ECON 230 : Data Analysis for Business Applications
Fall 2025

Instructor Information

Name: Saharnaz Babaei-Balderlou, Ph.D.
Email: sbabaeibalderlou@uwlax.edu
Office Hours: Everyday by appointment using https://calendly.com/s_bb/office-hours
In-person Meetings: 2134 Wittich Hall
Online Meetings: Zoom on Course Page

Class Information

Dates: 9/2/2025 – 12/10/2025
Time (Section 11): Tu 5:30 - 8:15 PM
Time (Section 13): Th 5:30 - 8:15 PM
Time (Section 14): TuTh 2:15 - 3:40 PM
Time (Section 15): TuTh 3:55 - 5:20 PM
Classroom: Wing 7
Note: See the weekly schedule and details for your class section in the last page of syllabus.

Course Description

Building on the foundation in Statistics acquired in STAT 145, students will continue to develop and will apply skills in data analysis to aid in business decision making. These skills include data collection, data summarization, data visualization, statistical inference, and communication of data in business contexts. Students will learn and apply the best practices for research design and analysis to address authentic business cases. Students will build these skills in collaboration with each other and through engagement with business and community leaders. The course also discusses effective survey design and current privacy and ethical issues in collecting and using data.

Prerequisites: *ENG 110 or ENG 112; STAT 145; CBA Major, CASSH economics major, or healthcare analytics management minor*.

Course Objectives

The goal of this course is to help students develop and apply data analysis skills for solving real-world business problems. By the end of this course, students will be able to:

- Articulate business problems using qualitative and quantitative evidence and propose analysis plans to identify solutions.

- Collect, describe, summarize, and interpret data using descriptive and inferential statistics.

- Develop foundational skills with spreadsheets, interactive data visualization tools (e.g., Tableau), and scripting languages (e.g., R).

- Communicate the purpose, methodology, and results of data analysis to authentic business audiences in written and oral formats.

- Apply best practices in research design, survey construction, and statistical analysis to business case projects.

- Describe current ethical and privacy considerations in business data collection and analysis.

This course supports the College of Business learning goals, including:

- **Communication**: Effectively conveying ideas in business reports and presentations.

- **Decision Making and Critical Thinking**: Evaluating alternatives within business contexts using data analysis.

- **Social Responsibility**: Understanding the ethical and social implications of business data use.

Course Website

https://www.uwlax.edu/ > Canvas - Announcements, the course syllabus, lecture slides and notes, assignments and their solutions, exams, grades and any additional documents will be available on Canvas.

Course Requirements

Course Format

This course is delivered **100% face-to-face**. Your section will meet once or twice per week depending on your enrollment time (see page 1 of this syllabus). Class time is dedicated to hands-on learning, collaboration, and practice. Since the material and projects build on one another, **regular attendance and active participation are essential.** Canvas will be used for submitting assignments, receiving announcements, and accessing course resources.

Textbook and Readings

There is no required textbook. All course readings, tutorials, and case materials will be provided through Canvas or linked from free sources. Students are expected to stay up to date with Canvas announcements and assignments.

Software and Tools

You will be using the following tools throughout the course. All are free to UWL students:

- **Excel:** Used for data cleaning, summarization, and basic visualization.

- **Tableau:** A business intelligence platform for building interactive dashboards.

- **R and RStudio Cloud:** Web-based programming environment for statistical analysis and scripting.

- **DataCamp:** Online tutorials for learning and practicing R and Tableau. You will receive a free invitation to join the class workspace.

- **Qualtrics:** Survey design and distribution tool used for primary data collection.

- **Canvas and Office 365:** Used for all communication, collaboration, submissions, and documentation.

Slides and Notes

Slides and activity guides will be posted to Canvas weekly. Please note that in-class discussions, demonstrations, and examples may not be fully reflected in the slides, so taking notes is highly recommended.

Assignments and Projects

Your grade in this course will be based on a combination of practice, application, and communication. There will be multiple types of assignments, most of which build toward your final group project. Categories include:

- **Quizzes:** Short content-based quizzes will assess your understanding of concepts introduced in lectures, readings, or hands-on labs. Some quizzes are based on foundational skills (e.g., data structure, visualization design, hypothesis testing), and many will have practice versions available in advance. Quiz dates will be listed in the weekly schedule.

- **Labs and Homework Assignments:** Labs will help you develop specific technical skills in Excel, Tableau, or RStudio. Homework assignments will include short reflection questions, applied exercises, and writing tasks related to course topics. Most will be submitted via Canvas and graded for completion and effort.

- **Individual Project:** You will complete an individual assignment applying early course skills to a small data analysis or visualization task. This project is designed to prepare you for the group project by building confidence in using tools and explaining results.

- **Group Project (Multi-Part):** This is the centerpiece of the course. Your team will select or receive a topic, collect or analyze data, and work together to complete several deliverables across the semester. These may include:

  - Team Charter and Meeting Minutes
  - Data Analysis in Excel, Tableau, and/or R
  - A Communication Component (e.g., slides, executive summary, or a video)
  - A Final Presentation and Peer Evaluation

- **Peer Evaluation:** You will complete peer reviews during or after group work, which will factor into your individual score. Clear expectations for contribution and professionalism will be shared early in the semester.

- **Optional Extra Credit:** In-class quizzes, surveys, and group challenges may be offered as optional bonus activities. These are designed to encourage participation, clarify confusing topics, and give you a chance to practice course skills. These will be graded for completeness and can add up to 10 extra points to your final score. Extra credit is only available during class and cannot be made up.

AI Use in Course

We will explore how generative AI tools like ChatGPT and others can assist with data-related tasks such as:

- Writing and interpreting R code

- Explaining visualizations

- Framing survey questions

- Drafting summaries or business recommendations

Activities that involve optional AI-enhanced learning will be marked with the symbol ☺. You are encouraged to explore these tools, but they are not required. We will also discuss ethical and responsible use of AI in academic and business contexts.

Communication Expectations

The best way to reach me is by email. You are always welcome to stop by during my office hours (see page 1) or use my Calendly link to schedule an appointment. You may choose between in-person and online meetings.
I typically respond to emails within 24–48 hours on weekdays. For best results, please include your section number and be specific with your question or concern. I will post important announcements on Canvas, which will also be sent to your UWL email. Make sure your notifications are turned on so you don't miss anything.

Technology Requirements

You are not required to bring a personal computer to class. UWL provides access to computer labs with all necessary software installed. However, for convenience and flexibility, you may choose to install the following on your personal device:

- Microsoft Office (via UWL's free student license)

- Tableau Desktop (student license provided in class)

- Access to RStudio Cloud (web-based, no installation needed)

You should also ensure that you have access to:

- A working internet connection

- A current browser compatible with Canvas (Google Chrome recommended)

- Headphones or speakers to hear tutorial videos and join Zoom meetings whenever needed

- A PDF reader and basic file storage/management

Technical Support

If you encounter technology-related issues (Canvas, login, software), contact the UWL Eagle Help Desk: Submit a Helpdesk Ticket or call (608) 785-8774 or visit: uwlax.edu/its

Minimum Technical Skills

You should be comfortable with:

- Navigating Canvas and UWL email

- Uploading assignments and downloading resources

- Participating in group work (online and in-person)

- Following step-by-step instructions for online platforms like RStudio Cloud or DataCamp

Grading

You can earn a total of 100 points. Grades are based on the following components:

Assessment	Percentage of Final Grade
Homework and Labs	20%
Quizzes	15%
Individual Project	10%
Group Project (multi-stage deliverables)	35%
Final Reflection / Communication Piece	10%
Peer Evaluation	10%
Optional Activities	Extra credit (Added to total grade)

Anticipated Grading Scale

The final score from the above elements will determine the letter grades based on the following scale:

A	94-100%
AB	88-93.9%
B	80-87.9%
BC	75-79.9%
C	70-74.9%
D	60-69.9%
F	below 60

If there are changes to the grading scale, they will be announced in class. However, there will be no changes that raise the grade cutoff for any letter grade above the scale provided here. There will NOT be any CURVING in this class.

Course and University Policies

1. **Attendance**

   Regular attendance is important for your success in this course. If you miss a session, you are responsible for reviewing posted materials and checking Canvas. Please reach out to your group members or classmates for any context beyond the lecture slides. I do not re-teach the entire session during office hours, but I'm happy to help you understand specific concepts or answer questions. Meetings during office hours are typically 20–25 minutes. While absences are not penalized directly, in-class activities contribute to your learning and participation points.

2. **Classroom Discipline**

   Punctuality: Please arrive on time. If you need to leave early, inform me before class and do so quietly.

   Etiquette: Keep side conversations to a minimum. If you're confused, please ask — that's what I'm here for. If you need to eat during class, please do so quietly and choose odor-neutral food. I may also bring a snack between back-to-back classes, and I will do so with the same consideration.

3. **Class Schedule During Inclement Weather**

   This in-person class will shift online if possible, rather than being canceled. You'll be notified at least two hours before the start of affected classes regarding any delays, online transitions, or cancellations.

4. **Academic Integrity**

   Plagiarism and Cheating: UWL and the College of Business Administration operate under an academic integrity system whereby it is assumed that students understand the rules and agree to abide by them. There are penalties for academic dishonesty. Cheating on assignments and plagiarism are the most obvious forms of academic dishonesty. Cheating includes giving or receiving unauthorized assistance in an academic exercise or receiving credit for work that is not your own. Using the words or ideas of another as if they were one's own is a serious form of academic dishonesty. If another person's complete sentence, syntax, key words, or the specific or unique ideas and information are used, one must give that person credit through proper citation.

   Artificial Intelligence (AI): AI tools may be used in specific circumstances as outlined in each assignment. Any unauthorized use of AI tools is a violation of course expectations and will be subject to UW-La Crosse's academic misconduct policy. Students are responsible for verifying the accuracy and appropriateness of content composed by AI. If you are in doubt as to whether you are using a tool inappropriately in this course, you are encouraged to discuss your situation with your instructor.

   All incidents of academic dishonesty will be reported and acted upon. The consequences for academic dishonesty can include a failing grade on a paper or a quiz, receiving zero for the assignment subjected to academic dishonesty, a failing grade in the course, or even a possible suspension from the institution. Refer to the Student Handbook for a detailed definition of academic misconduct. For helpful information on how to avoid plagiarism, go to "Avoiding Plagiarism" on the Murphy Library website. You may also visit the Office of Student Life if you have questions about plagiarism or cheating incidents. Failure to understand what constitutes plagiarism or cheating is not a valid excuse for engaging in academic misconduct.

5. **Copyright and the use of course materials**

   All materials (including, lecture slide, notes, recordings of any presentation, discussions, homework questions and solutions, exams and solutions, quizzes, surveys, outlines and any other shared material through blackboard) are protected by copyright. It is recommended to take notes and use the course materials for your own educational purposes. However, you are not allowed to reproduce or distribute the course content (as mentioned) without the expressed written permission of the instructor. This includes sharing course material to any online social study sites or posting recordings and course content to **any** external website or service. Students who publicly reproduce, distribute, copy, or modify course content maybe in

violation of the university Honor Code's Complicity policy, which prohibits sharing academic work with another student (either in person or electronically) without the permission of the instructor. Information regarding student conduct disciplinary procedures is available in the student handbook and in the catalog which also articulates the UWL Student Honor Code.

6. **Use of Electronic Devices**

Electronic devices are permitted for note-taking and participation in class activities. However, using devices for non-academic purposes (e.g., texting, web browsing) is discouraged. If you use your phone inappropriately, I reserve the right to hold it for the remainder of the class.

7. **Diversity, Equity and Inclusion (DEI)**

This class environment will be inclusive, safe, and respectful for all persons regardless of your background, sex, gender, race, ethnicity, class, political affiliation, physical or mental ability or any identity category. To that end, all course activities will be conducted in an atmosphere of friendly participation and interaction among everyone, recognizing and appreciating the unique experiences, background, and point of view each student brings. Please participate in the discussions and express yourself. You are expected at all times to apply the highest academic standards to this course and to treat others with dignity and respect. If you feel disrespected at any time, please talk to me—I promise to listen and address your concerns sincerely.

8. **Accessibility, Disability, and Triggers** [credit to Dr. David Moscowitz]

I am committed to ensuring course accessibility for all students. Any student with a documented disability (e.g. ADHD, Autism Spectrum Disorder, Acquired Brain Injury, PTSD, Physical, Sensory, Psychological, or Learning Disability) who needs to arrange academic accommodations must contact The ACCESS Center

(124 Wimberly Hall, 608-785-6900, ACCESSCenter@uwlax.edu)

and meet with an advisor to register and develop an accommodation plan. In addition to registering with The ACCESS Center, it is the student's responsibility to discuss their academic needs with their instructors. If you have a documented disability and expect reasonable accommodation to complete course requirements, please notify me at least one week before accommodation is needed.

You can find out more about services available to students with disabilities at The ACCESS Center website. Likewise, if you are aware of cognitive or emotional triggers that could disrupt your intellectual or mental health, please let me know so that I can be aware in terms of course content.

9. **Sexual Misconduct**

This course works to foster a climate free of harassment and discrimination, and it values the contributions of all forms of diversity. The decision to enter university and pursue advanced study is a choice that entails commitment to personal ethics.

This course affirms equality and respect for all gendered identities and expressions. Please don't hesitate to correct me regarding your preferred gender pronoun and/or name if different from what is indicated on the official class roster. Likewise, I am committed to nurturing an environment free from discrimination and harassment. As an employee of the University of

Wisconsin-La Crosse, I am a mandated reporter of sexual harassment and sexual violence that takes place on campus or otherwise affects the campus community. This means that if I receive detailed or specific information about an incident such as the date, time, location, or identity of the people involved, I am obligated to share this with a member of UWL's team in order to enable the university to take appropriate action to ensure the safety and rights of all involved. For students not wishing to make an official report, there are confidential resources available to provide support and discuss the available options. Please see Title IX for more resources or to file a report.

10. **Religious Accommodations**

    Per the UWL Undergraduate and Graduate Catalogs, "any student with a conflict between an academic requirement and any religious observance must be given an alternative means of meeting the academic requirement. The student must notify the instructor within the first three weeks of class (within the first week of summer session and short courses) of specific days/dates for which the student will request an accommodation. Instructors may schedule a make-up examination or other academic requirement before or after the regularly scheduled examination or other academic requirement."

11. **Values**

    Two core values, **inquiry** and **civility**, govern our class. Inquiry demands that we all cultivate an open forum for exchange and substantiation of ideas. Strive to be creative, to take risks, and to challenge our conventional wisdom when you see the opportunity. Civility supports our inquiry by demanding ultimate respect for the voice, rights, and safety of others. Threatening or disruptive conduct may result in course and/or university dismissal. Civility also presumes basic courtesy: please be well rested, on time, and prepared for class, which includes time for a restroom stop before (not during) class and silencing all personal devices. My perspective is that we never cease being students of this world, so I believe that attentive, reflective people always have something to learn from others. Good discussions can be energetic and passionate but are neither abusive nor offensive. Vibrant, vigorous inquiry derives from discussions that:

    - challenge, defend, and apply different ideas, theories, perspectives, and skills,
    - extend a body of knowledge into different arenas and applications, and
    - result in a synergy that compels us to seek resolution to these discussions.

    Every student in this class comes from a different academic and social background. My biggest goal in this class is to provide an atmosphere of learning that respects a variety of perspectives. Since we will analyze real-world data involving people, systems, and policies, please share your observations and interpretations — the discipline of Economics and field of data analytics thrives on diverse insights. Questioning is a big part of learning. If you have a question, chances are others are wondering the same. Ask it — you'll be helping your classmates too.

12. **Informal Complaints**

    If a student has a concern or a complaint about a faculty member or course, the general process for making informal complaints is outlined in the following steps:

    - Speak directly to the instructor.

- If the student is uncomfortable speaking with the instructor, or they are unsatisfied with the solution, they should go to the chair of the faculty member's home department.
- If still unresolved or uncomfortable, the student should speak with their college dean.
- Additional resources: The Student Life Office, Center for Transformative Justice, and the Office of Title IX may be contacted depending on the nature of the complaint.

13. **Student survey on instruction or learning environment survey (LENS)**

    UWL collects student feedback electronically via the Learning Environment Survey (LENS). Prior to the conclusion of a course, you will receive an electronic notification directing you to complete the LENS for each of your courses. This survey is one of the extra credit activities in this class. If 80% of the class submits the survey, all students will receive bonus points added to their total grade. The survey includes multiple choice questions about your experiences in the class and provides options for comments. Both the university and I take your feedback very seriously, as it helps me improve course design, materials, and the class environment for future years.

14. **Veterans, active military, and military-connected**

    Veterans, active military personnel, and immediate family members of a current service member with special circumstances (e.g., required military obligations, upcoming deployments, drill requirements, disabilities) are welcome and encouraged to communicate these, in advance if possible, to me. For additional information and assistance, contact the Veterans Services Office. Students who need to withdraw from class or from the university due to military orders should be aware of the military duty withdrawal policy. For additional information and assistance, contact the Veterans Services Office.

    To see the most up to date university policies, please refer to UWL Syllabus Policy Information & Statements

Academic Success

I care about your success in this course and beyond. If you ever feel stuck, overwhelmed, or unsure how to move forward, please don't hesitate to reach out. I'm here to help — and UWL offers many resources to support your academic journey. Student success at UWL reflects a commitment to preparing students for success in their professional and personal lives. UWL's mission states that the university provides "a challenging, dynamic, and diverse learning environment in which the entire university community is fully engaged in supporting student success." To see the resources offered to all students at UWL that promote student success, explore support services here: UWL Campus Life and Student Support Resources

Schedule

The schedule is tentative and **subject to change**. An updated schedule will be posted on Canvas in case there are any changes and will be announced to notify students. The schedule includes the material we're planning to cover every week and the assignments' subject and due dates. You can use the schedule to plan your group work, project milestones, and submissions. This is NOT an exhaustive list of all the topics covered in class. The instructor reserves the right to alter this syllabus as necessary and will notify students with an email and in the classroom accordingly.

Schedule at a Glance

Note 1– More detailed weekly guidance follows this table. All materials and deadlines will be posted on Canvas weekly.
Note 2– All deadlines will be posted on Canvas. Graded items are in the Milestones column. Plan ahead; projects are multi-stage!

Dates	Topics and Activities	Tools and Modules	Milestones
Week 1	Introduction, Baseline Data Literacy	Canvas, Excel	Team Formation
Week 2	Anatomy of a Dataset	Excel, DataCamp	Lab 1
Week 3	Descriptive Statistics	Excel, Tableau	HW 1
Week 4	Data Visualization Fundamentals	Tableau, Excel	Project 1 (Proposal)
Week 5	Communicating with Data	Google Slides, Word	Project 1 (Tableau)
Week 6	Intro to R + RStudio	R, RStudio	DataCamp R Module + Lab 2
Week 7	Statistical Reasoning	R, DataCamp	HW 2
Week 8	Survey Design + Research Ethics	Qualtrics, Readings	Survey Draft
Week 9	Survey Data Collection	Qualtrics, Excel	Cleaned Survey Data
Week 10	Regression Basics	R, DataCamp	HW 3
Week 11	Multiple Regression + Causality	R, Peer Feedback	Project 2 Code Check
Week 12	Dashboards & Automation	Tableau, Slides	Progress Report (Coaching)
Week 13	Final Presentation Prep	Canvas, Slides	Final Slide Draft
Week 14	Final Presentations	All Tools	Group Presentation
Week 15	Course Wrap-Up	Canvas	Final Report + Reflection

Detailed Schedule

Coming Soon...