University of Montana

ScholarWorks at University of Montana

University of Montana Course Syllabi, 2021-2025

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BMKT 482.01: Telling Stories with Data

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BMKT 482/MBA 694, Fall 2022
Telling Stories with Data

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Class Meeting: Tuesday 2-3:50, Gallagher Business Building 205, Zoom Link
Office Hours: Monday 2-3 and Wednesday 10:30-11:30 at the same link or by appointment.

Welcome

Welcome to Telling Stories. In this class you'll improve your abilities to communicate data-driven results across a variety of media. We'll focus on three main ways of communicating:

- Dashboards: Dashboards are a great way to expose a non-technical audience to complicated data sets and statistical results. In this class we'll learn about dashboard design and creation and get practice building and refining dashboards.
- Presentations: Slide presentations are the main way data driven results are communicated in industry. We'll learn about slide design and narrative structure. We'll also practice presenting results involving data.
- Written Reports: Writing about data presents unique challenges. In this section we'll improve our ability to be clear, direct, and organized in our writing about data projects.

This syllabus is long. I'd encourage you to read this whole document. Here's what's in it:

- **Meeting and Communication** How we'll work together this semester.
- **What's in this Course?** What I'd like you to get out of this course.
- **Grading** This one is super important since we're using contract grading, a system you may not have seen before.
- **The Work** This section describes all the work that you could possibly do in this course. You'll need to read this carefully before deciding on the work you'll contract for.
- **Materials** The required book for the course.
- **Code of Contact** My expectations for you regarding things like behavior and collaboration.

Meeting and Communication

Some key things to know about how we'll meet and how we'll communicate with each other:
- **Weekly Meeting:** our class will meet weekly in Gallagher Business Building 205 (COVID restrictions permitting) on Mondays from 2-3:50. You are welcome to attend class on Zoom synchronously at this link: https://umontana.zoom.us/my/chandler.
- **Weekly To-Dos:** Each week I'll post a short list telling you what's going on this coming week, what you should be thinking about, any deadlines, etc.
- **Office Hours:** Once office hours have been determined, we'll have them at the time indicated. Office hours will be via Zoom unless you have a special need to meet in person. (For instance, if you can't get to a good location for a Zoom call but are on campus.) I'm happy to schedule meetings as well.
- **Moodle:** All file sharing will take place via Moodle.

- **Teams:** We will use Teams for collaboration. You should be added to the UMT Analytics team; please join the Telling Stories with Data channel. This is a good way to ask me and your classmates questions and the MSBA students will be using this across many classes.
- **Email:** I'll also use email occasionally to make announcements when I need to make sure they reach the whole class. Reach me on email via john.chandler@business.umt.edu.
- **Text:** Having an emergency? Text me at 406-544-8720 any time you want. If I'm asleep I'll have notifications off. If you just call me without texting first, I'm unlikely to answer. Who answers unknown numbers these days?

What's in this Course?

If you take this course, I hope you get better at explaining technical things to a nontechnical audience. Communicating results about data isn't magic but doing so effectively requires practice. There are techniques we'll take advantage of to make the job easier. We work with raw data, but there is no coding requirement, so Excel will be our common tool (though you are free to use other tools you know).

When you boil it down, there are only a handful of things I want you to get better at.

- Critical thinking about how you explain complicated ideas.
- Your rhetorical skills of persuading people with data-based evidence.
- The quality and clarity of your communication across a few methods (slides, documents, dashboards).
- Making and reading data visualizations.
- Critical thinking and feedback of other's work.

Officially speaking, the "course objectives" are the following:

1. You will learn how to refine questions so they can be answered with data.
2. You will practice and refine their ability to leverage data to answer questions.
3. You will learn how to craft an answer to a data-based question that is appropriate to the question, the audience, and the medium.
4. You will refine their ability to communicate technical results to a non-technical audience.
5. You will learn real-world applications of data to business problems and deliver results to stakeholders.

Grading in the Course

This course uses a type of grading you may not be familiar with, called "contract grading". If you haven't used it before, it may take some getting used to. **This course does not use points or letter grades**, other than the final grade you decide on (or "contract for") at the beginning and receive at the end. Instead of grades, you'll receive feedback on your work and guidance on bringing it up to the standards of the course. Once your finished product is at that level, the work will be considered completed and you can move on. Another uncommon aspect of this course: you're going to pick your own deadlines (within boundaries). I've explained a bit about *why* I like contract grading in a video posted to Moodle.

The following list details the requirements for each grade. Each item is described more fully further down. In the first week of the course, you'll choose your workload, your deadlines, and your desired grade.

Passing
To pass the class, I expect the following from you:
- Honoring deadlines you're contracted for.
- Completing any reading for the week before Monday of that week.
- When you are reviewing someone else's work, having that review done within three business days.
- Communicating in a timely fashion with me if you are experiencing any issues with the course.
- Communicating in a timely fashion with your fellow students when you need to coordinate with them.
- Treating everyone involved in the class with respect.
- Completion of all exercises assigned in class. If you are consuming the course asynchronously, make sure you learn of these exercises as close to the class period as possible.
- Completing all the content module quizzes in the course. These are described below.

Grade: C
The C level is the path of least resistance. If you complete this level, you'll be exposed to the key ideas of the course, but you'll only do the minimum amount of work. You should choose this option if this semester is shaping up to be a difficult one for you and you don't need a grade higher than a C[1].
- Everything from "Passing".
- eLearnExcel Certifications: Top Tips and Excel Foundations
- *Effective Data Storytelling*
- *How Charts Lie*, Read Chapter 1.
- Feedback for *one* fellow student (to be assigned during the semester) for assignments on dashboards, slides, and reports.
- Completion of the "Slides" assignment.

Grade: B
This is the standard level in the class. This grade represents a balance between workload and comprehensiveness. If you complete this level, you'll gain deeper experience with the key ideas of the course.
- Everything from "Passing" and C.
- eLearnExcel Certifications: Top Tips, Excel Foundations, and Excel Formulas & Foundations.
- *Effective Data Storytelling*
- *How Charts Lie*, full book.
- Feedback for *two* fellow students (to be assigned during the semester) for assignments on dashboards, slides, and reports.
- Completion of the "Slides" assignment.

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[1] Note: to remain a student in good standing in the CoB graduate programs you need a minimum GPA of 3.0 (B average).

- Recording a slide presentation.
- Completion of the "Report" assignment.

Grade: A

This grade represents a more substantial investment in the materials of the class. This level represents the everything I typically assign in a 15-week semester with more traditional grading. The difference, this semester, is you don't get any assignments off: everything needs to be done to a high standard.

- Everything from "Passing", C, and B.
- [eLearnExcel](#) Certifications: Top Tips, Excel Foundations, Excel Formulas & Foundations, and Dashboards.
- Feedback for *three* fellow students (to be assigned during the semester) for assignments on dashboards, slides, and reports.
- *Effective Data Storytelling*
- *How Charts Lie*
- Completion of the "Slides" assignment.
- Recording a slide presentation.
- Completion of the "Report" assignment.
- Completion of the "Dashboard" assignment.

Graduate Student Increment

This course includes both graduate and undergraduate students. Per University policy, the workload for graduate students must be more extensive than for undergraduates. Regardless of the grade you are contracted for, if you are taking the course for graduate credit, you are required to do the following three pieces of work:

- Read the book *Invisible Women: Data Bias in a World Designed for Men*
- Participate in a book club meeting for graduate students
- Deliver a presentation in the last two weeks of the course inspired by your reading

This material is summarized in the below grid:

Item	Grade A	B	C
Excel Certification			
Top Tips	1	1	1
Excel Foundations	1	1	1
Excel Formulas and Functions	1	1	0
Excel Dashboards	1	0	0
Content Quizzes			
Data Visualization	1	1	1
Dashboards	1	1	1
Effective Data Storytelling	1	1	1
Presentations & Reports	1	1	1
Dashboard			
Build Dashboard	1	0	0
Feedback on others' dashboards	3	2	1
Slides			
Build Slides	1	1	1
Recorded Slide Presentation	1	1	0
Feedback on others' slides	3	2	1
Written Report			
Write Report	1	1	0
Feedback on others' reports	3	2	1
Books			
Effective Data Storytelling	Whole Book	Whole Book	Whole Book
How Charts Lie	Whole Book	Whole Book	Chapter 1
Graduate Student Increment			
Invisible Women	All Grad Students		
Invisible Women Topic Presentation	All Grad Students		

The Work

There's a lot of work listed in the previous section, here's a brief description of each of those pieces of work:

eLearnExcel Certifications

I'm asking everyone to complete some certifications at eLearnExcel. The difference in grades is based on the number and difficulty of certifications I require from you. Being good at Excel is a tremendous benefit to any career working with data.

Content Module Quizzes

There are four quizzes in the Moodle section "Content Quizzes" and they cover key concepts in the course:
- The book *Effective Data Storytelling (EDS)*
- Data Visualization
- Dashboards
- Slides & Reports

The quiz on *EDS* is simply based on the book. The other quizzes cover the material in the content modules on Moodle. Those modules cover all the material that is "fair game" for the quiz, including all reading, videos, and lectures. That content is reproduced in the weekly sections so that you can use those to pace yourself.

The quizzes are of variable length, and you are allowed unlimited attempts. If you are contracted for an A, you must pass the quiz with a score of 90% or higher. If you are contracted for a B, you must pass with 80% or higher. Students going for a C must pass with a score of 70% or higher. The contract notebook includes the date by which you must pass the content module quiz.

Dashboard Assignment

In this assignment, you'll be building a COVID-related dashboard, probably in Excel[2]. You'll incorporate key ideas of data visualization and tables. This assignment is only required for students contracting for an A.

Slides Assignment

This assignment asks you to build a series of slides around some data-driven business insights. The slides will need to have a discernable organizational structure, be well designed, and be comprehensive. This assignment is for students contracting for any grade.

Recording of Slides

Making slides is one thing, presenting them is something else. Students completing this assignment will record a short video of their presentation and receive feedback on that. This assignment is for students contracting for an A or B.

Report Assignment

In this assignment we'll build a written report giving an overview of voting behavior expected in the 2020 election. You'll also build a (potentially simple) model for predicting voter turnout in Missoula County, so your report will also explain the rationale behind your model. This assignment is for students contracting for an A or B.

Feedback on others' work

For every one of these assignments, you will provide substantive feedback to peers. The difference between the grades is how many peer assessments you'll need to do for each assignment. I will assign you work to review.

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[2] If you'd prefer to use Python or R to build your dashboard, let me know.

Reading

This course has two required books for all students and an additional required book for graduate students.

1. *Effective Data Stories*: This book will form a critical part of the structure of our course. Regardless of grade sought, everyone will be required to read it and pass the quiz on it by the end of the sixth week of the course.
2. *How Charts Lie*: Again, a critical book for the ideas we'll discuss. All students are asked to read Chapter 1 by week four of the course. Students going for an A or a B are asked to finish this book by the seventh week.
3. *Invisible Women*: This book is required reading for graduate students, and you are asked to finish by week 6 of the course.

Graduate Student Book Club

Graduate students are asked to discuss *Invisible Women* at book club meeting (or two separate meetings if a single meeting is impossible). Before the meeting students will be asked to submit two discussion questions for the group to consider.

Graduate Student Presentations

In the final two weeks of the semester, graduate students will give a presentation on a topic discussed or inspired by *Invisible Women*. You are free to work alone or in teams of two. The standard work product is a short presentation that you deliver to the class, but dashboards or reports are possible as well. If you'd like to do something other than a presentation, let me know.

There are many places where society fails to gather data equitably or the data that is gathered is not well known. Around your book club meeting you should have decided on a topic, which uses data and which is related to ideas in *Invisible Women*, to investigate in your project. For instance, you may be able to find data on pedestrian injuries in Missoula by time of year and relate that to things like tourism and snowfall.

In week 10 I have created an assignment for you to submit your project topic and partner if you're working with someone else. (Only one partner need submit your topic if you are working in a pair.) The final draft of your presentation is due by the first class after Thanksgiving.

Materials

1. *Effective Data Storytelling*, Brent Dykes, Wiley, 2019.
2. *How Charts Lie*, Alberto Cairo, W.W. Norton & Company, 2019.
3. *Invisible Women,* Caroline Criado Perez, Harry N. Abrams, 2019.

Code of Conduct

I ask that everyone abide by the University requirements regarding COVID. As of August 30, those requirements include a mask mandate in classrooms and labs.

We are dedicated to providing a welcoming and supportive environment for all people, regardless of background or identity. We recognize that some groups in our community, however, are subject to historical and ongoing discrimination, and may be vulnerable or disadvantaged. Membership in such a

specific group can be on the basis of characteristics such as such as gender, sexual orientation, disability, physical appearance, body size, race, nationality, sex, color, ethnic or social origin, pregnancy, citizenship, familial status, veteran status, genetic information, religion or belief, political or any other opinion, membership of a national minority, property, birth, age, or choice of text editor. We do not tolerate harassment of participants on the basis of these categories, or for any other reason.

Harassment is any form of behavior intended to exclude, intimidate, or cause discomfort. Because we are a diverse community, we may have different ways of communicating and of understanding the intent behind actions. Therefore, we have chosen to prohibit certain norms of behavior in our community, regardless of intent. Prohibited harassing behavior includes but is not limited to:

- written or verbal comments which have the effect of excluding people on the basis of membership of a specific group listed above;
- causing someone to fear for their safety, such as through stalking, following, or intimidation;
- the display of sexual or violent images;
- unwelcome sexual attention;
- non-consensual or unwelcome physical contact;
- sustained disruption of talks, events or communications;
- incitement to violence, suicide, or self-harm;
- continuing to initiate interaction (including photography or recording) with someone after being asked to stop; and
- publication of private communication without consent.

Behavior not explicitly mentioned above may still constitute harassment. The list above should not be taken as exhaustive but rather as a guide to make it easier to enrich all of us and the communities in which we participate. All interactions should be professional regardless of location: harassment is prohibited whether it occurs on or offline, and the same standards apply to both.

Enforcement of the Code of Conduct will be respectful and not include any harassing behaviors. Thank you for helping make this a welcoming, friendly community for all.

This code of conduct is a modified version of that used by PyCon, which in turn is forked from a template written by the Ada Initiative and hosted on the Geek Feminism Wiki. This specific code of conduct can be found here: Greg Wilson (ed.): How to Teach Programming (And Other Things). Second edition, Lulu.com, 2017, 978-1-365-98428-0, http://thirdbit.com/teaching.

Names and Pronouns

Many people might go by a name in daily life that is different from their legal name. In this classroom, we seek to refer to people by the names that they go by. Pronouns can be a way to affirm someone's gender identity, but they can also be unrelated to a person's identity. They are simply a public way in which people are referred to in place of their name (e.g. "he" or "she" or "they" or "ze" or something else). In this classroom, you are invited (if you want to) to share what pronouns you go by, and we seek to refer to people using the pronouns that they share. The pronouns someone indicates are not necessarily indicative of their gender identity. This statement was found at trans.umd.edu and you can visit that site to learn more.

The "fine print"

Academic Integrity: Academic misconduct is any activity that may compromise the academic integrity of the University of Montana. Academic misconduct includes, but is not limited to, deceptive acts such as cheating and plagiarism. Please note that it is a form of academic misconduct to submit work that was previously used in another course.

"Plagiarism is the representing of another's work as one's own. It is a particularly intolerable offense in the academic community and is strictly forbidden. Students who plagiarize may fail the course and be remanded to the Academic Court for possible suspension or expulsion."

"Students must always be very careful to acknowledge any kind of borrowing that is included in their work. This means not only borrowed words *but also ideas.* Acknowledgement of whatever is not one's own original work is the proper and honest use of sources. Failure to acknowledge whatever is not one's own work is plagiarism." So, ALWAYS err on the side of caution by citing the resources used in preparing your work. Moreover, always use direct quotations for exact wording taken from another source.

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at http://life.umt.edu/vpsa/student_conduct.php. It is the student's responsibility to be familiar the Student Conduct Code. The irony of me copying this section of my syllabus, verbatim, from previous syllabi is not lost on me. A healthy sense of irony and comfort with ambiguity will serve you well in my class.

Disability Accommodations: Students with disabilities will receive reasonable accommodations in this course. To request course modifications, please contact me within the first two weeks of class. I will work with you and Disability Services in the accommodation process. For more information, visit the Disability Services website at http://www.umt.edu/dss/ or call 406.243.2243 (Voice/Text).

COLLEGE OF BUSINESS MISSION STATEMENT

The University of Montana's College of Business is a collegial learning community dedicated to the teaching, exploration, and application of the knowledge and skills necessary to succeed in a competitive marketplace.

Email: According to University policy, faculty may only communicate with students regarding academic issues via official UM email accounts. Accordingly, students must use their GrizMail accounts (netid@grizmail.umt.edu or fname.lname@umontana.edu). To avoid violating the Family Educational Rights and Privacy Act, confidential information (including grades and course performance) will not be discussed via phone or email.

COLLEGE OF BUSINESS - ASSESSMENT AND ASSURANCE OF LEARNING

As part of our assessment process and assurance-of-learning standards, the College of Business has adopted seven learning goals for our undergraduate students:

- Learning Goal 1 – COB graduates will possess fundamental business knowledge.
- Learning Goal 2 – COB graduates will be able to integrate business knowledge.
- Learning Goal 3 – COB graduates will be effective communicators.
- Learning Goal 4 – COB graduates will possess problem solving skills.

- Learning Goal 5 – COB graduates will have an ethical awareness.
- Learning Goal 6 – COB graduates will be proficient users of technology.
- Learning Goal 7 – COB graduates will understand the global business environment in which they operate.

Upon successful completion of this course, a student will be able to:

- Think critically about how to explain complicated ideas.
- Communicate data-driven results in slide presentations.
- Understand how to build effective dashboards.
- Make and read data visualizations.
- Think critically about data communication from peers and the press.
- Formulate a data science question from a business question. This process includes identifying metrics and data sets used to answer the question.
- Visualize data using modern principles and effectively incorporate graphics into storytelling. Demonstrate mastery of basic data visualization techniques as well as being able to articulate the strengths and weaknesses of different graphical approaches. Students will be able to justify never using a pie chart again.
- Tell a story with data. We will practice refining this ability throughout the course.