

# **ECO 230 : Data Analysis for Business Applications**

## **Winter 2026 - Online**

### **Instructor Information**

*Name:* Saharnaz Babaei-Balderlou, Ph.D.

*Email:* sbabaeibalderlou@uwlax.edu

*Course AI Tutor:* [Click to open Quokka Query \(QQ\)](#)

*Office Hours:* Make appointment using [https://calendly.com/s\\_bb/office-hours](https://calendly.com/s_bb/office-hours)

*Online Meetings:* [Click to open Zoom room](#)

### **Class Information**

*Dates:* 1/5/2026 – 1/23/2025

*Time (Section 411):* No Regular Scheduled Time.

*Classroom:* Online (See course page on Canvas)

*Note:* See the course schedule and agenda in Canvas for more details and due dates.

### **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 Structure

### Course Format

This course is delivered **Asynchronously** (no required live meeting time). Each week you will complete a set of learning activities on Canvas that include short lecture videos, guided tutorials, practice tasks, and graded assignments. Even though the course is asynchronous, this class is not self-paced. Deadlines matter because assignments build on each other. You should plan on spending consistent time on the course most days of the week, rather than trying to complete everything in one sitting. Weekly/daily routine is highly recommended. I will post a weekly module on Canvas with a checklist so you always know what to do next.

### Course Website

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

#### *How to Navigate the Course (Canvas Structure):*

Canvas is the “home base.” Each week is organized into a module that includes:

1. Overview + checklist (what to do, in order)
2. Lecture videos and notes
3. Practice tasks / tutorials (Excel/Tableau/R)
4. Graded assignments (labs/homework/quizzes/projects)
5. Submission links and rubrics
6. Common troubleshooting tips

Start each week by opening the module and following the checklist top-to-bottom.

### Textbook and Readings

There is no required textbook. All 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. If you are interested in exploring concepts or seeing additional examples, you may find the following book helpful. *Békés, G., & Kézdi, G. Data analysis for business, economics, and policy. Cambridge University Press.* This textbook is **optional**. We will use selected parts aligned with course objectives.

### Slides, Recordings and Notes

Each module includes recorded mini-lectures, slides, and activity guides. You are responsible for watching the videos and completing the practice tasks before attempting the graded assignments. Some important examples and “how-to” steps may appear in videos rather than the slides. So, do not rely on slides alone. Take notes in your own words as it will help you in assignments and projects, especially when we start working on RStudio programming.

### 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 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 final project by building confidence in using tools and explaining results.
- **Final Project (Multi-Part):** This is the centerpiece of the course. You will select or receive a topic, collect or analyze data, and work on the data with the tools and softwares to complete several deliverables across the semester. These may include:
  - Data Analysis in Excel, Tableau, and/or R
  - A Communication Component (e.g., slides, executive summary, or a video)
  - A Final Presentation

### Course AI Tutor — Quokka Query (QQ)

Quokka Query (QQ) is a course-specific tutor bot that coaches concepts and workflows (Excel/Tableau/R) and helps you explain results clearly. It may make mistakes, so always verify the guidance you receive. QQ will be updated with materials from our weekly lectures and activities.

Link: <https://chatgpt.com/g/g-68a7e1536ae48191ad3b70b45168e1b9-quokka-query>

Getting started: Tell QQ your **section (411 online)** and, optionally, your UWL email for more personalized help; then ask your question. **Do not share private or sensitive information.**

*AI policy:* AI is allowed only when an assignment explicitly permits it. QQ will coach your approach and reasoning; it will not produce disallowed graded answers. If you use QQ (or any generative AI) on permitted work, include a short citation such as: “I consulted Quokka Query (QQ) for [task]; I verified and revised the output.”

*Proof of use (when requested):* QQ does not automatically log chats. If an assignment asks for proof, type `export transcript, save chat, or download transcript` in QQ to download a .txt file of your session and upload it to Canvas.

*Note:* Canvas remains the source of truth for deadlines, instructions, and requirements.

## Tutoring and Support

If you are new to coding or feel behind, do not try to troubleshoot alone for hours. Use support early:

- Murphy Library Tutoring / Academic Support (for general study skills and coursework support)
- UWL ITS Help Desk (Canvas, login, software access)
- Office hours (Zoom) for course-specific help
- Course AI Tutor — Quokka Query (QQ)

In online courses, the students who succeed are the ones who ask questions early, not the ones who wait until the night work is due.

## 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.
- **Generative AI tools:** We will explore how generative AI tools can assist with data-related tasks such as writing and interpreting R code, explaining concepts, drafting summaries or business recommendations. We will discuss ethical and responsible use of AI in academic and business contexts. All UWL students, staff, and instructors have access to Microsoft Copilot (basic). For data protection, sign in with your UWL account (look for the green shield). No paid AI tools are required for this course.

## **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 online appointment. Use the Zoom link in the first page of syllabus to join the meeting. 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.

I typically respond to emails within 24–48 hours on weekdays. Weekend responses are not guaranteed. For best results, please include ECO 230 and your section number in the email subject line and be specific with your question or concern. Include a clear description of the problem and attach screenshots or error messages when relevant. For coding questions (R/Tableau), I can help faster if you include the code chunk, the error message, and what you expected to happen.

## **Technology Requirements**

Because this is an online course, you must have:

- reliable internet access,
- a laptop or desktop computer (a phone/tablet is not sufficient),
- a modern browser (Chrome recommended),
- ability to upload/download files (CSV, XLSX, PDF),
- and a working microphone for optional Zoom help sessions.

You will use: Excel, Tableau, RStudio Cloud, DataCamp, Qualtrics, and Canvas. Detailed setup instructions will be provided.

## **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](http://uwlax.edu/its)

## **Minimum Technical Skills**

You should be comfortable with:

- Navigating Canvas and UWL email
- Uploading assignments and downloading resources
- Participating in discussions on Canvas
- 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	18%
Individual Project	20%
Final Reflection / Communication Piece	42%
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 95-100%
- AB 88-94.9%
- 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. Online Engagement Expectations

There is no physical attendance requirement, but you are expected to log into Canvas regularly, keep up with weekly modules, submit work on time, and seek help early when you get stuck. If you disappear for 5+ days without submitting work or communicating, your progress becomes very difficult to recover in a short course.

## 2. Deadlines and Late Work

Assignments have deadlines listed on Canvas. Because this course is short and cumulative, late work creates a “domino effect.” A practical rule:

- On time: full credit
- Late (within 48 hours): partial credit (unless otherwise stated on Canvas)
- After 48 hours: will not be accepted.

If you have a documented emergency, email me as soon as possible. “I started it the night it was due” is not an emergency.

## 3. 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.

#### 4. 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 Canvas) 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.

#### 5. 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 may ask you to put it away for the remainder of class.

#### 6. 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.

## **7. 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 Disability Resource Center (DRC)

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

and meet with an advisor to register and develop an accommodation plan. In addition to registering with Disability Resource 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 Disability Resource Center \(DRC\) 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.

## **8. 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.

## **9. 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."

## 10. 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.

## 11. 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.

## 12. 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.

### **13. 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 [Office of Veteran & Military Connection](#). 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 [Office of Veteran & Military Connection](#).

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](#)