Tested by
<b>C3 - Problem Solving</b> Apply an evidence-based decision model to evaluate and recommend the best available	<b>C3 - Problem Solving</b> Apply an evidence-based decision model to evaluate and recommend the best available	Lab Assessments

alternative to resolve an international business problem.	alternative to resolve an international business problem.	
<b>C4 - Literacy and Numeracy Skills</b> Analyze both qualitative and quantitative data and findings, distinguishing and evaluating their relevance to the resolution of international business issues.	<b>C4 - Literacy and Numeracy Skills</b> Analyze both qualitative and quantitative data and findings, distinguishing and evaluating their relevance to the resolution of international business issues.	Quizzes, Midterm Examination, and Final Examination

#### 5.0 - COURSE CONTENT:

Week	Date	Topics	Reading Assignments
1	Sep 11, 2024	The Tidyverse, EDA & Git	TBD
2	Sep 18, 2024	The Recipes Package	TBD
3	Sep 25, 2024	Regression Methods	TBD
4	Oct 02, 2024	The TidyModels Package	TBD
5	Oct 09, 2024	Classification & Clustering Methods	TBD
<b>Reading Week, October 12<sup>th</sup> – 20<sup>th</sup></b>			
6	Oct 23, 2024	Time Series Methods	TBD
7	Oct 30, 2024	Causality: DAGs	TBD
8	Nov 06, 2024	Causality: Methods	TBD
9	Nov 13, 2024	Monte Carlo Methods	TBD
10	Nov 20, 2024	Bayesian Methods	TBD
11	Nov 27, 2024	Advanced Topics	TBD
12	Dec 04, 2024	Advanced Topics	TBD

\*The above schedule is subject to change. Students will be notified of any significant changes. Additional readings may be assigned as necessary.

\*\*Note that the final day to voluntarily withdraw from this course is as specified in Senate Bylaw 55.

\*\*\*In accordance with Senate Bylaw 55 you will be provided with time to complete a Student Perception of Teaching (SPT) evaluation during one regular class session in the last 2 weeks of classes.

#### 6.0 - KEY DATES FOR EXAMS/ASSIGNMENTS:

Date	Exam/Assignment
Oct 09, 2024	Quiz 1
Nov 06, 2024	Midterm Examination
Nov 20, 2024	Quiz 2
Dec 04, 2024	Final Examination

\*Final exams will take place during the university specified final exam period. Students are advised to read Senate Policy on the Conduct of Tests and Exams.

#### 7.0 - IMPORTANT PROGRAM DATES:

A list of important program dates can be found on the Brightspace Master of Management Program

page at <https://brightspace.uwindsor.ca/d2l/le/calendar/136263>.

#### 8.0 - GRADING:

Grades will be assigned on the following basis:

Deliverable	Individual or Group	%
Quizzes		20
Lab Assessments		30
Midterm Examination		25
Final Examination		25
TOTAL		100
		100

#### 9.0 - GRADING SCALE POLICIES:

All course work is to be marked and final grades submitted using the 100% scale beginning September 1, 2013. In accordance with the Senate resolution, instructors are to submit whole numbers (e.g., 88, 76, etc.) as percentages. The following University-wide grade descriptors are in effect and will be printed on the back of transcripts:

Letter Grade	Percentage Range
A+	90-100
A	85-89.9
A-	80-84.9
B+	77-79.9
B	73-76.9
B-	70-72.9
C+	67-69.9
C	63-66.9
C-	60-62.9
F	0-59.9

#### 10.0 - EXAM/ASSIGNMENT DESCRIPTIONS:

The use of generative artificial intelligence (AI) tools is strictly prohibited in all course assessments unless explicitly indicated otherwise in guidelines provided by the instructor for an assessment. This includes the use of ChatGPT, Google Gemini, Claude, Jenni, Github Co-pilot, DaLL-E, Midjourney, and all other tools that provide artificial intelligence capabilities. When the use of generative AI is permitted this use must be acknowledged and cited following citation instructions given in the assessment guidelines. Use of generative AI outside of assessment guidelines or without required citation will constitute academic misconduct and may be subject to discipline under Bylaw 31: Academic Integrity. It is the student's responsibility to be clear concerning constraints on the use of generative AI for each assessment and to comply with these constraints.

---

## Quizzes

The quizzes can consist of true/false, multiple choice, short answer, and essay questions from all material covered before the date of the quiz. When writing quizzes, you must abide by University of Windsor policies governing plagiarism and academic integrity. Quiz submissions may be subjected to review by automated tools to verify their originality.

---

## Lab Assessments

Lab assessments will require learners to demonstrate the ability to apply methods and techniques to machine learning problems using the R language and explain the steps they followed to solve a problem. Assessments should be started in person during lab sessions. Deadlines for each lab assessment will be posted

---

## Midterm Examination

The midterm exam can consist of true/false, multiple choice, short answer, and essay questions from all material covered before the date of the mid-term exam. When writing this exam you must abide by University of Windsor policies governing plagiarism and academic integrity. Exam submissions may be subjected to review by automated tools to verify their originality.

---

## Final Examination

The final exam can consist of true/false, multiple choice, short answer, and essay questions covering all course material including material discussed during lab sessions. When writing this exam you must abide by University of Windsor policies governing plagiarism and academic integrity. Exam submissions may be subjected to review by automated tools to verify their originality.

---

### 11.0 - DIGITAL LEARNING RESOURCES:

---

Digital resources may be used in this course. They may be required resources which will be used for assessment purposes. The assessments that will rely on these resources constitute 0% of the grade for this course. These resources can be purchased from Not Applicable. The assignment of digital learning resources at the University of Windsor is governed by a policy entitled The Use of Digital Learning Resources for Instructional and Assessment Purposes, which can be reviewed at [https://www.uwindsor.ca/provost/sites/uwindsor.ca.provost/files/digital\\_learning\\_resource\\_policy\\_final\\_with\\_link\\_0.pdf](https://www.uwindsor.ca/provost/sites/uwindsor.ca.provost/files/digital_learning_resource_policy_final_with_link_0.pdf)

Should you have any concerns about the assignment of digital learning resources for this course, please let the Master of Management Program Director know in writing, as the University regularly reviews this policy based on campus community feedback.

---

### 12.0 - MASTER OF MANAGEMENT COURSE POLICIES:

---

Please refer to the Master of Management Course Policies document for specific information on the following subjects. This Course Policies document is available electronically on each course website, on the Brightspace Master of Management Program page at <https://brightspace.uwindsor.ca/d2l/le/content/136263/viewContent/654482/View?ou=136263> and also in paper form outside the Master of Management Graduate Secretary's office on the 2<sup>nd</sup> floor of the Odette Building.

**Academic Integrity and Code of Conduct**  
**Missed Exams and Late Assignments**  
**Registration, Adding, and Dropping Courses**  
**Odette School of Business Grade Conversion Scale**  
**Odette School of Business Grading Policy**

<b>13.0 - MASTER OF MANAGEMENT PROGRAM ETIQUETTE:</b>
---

The Master of Management program is a culturally inclusive program where it is expected that students, faculty, and staff will recognize, appreciate, and benefit from diversity so as to enhance the learning experience. Promoting a culturally inclusive learning environment encourages individuals to collaborate and develop intercultural respect. The following outlines the protocol for Master of Management students while they are at the University of Windsor:

- All students will communicate in English at all times. It is important for students to continually improve language skills and be inclusive of others from different backgrounds.
- Students will demonstrate respectful behavior toward their peers and professors, regardless of culture, language, values, beliefs, or ideas.

<b>14.0 - SECONDARY DATA USE, EVALUATION, FOCUS GROUPS AND INTERVIEWS:</b>
--

This course will be evaluated as part of internal or external quality assurance processes and reporting requirements to funding agencies and as research data for scholarly use. As a student in this course your online student data will be used for evaluating the course delivery and your engagement in the various aspects of the course. This will only occur after final grades have been submitted and approved so it will have no effect on your grade. This course data provides information about your individual course usage and activity during the time that you are enrolled in the course. Your anonymized, aggregated data may also be used in the future in reports, articles or presentations.

During the final week of the course you may also be invited to participate in further research about the course. If you decide to participate you may be asked to fill out anonymous online questionnaires that solicit your impressions about the course design and student learning in the course. The survey participation is voluntary and no questions of a personal nature will be asked. Your participation will have no effect on your grade and your instructor will not know who participated in the surveys.

Finally, at the end of the survey you may also be asked if you want to participate in a focus group or interviews after final grades have been assigned to gather yours and other student opinions about specific course delivery methods and technologies used.

<b>15.0 - COMMITMENT TO STUDENT WELLNESS:</b>
---

**Feeling Overwhelmed?**

From time to time, students face obstacles that can affect academic performance. If you experience difficulties and need help, it is important to reach out to someone.

For help addressing mental or physical health concerns on campus, contact (519) 253-3000:

- Student Health Services at ext. 7002 (<http://www.uwindsor.ca/studenthealthservices/>)
- Student Counselling Centre at ext. 4616 or [scc@uwindsor.ca](mailto:scc@uwindsor.ca) (<http://www.uwindsor.ca/studentcounselling/>) (offering single session appointments, short-term therapy, and group therapy, Monday – Friday 8:30 am – 4:30 pm)
- Peer Support Centre at ext. 4551

### **24 Hour Support is Available**

- Good2Talk provides free, 24/7 single-session professional counselling and referral by phone to post-secondary students in Ontario. Services are provided in English and French, with translation services available in 100+ languages.
  - Call: 1-866-925-5454 (reach professional counsellors)
  - Text: GOOD2TALKON to 686868 (reach trained volunteers)
- Wellness Together Canada provides free, 24/7 professional mental health and substance use counselling by phone to anyone in Canada and Canadians abroad. Service is provided in English and French, with translation services available by request.
  - Call: 1-866-585-0445 (reach professional counsellors)
  - Text: WELLNESS to 686868 (reach trained volunteers)

A full list of on- and off-campus resources is available at <https://www.uwindsor.ca/wellness/support>.

Should you need to request alternative accommodation contact your Instructor, Program Administrator, or Director.

16.0 - APPENDICES:
--------------------