![Odette School of Business - University of Windsor]

BSMM-8740: Data Analytic Methods & Algorithms
Master of Management
Fall 2023

Class section	002
Class meetings	Mondays, 1:00 PM to 4:00 PM - Odette Building 507
Instructor	Dr. Lou Odette

Office hours	Thursdays 2:00 – 3:00 PM	**Office**	MS Teams
Telephone		**E-mail**	lodette@uwindsor.ca

Course Website	https://brightspace.uwindsor.ca
Textbook	The Elements of Statistical Learning - Data Mining, Inference, and Prediction. Second Edition by Hastie, Tibshirani, and Firedman: available for free at https://web.stanford.edu/~hastie/ElemStatLearn/

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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.

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, audio and video recordings of course lectures, and audio and video recordings of software demonstrations.

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.

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

MASTER OF MANAGEMENT COMPETENCIES:

For BSMM-8740 the following competencies are taught and tested:

Program Competencies	Course Competencies	Tested by
Problem Solving **C3** Apply an evidence-based decision model to evaluate and recommend the best available alternative to resolve an international business problem.	Apply an evidence-based decision model to evaluate and recommend the best available alternative to resolve an international business problem.	Lab Assessments
Literacy and Numeracy Skills **C4** Analyze both qualitative and quantitative data and findings, distinguishing and evaluating their relevance to the resolution of international business issues.	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

COURSE CONTENT:

Date	Topic	Reading Assignment
Sep 11	The tidyverse & git	TBD
Sep 18	EDA and feature engineering	TBD
Sep 25	The recipes package	TBD
Oct 02	Regression methods	TBD
Reading Week, October 7 -15		
Oct 16	More tidymodels packages	TBD
Oct 23	Classification & clustering methods	TBD
Oct 30	Time series methods	TBD
Nov 06	Causality: DAGs	TBD
Nov 13	Causality: Effects	TBD
Nov 20	Monte-Carlo methods	TBD
Nov 27	Bayesian methods	TBD
Nov 04	Advanced topics	TBD

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

KEY DATES FOR EXAMS/ASSIGNMENTS:

Date	Exam/Assignment
Oct 02	Quiz 1
Oct 30	Midterm exam
Nov 20	Quiz 2
Dec 04	Final exam

[*]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.

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.

GRADING:

Grades will be assigned on the following basis:

	%
Quizzes	20
Lab assessments	30
Midterm exam	25
Final exam	25
TOTAL	**100**

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

EXAM/ASSIGNMENT DESCRIPTIONS:

The quizzes 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 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 problem using R and explain the steps they followed to solve a problem. Assessments should be completed in person during lab sessions.

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.

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 an 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

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.

ODETTE SCHOOL OF BUSINESS COURSE POLICIES:

Please refer to the Odette School of Business 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 each Area Secretary's office on the 4th floor of the Odette building. (Adopted Fall 2009)

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
Student Evaluation of Teaching (SET)

MASTER OF MANAGEMENT PROGRAM ETIQUETTE:

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.

SECONDARY DATA USE, EVALUATION, FOCUS GROUPS AND INTERVIEWS:

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 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.

COMMITMENT TO STUDENT WELLNESS:

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 (http://www.uwindsor.ca/studentcounselling/)
- Peer Support Centre at ext. 4551

24 Hour Support is Available
- My Student Support Program (MySSP) is an immediate and fully confidential 24/7 mental health support that can be accessed for free through chat, online, and telephone. This service is available to all University of Windsor students and offered in over 30 languages. Call: 1-844-451-9700, visit https://keepmesafe.myissp.com/ or download the My SSP app: Apple App Store/Google Play.

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

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

APPENDICES: