

MBA 4360: Introduction to Data Mining I

<p><u>Term and Credits:</u> Spring 2021 4 Credit Hours 10a Section 2 CRN 5714 12p Section 1 CRN 2655</p>	<p><u>Time and Location:</u> Section 2: M/W 10:00-11:50am DCB 305 Section 1: M/W 12:00-1:50pm DCB 125 Wed Mar 31 - Mon Mar 3 You will be required to review some material outside of class which will be delivered through Canvas. Make sure you have a good internet connection during class time for access to Zoom and Canvas.</p>
<p><u>Instructor:</u> Name: Kellie Keeling Department: Business Information & Analytics Office Hours: by appointment schedule here: https://calendly.com/kkeeling/20min Office Location: DCB 590 or https://denver.zoom.us/j/9181157646 Email: kkeeling@du.edu Office Phone: 303-871-2296 (forwards to my cell)</p>	<p><u>Communication Conduct:</u> Feel free to refer to me as Dr. Keeling, Professor, or Kellie as you feel comfortable. Email is usually the best way to contact me. If I haven't responded in 36 hours, feel free to resend your message. I will send class level communications via Canvas announcements. I will typically initiate communication with individual students directly through your DU email or through Canvas email.</p>

COURSE DESCRIPTION:

Develop an understanding of more complex concepts of probability and statistics, and how they relate to managerial type problems and decision making. Develop experience performing and interpreting complex analysis methodologies. Obtain further familiarity with statistical software packages.

PREREQUISITES/CO-REQUISITES:

Enrollment in the Full time Denver MBA program and MBA 4160

LEARNING OUTCOMES and MODULES

1. Understand and implement the data mining process including the steps of data wrangling, exploration, analysis, evaluation, and presentation of results.
2. Identify and perform the correct data mining technique for a particular problem.

MODULE 1: Data Mining Process

MODULE 2: Data Wrangling and Exploration

MODULE 3: Dimension Reduction

MODULE 4: Evaluating Performance

MODULE 5: Prediction and Classification Methods

REQUIRED MATERIALS:

- Software:
 - **Excel with Analysis ToolPak:** Get latest version from Office365.du.edu if needed.
 - **JMP Pro 14:**
 - **Optional: Python or R**
 - **Slack:** Same as Fall (<https://statisticalle-47m5740.slack.com/>)
- Textbook choose a version: There is also a version available through the library website ProQuest Central database - we will not talk about XLMiner - but the text of all books are very similar (find here: <https://search-proquest-com.du.idm.oclc.org/central/advanced>)
 - **Data Mining for Business Analytics: Concepts, Techniques, and Applications with JMP Pro** (Galit Shmueli, Peter C. Bruce, Mia L. Stephens, Nitin R. Patel)
 - **Data Mining for Business Analytics: Concepts, Techniques and Applications in Python** (Galit Shmueli, Peter C. Bruce, Peter Gedeck, Nitin R. Patel)
 - **Data Mining for Business Analytics: Concepts, Techniques, and Applications in R** (Galit Shmueli, Peter C. Bruce, Inbal Yahav, Nitin R. Patel, Kenneth C. Lichtendahl Jr)

GRADING STRUCTURE, SCALE, AND POLICIES:

A: 93-100%; A-: 90-92.9%; B+: 87-89.9%, B: 83-86.9%; B-: 80-82.9%; etc.

Student performance will be evaluated and calculated on the items below:

Activity	Percentage
Preparation for Class	20%
Participation during Class	15%
Practice: Case Assignments	65%
Total	100%

Communication. If you are having difficulty with the course material, please reach out at your earliest convenience. If you are having an emergency situation, please let me know so we can plan accordingly. If you contact me with questions, I plan on responding within 24-36 hours. If your question may benefit others, I request that it is posted to Slack.

Slack - we will continue to use the same Slack organization from the fall.

Zoom Polling. During class I will post polls to help assess student comprehension of topics or gather informal data.

Attendance Policy. I will take "attendance" by way of the polling questions. If you need to miss class, you should watch the recording of the class to catch up with the material.

Class Preparation and Participation Policies. Being able to work with data, analyze it, and come up with business decisions is a "hands on" activity. We will be putting what you read in the textbook and watch on video to use during class time so you need to be prepared to "dig in and work" during class. That means having your equipment ready (computer and software and text and internet) and being prepared to practice the materials for the day by having read the material and watched any posted videos beforehand.

Extra Credit. The syllabus reflects a fair and accurate assessment of your skills in the class. Under no circumstances will you be given the option to complete extra credit to make up for missing assignments and/or to raise your grade.

ASSESSMENTS:

It is often helpful to discuss the work in this class with others and get advice about the approaches to solve the problems, but **DO NOT SHARE COMPUTER FILES**. If I feel you turn in work that is not your own, I will turn you in to the DU Honor Code reporting system. See policy information here:

<http://www.du.edu/studentlife/studentconduct/index.html>. If you have a question about what it means to cheat in this class, contact the instructor before you turn in questionable content. As a rule of thumb, if you did not do the analysis and writing yourself, you should not turn it in; this is considered plagiarism under the University's honor code.

LATE: Late work will be accepted with a 12% a day prorated penalty. Canvas will automatically calculate the late points.

Preparation: Reading/Video Quizzes. Before most classes there will be a multiple-choice quiz posted related to the reading/videos for that class day. The quiz is due by 10:00am.

Participation: In Class Work. There will be opportunities to work with others during class to practice what we are learning. These assignments will be due on Sundays and Tuesdays. Once you submit the work you will have access to my solutions and you should self-grade your assignment.

Participation: Weekly Reflection. Each week you will complete a short weekly reflection discussing your self-grading of your in class work and prioritizing what content you need to revisit.

Practice: Case Assignments. Instructions for each case assignment will differ and will be posted on Canvas.

UNIVERSITY EXPECTATIONS, POLICIES, AND RESOURCES:

Students with Disabilities. A student who qualifies for academic accommodations because of a disability must submit a Faculty Letter to the instructor from the DU Disability Services Program (DSP) in a timely manner, so that the needs of the student can be addressed. Accommodations will not be provided retroactively, e.g., following an exam or after the due date of a project. DSP determines eligibility for accommodations based on documented disabilities. DSP is located in Ruffatto Hall, 1999 E. Evans Ave. (303-871-2278).

Inclusive Learning Environments.

- In this class, we will work together to develop a learning community that is inclusive and respectful. Our diversity may be reflected by differences in race, culture, age, religion, sexual orientation, socioeconomic background, and myriad other social identities and life experiences.
- The goal of inclusiveness, in a diverse community, encourages and appreciates expressions of different ideas, opinions, and beliefs, so that conversations and interactions that could potentially be divisive turn instead into opportunities for intellectual and personal enrichment.

- A dedication to inclusiveness requires respecting what others say, their right to say it, and the thoughtful consideration of others' communication.
- Both speaking up and listening are valuable tools for furthering thoughtful, enlightening dialogue. Respecting one another's individual differences is critical in transforming a collection of diverse individuals into an inclusive, collaborative and excellent learning community.
- Our core commitment shapes our core expectation for behavior inside and outside of the classroom. Office of Diversity, Equity, and Inclusion website (<https://www.du.edu/diversity-inclusion/index.html>).

University Expectations. Please review the University Expectations on the Daniels College of Business syllabus webpage (<http://daniels.du.edu/university-expectations/>)

- University of Denver Honor Code
- Policy Concerning Official Communication
- Students with Disabilities
- Policy Concerning Religious Accommodations
- Policy Concerning Emergency Procedures
- Policy Concerning Conflicts of Interest, Including Gifts from Students

CLASS SCHEDULE

Week	Dates	Topics	Readings Before Class
1	Mar 31	Data Mining Process	DM4BA Ch 1-2
2	Apr 5 & 7	Data Wrangling and Exploration Dimension Reduction: Principal Components Analysis	DM4BA Ch 3 DM4BA Ch 4
3	Apr 12 & 14	ClusterAnalysis Evaluating Performance	DM4BA Ch 14 DM4BA Ch 5
4	Apr 19 & 21	Prediction and Classification Methods: Multiple Linear Regression Prediction and Classification Methods: Classification and Regression Trees	DM4BA Ch 6 DM4BA Ch 9
5	Apr 26 & 28	Logistic Regression Comparing Models	DM4BA Ch 10
6	May 3	Using scripting languages for analysis: R and Python OR Prediction and Classification Methods: kNN	DM4BA Ch 7