Data Visualization for Business Analytics
General Business 720, Fall 2022

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Office Hours: Wed 10 am - 11 am, Thu 5 pm - 6 pm, Central Time USA, by appointment.

Course Website: https://canvas.wisc.edu/courses/324560
Course Designation: Graduate, 1-credit
Instructional Mode: Online only, asynchronous

TA: Jungeun Lim
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Office Hours: Tue 6:15 pm - 8:55 pm, Central Time USA, by appointment.

Office Hours
To accommodate students taking this course from different continents and time zones, the instructor and TA office hours above cover both morning and evening time slots. All office hours will be conducted online. Click to view the instructions on how to sign up for office hour appointments through Canvas Calendar. Office hours will be held online through Zoom. If there are no sign-ups for an office hour, then the office hour will be closed for that day. You are also welcome to post questions on the "Course Questions" discussion board on the course website. Posting there allows other students to benefit from your question as well. All students should feel free to post answers to their classmate's questions when they can. Students with confidential issues are welcome to email me or the TA at any time. If our regular office hours do not work for you, please let us know and we would be happy to meet with you via Zoom at another time that works. You should expect a response to your emails within 24 hours (excluding weekends and holidays).

Course Description

This course introduces students to principles of data visualization and provides hands-on experience using data visualization tools and techniques for business analytics applications. Students will develop proficiency in current visualization software tools, and leverage these tools for data exploration, insight into decision-making, and data presentation.

Credit Hours

This is a 1-credit course. The credit standard for this course is met by an expectation of a total of

45 hours, or on average **9 hours per week** for 5 weeks of student engagement with the course learning activities, which include time in lectures or class meetings, in person or online, labs, exams, presentations, tutorials, reading, writing, studying, preparation for any of these activities, and any other learning activities. See the UW-Madison Credit Hour Policy.

Regular and Substantive Student-Instructor Interaction

- Provides direct instruction through weekly video lectures and online discussions.
- Posts written announcements or weekly summaries via Canvas about aspects of the class.
- Actively facilitates online discussions by providing discussion questions, and engaging students to provide feedback on each other's responses.
- Provides grading rubrics for each individual student's assignments and discussions.
- Provides personalized feedback and help to individual students during office hours.

Learning Outcomes

- Describe key principles of effective data visualization.

- Identify appropriate data visualizations and tools for different types of variables and analyses

- Explore datasets visually to identify the information in data, recognize patterns, and generate business insights.

- Construct effective static and interactive data visualizations for presentation of analytics results, monitoring, and decision support.

Course Requisites

Graduate/Professional Standing.

Other Recommended Preparation

- General computing skills and familiarity with Excel, Word, and PowerPoint.
- Basic statistical literacy, equivalent to at least one semester of statistics.

Required Materials
- Laptop computer
- Microsoft Excel and PowerPoint
- Tableau Desktop, free one-year license for students, Use your UW email address and request your free 1-year student license for Tableau Desktop (Note: it is NOT Tableau Public) through https://www.tableau.com/academic/students; After you receive the license key (it may take 3-5 days to get it after your request), download, install and activate Tableau Desktop on your computer by the end of Module 1.

There are **no** required books or course packets for this course. All readings and other materials, including the syllabus and datasets, will be posted on our course website. The following are resources that I have found to be helpful when developing this course:

Book
- [Storytelling with Data](), by Cole Nussbaumer Knaflic, Wiley (2015)

Tableau
- https://www.tableau.com/learn
- https://www.tableau.com/support/desktop

Blogs
- [Viz of the Day]() by Tableau Software
- [Perceptual Edge]() by Stephen Few
- [VizWiz]() by Andy Kriebel
- [Junkcharts]() by Kaiser Fung

Expectations

As future business leaders, you are expected to have your conduct and level of dedication reflect that aspiration. Treat the classroom as a workplace.

- Exhibit integrity and uphold the high academic [standards of the UW-Madison]().
- Treat each other with respect. All communications should be professional and respectful.
- Be timely and cognizant of deadlines; [set notifications in Canvas]() so that you do not miss important announcements and reminders.
- Online courses require you to more actively guide your own learning. You should plan on spending approximately **9 hours per week** on the course in order to successfully achieve the desired learning outcomes.
- Contribute fully to group project and maintain open communication.
- Actively participate in class discussions and follow the [General Netiquette Suggestions]().

Your insights, questions, and participation are an essential element of learning. Be prepared and ready to learn, and I will do my part to create an engaging learning environment.

Performance Evaluation

Your course performance will be assessed based on the following breakdown:

Types of Activities	Number of Activities	Points per Activity	Total Points
Syllabus Quiz	1	5	5
Introduction Discussion	1	3	3
Module Quizzes	4	6	24
Module Discussions	4	4	16
Individual Assignment 1	1	12	12
Individual Assignment 2	1	10	10
Team Project: Part I	1	15	15
Final Team Project Video Presentation	1	15	15
Grand Total			**100**

Points earned for assignments will be posted to Canvas throughout the course. Your final letter grades will be assigned based on the following fixed scale:

Letter Grade	Minimum Total Points Earned
A (Excellent, Grade Points Per Credit=4.0)	95
AB (Intermediate Grade, Grade Points Per Credit=3.5)	90
B (Good, Grade Points Per Credit=3.0)	85
BC (Intermediate Grade, Grade Points Per Credit=2.5)	80
C (Fair, Grade Points Per Credit=2.0)	70
D (Poor, Grade Points Per Credit=1.0)	60
F (Failure, Grade Points Per Credit=0)	0

However, note that students' performances vary from one year to the next, and I retain complete discretion in making adjustments by curving the final letter grades. In such an instance, each student will receive the better grade as determined by the fixed scale defined above or the curve. **That is, the curve will never lower a student's grade from what would have been earned under the fixed scale.**

Please note that all assignments are **due online via the course website** on the specified date by the specified time as listed on the Course Schedule. We are using the Canvas course management system. Use your UW NetID and password to access the course website. If you are new to Canvas, please go through the Canvas student guide to learn how to submit assignments and post discussions. All deadlines in the course schedule are specified in Central Time, USA. **For Module 1 to Module 4**, **the system will accept late submissions for up to 24 hours after the deadline, but you will receive a 50% penalty on your grade**. After the 24-hour extension, the system will not allow you to submit, and the assignment will be graded with a 0 (zero). **No late submission is accepted for Module 5** (final team project video presentation and peer assessment). Problems with an **internet connection, time zone differences, computer issues, etc. are not acceptable excuses -- no exceptions**. It may take some time for uploading your assignments to Canvas, especially for video recording --- so please plan your schedule ahead accordingly and don't wait until the last minute.

Quizzes: The quiz for each module is designed to help you better understand the concepts discussed in that module. You are expected to take the quiz for each module after completing the video lectures and readings for that module.

Discussions: For each module, there will be module-related topics for discussion. You will be divided into smaller discussion groups for the discussions, including the introduction discussion. You are expected to post your thoughts as well as respond to your peers. So you are not overwhelmed with e-mails, we suggest you change your preferences to receive e-mails from Canvas on a daily basis instead of when information is posted. Here are the directions: https://community.canvaslms.com/docs/DOC-10624

Individual assignments: Individual assignments are designed to build your confidence as an

independent learner, apply the methods and tools to real-life data, and develop the necessary skills to contribute to the team project. They should be completed on your own and your work should be your own.

Team project: As in the workplace, teamwork is needed for success. A significant portion of the points assigned in the course will be based on teamwork. You have the opportunity to get to know each other through introduction discussions and form your own teams with 5 to 6 members per team by the end of the first week. I would encourage you to think about not only those fellow students that you know or that might have similar schedules but also think about who might have complementary skill sets. Teams will also complete a short peer assessment of individual contribution to the team project as described below.

Peer assessment of individual contribution to team project: At the end of the semester, your contribution to the project will be evaluated by your team members. You will be asked to provide me with an evaluation of each member's (including your own) overall contribution to the work. *All Evaluations are completely confidential.* Evaluations are listed as a percentage (0% to 100%). Peer assessments will be used to inform the instructor's overall assessment of your contribution to the group project. Your final grade on the team project will reflect your evaluation by the group members. The form is as follows and is available on the course website for you to download, fill out and turn in at the end of the semester. If there is no submission from you, then the system will automatically impute 100% as your assessments of all your team members (including yourself).

Group Member	Contribution (0%--no contribution to 100%-full contribution)	Justification/Explanation

Grade Appeal Policy

Your TA will be grading most of the assignments. All students will be treated equally and fairly in grading. For every assignment, you will be provided with a rubric that explains your grade. Occasionally a critical sentence is misread or key material is overlooked. When these rare situations occur, the student may appeal.

Submit the completed Grade Appeal template using Canvas Inbox within 2 days after the grade is posted. In addition, because grades should reflect the quality of the work, not debating skills nor willingness to push for higher grades, grade changes will not be discussed in person, email, or on the phone. You must submit your appeal in Canvas using the Grade Appeal template.

Grade appeals are the exception, not the rule. **Appeals are based on facts, not opinions**. Grade appeals should **not** be used when students are disappointed by their scores and hope to "scare up" some additional points. Please note that "I worked hard on the assignment" is not a valid grade appeal and will not be considered. Appeals should only be used when it is evident that the grader overlooked a key point, or an error occurred in the grade calculation. If a student submits more than two unsuccessful requests or a list of grievances without factual support, your instructor has the option of dismissing (further) requests without review or consideration.

ADDITIONAL COURSE INFORMATION AND ACADEMIC POLICIES

Privacy of Student Information & Digital Tools: Teaching & Learning Analytics & Proctoring Statement

The privacy and security of faculty, staff and students' personal information is a top priority for UW-Madison. The university carefully reviews and vets all campus-supported digital tools used to support teaching and learning, to help support success through learning analytics, and to enable proctoring capabilities. UW-Madison takes necessary steps to ensure that the providers of such tools prioritize proper handling of sensitive data in alignment with FERPA, industry standards and best practices.

Under the Family Educational Rights and Privacy Act (FERPA – which protects the privacy of student education records), student consent is not required for the university to share with school officials those student education records necessary for carrying out those university functions in which they have legitimate educational interest. 34 CFR 99.31(a)(1)(i)(B). FERPA specifically allows universities to designate vendors such as digital tool providers as school officials, and accordingly to share with them personally identifiable information from student education records if they perform appropriate services for the university and are subject to all applicable requirements governing the use, disclosure and protection of student data.

Privacy of Student Records & the Use of Audio Recorded Lectures

See information about privacy of student records and the usage of audio-recorded lectures.

Lecture materials and recordings for this course are protected intellectual property at UW-Madison. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a lecture is not already recorded, you are not authorized to record my lectures without my permission unless you are considered by the university to be a qualified student with a disability requiring accommodation. [Regent Policy Document 4-1] Students may not copy or have lecture materials and recordings outside of class, including posting on internet sites or selling to commercial entities. Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's express written permission. Unauthorized use of these copyrighted lecture materials

and recordings constitutes copyright infringement and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.

How to Succeed in This Course

Resource links to other campus services:

- [University Health Services](#)
- [Undergraduate Academic Advising and Career Services](#)
- [Office of the Registrar](#)
- [Office of Student Financial Aid](#)
- [Dean of Students Office](#)

Course Evaluations

Students will be provided with an opportunity to evaluate this course and your learning experience. Student participation is an integral component of this course, and your confidential feedback is important to me. I strongly encourage you to participate in the course evaluation.

Digital Course Evaluation (AEFIS)

UW-Madison uses a digital course evaluation survey tool called [AEFIS](#). In most instances, you will receive an official email two weeks prior to the end of the semester, notifying you that your course evaluation is available. In the email you will receive a link to log into the course evaluation with your NetID. Evaluations are anonymous. Your participation is an integral component of this course, and your feedback is important to me. I strongly encourage you to participate in the course evaluation.

Students' Rules, Rights & Responsibilities

[Rights & Responsibilities](#)

For fall 2021, instructors and students should consult the following website for current campus health and safety guidance: [covidresponse.wisc.edu](#)

Diversity & Inclusion Statement

[Diversity](#) is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked

goals. The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world.

Academic Integrity Statement

By virtue of enrollment, each student agrees to uphold the high academic standards of the University of Wisconsin-Madison; academic misconduct is behavior that negatively impacts the integrity of the institution. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these previously listed acts are examples of misconduct which may result in disciplinary action. Examples of disciplinary action include, but is not limited to, failure on the assignment/course, written reprimand, disciplinary probation, suspension, or expulsion.

Accommodations for Students with Disabilities

The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (UW-855) require the university to provide reasonable accommodations to students with disabilities to access and participate in its academic programs and educational services. Faculty and students share responsibility in the accommodation process. Students are expected to inform faculty [me] of their need for instructional accommodations during the beginning of the semester, or as soon as possible after being approved for accommodations. Faculty, will work either directly with the student or in coordination with the McBurney Center to provide reasonable instructional and course-related accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA. (See: McBurney Disability Resource Center)

Academic Calendar & Religious Observances

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