

ECON 3406: Statistics for Business II (Fall 2025)

General Course Information

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|-------------------------|---------------------------|----------------------|--|
| Instructor: | Dr. Joshua Martin | Email: | joshua@westga.edu |
| Office: | 338 Roy Richards Sr. Hall | Office Hours: | MW 1:00pm 5:00pm |
| Course Delivery: | Online | Section: | N03 |

Prerequisite

(ECON 3402 or MATH 1401) and MATH 1413

Course Description

This course introduces intermediate quantitative tools for strategic and data-driven decision making in business. Topics include probability, hypothesis testing, statistical inference, linear regression, multiple regression, logistic regression, and related applications. In addition to developing a solid foundation in statistical theory, students will gain hands-on experience with *R*, an open-source statistical programming language widely used in industry and research. Emphasis will be placed on learning how to effectively interpret statistical results and analyze real-world data.

Course Textbook

David M. Diez, Mine Çetinkaya-Rundel, and Christopher D. Barr. [OpenIntro Statistics](#) (Fourth Edition)

Course Goals

The learning goals for this course are as follows:

- Recognize the importance of data collection, identify limitations in data collection methods and other sources of statistical bias, and determine their implications and how they affect the scope of inference.
- Use statistical software to summarize data numerically and visually, and to perform data analysis.
- Have a conceptual understanding of the unified nature of statistical inference.
- Apply estimation and testing methods to analyze single variables or the relationship between two variables in order to understand natural phenomena and make data-based decisions.
- Model numerical response variables using a single explanatory variable or multiple explanatory variables in order to investigate relationships between variables.
- Interpret results correctly, effectively, and in context without relying on statistical jargon.
- Critique data-based claims and evaluate data-based decisions.

Roster Verification

In order to be counted as having attended class during the roster verification period, you must complete at least one quiz by August 27, 2025. If I mark you as not-attending for a course, you will receive a 'W' grade. Please contact me for more information or if you believe you were marked as not-attending in error.

UWG Email Policy

All UWG students are provided a MyUWG email account through Gmail. This is considered the official method of communication between the university and students. Students are responsible for checking their email regularly.

Grading

- **Quizzes:** There will be 25 quizzes administered throughout the term, each worth 1.25 points
 - Of these, 5 quizzes (6.25 points) are provided as bonus opportunities, allowing students to earn extra credit
 - Quizzes will consist of 5–10 multiple choice questions and will cover material from that day’s lecture.
- **Exams:** There will be 4 exams and a comprehensive final, each worth 15 points
 - The final exam is mandatory; failure to complete it results in an automatic course failure
 - If $Final > 0.6$, it may replace your lowest midterm score **if it is higher**; otherwise, it counts as any other exam

$$Exams = \begin{cases} 15 \times \sum_{e=1}^5 Exam_e & \text{if } Final \leq 0.6, \\ 15 \times \left(\sum_{e=1}^4 Exam_e - \min(Exam_e) \right) + 30 \times Final & \text{if } Final > 0.6. \end{cases}$$

- The overall grade is computed as:

$$Overall\ Grade = Exams + 1.25 \times \sum_{q=1}^{25} Quiz_q$$

- At the professor’s discretion, final grades may be scaled up only if the course mean falls below 85

Evaluation Policies

- All assignments will be administered in Course Den via a LockDown Browser (or equivalent software)
 - Must be taken alone without any other external assistance
 - Requires a computer with webcam and microphone
 - One attempt per assignment
 - Cannot re-enter an assignment after exiting
 - Any failure to meet LockDown Browser requirements or any suspected cheating/suspicious behavior will result in a zero on the exam and may lead to course failure and expulsion
- Quizzes
 - Available on the “Due” date and will remain open for 7 days
 - Once begun, must be completed within 30 minutes
- Exams
 - Available only on the Due date
 - Once begun, must be completed within 75 minutes (or 120 for the final)
- Late assignments will receive zero points
 - Extensions on assignments will only be considered if accompanied by a letter from a medical professional, student services, the dean or other relevant UWG employees
 - Requests for early access to quizzes or exams will be evaluated on a case-by-case basis

Grade Scale

| Grade | Range |
|-------|-----------|
| A | [90,100+) |
| B | [80, 90) |
| C | [70, 80) |
| D | [60, 70) |
| F | [0, 60) |

Course Schedule

| Date | Readings | Material Covered | Due |
|------------|---------------------|------------------------------------|-------------------|
| 08/13/2025 | Syllabus | Intro to course and R | |
| 08/18/2025 | Ch. 1 (1.1–1.2) | Experimental design | Quiz 1 |
| 08/20/2025 | Ch. 1 (1.3) | Data fundamentals | Quiz 2 |
| 08/25/2025 | Ch. 2 (1.4) | Summary statistics | Quiz 3 |
| 08/27/2025 | Ch. 2 (2.1) | Data generating process | Quiz 4 |
| 09/01/2025 | Labor Day | <i>No class</i> | |
| 09/03/2025 | Ch. 2 (2.2) | Variance and distributions | Quiz 5 |
| 09/08/2025 | Ch. 2 (2.3) | Outliers and data transformations | Quiz 6 |
| 09/10/2025 | — | | Exam 1 |
| 09/15/2025 | Ch. 3 (3.1) | Defining probability | Quiz 7 |
| 09/17/2025 | Ch. 3 (3.2) | Conditional probability | Quiz 8 |
| 09/22/2025 | Ch. 3 (3.4) | Expectation operators | Quiz 9 |
| 09/24/2025 | Ch. 4 (5.1) | Point estimates | Quiz 10 |
| 09/29/2025 | Ch. 5 (5.2) | Confidence intervals | Quiz 11 |
| 10/01/2025 | Ch. 5 (5.3) | Hypothesis testing | Quiz 12 |
| 10/06/2025 | — | | Exam 2 |
| 10/08/2025 | Ch. 6 (6.1–6.2) | One- & two-proportion inference | Quiz 13 |
| 10/13/2025 | Ch. 6 (6.3) | Chi-square goodness-of-fit | Quiz 14 |
| 10/15/2025 | Ch. 6 (6.4) | Chi-square tests of independence | Quiz 15 |
| 10/20/2025 | Ch. 7 (7.1–7.2) | One- & paired-sample t-tests | Quiz 16 |
| 10/22/2025 | Ch. 7 (7.3–7.4) | Two-sample t-tests; power analysis | Quiz 17 |
| 10/27/2025 | Ch. 7 (7.5) | ANOVA: comparing multiple means | Quiz 18 |
| 10/29/2025 | — | | Exam 3 |
| 11/03/2025 | Ch. 8 (8.1) | Linear fit & correlation | Quiz 19 |
| 11/05/2025 | Ch. 8 (8.2–8.3) | Least squares regression; outliers | Quiz 20 |
| 11/10/2025 | Ch. 8 (8.4) | Regression inference | Quiz 21 |
| 11/12/2025 | Ch. 9 (9.1–9.2) | Multiple regression | Quiz 22 |
| 11/17/2025 | Ch. 9 (9.3–9.4) | Regression diagnostics; case study | Quiz 23 |
| 11/19/2025 | Ch. 9 (9.5) | Logistic regression basics | Quiz 24 |
| 11/24/2025 | Thanksgiving | <i>No class</i> | |
| 11/26/2025 | Thanksgiving | <i>No class</i> | |
| 12/01/2025 | Flex day | Catch-up | Quiz 25 |
| 12/03/2025 | — | | Exam 4 |
| 12/10/2025 | — | | Final Exam |

Accessibility Services

Students with a documented disability may work with UWG Accessibility Services to receive essential services specific to their disability. All entitlements to accommodations are based on documentation and USG Board of Regents standards.

If a student needs course adaptations or accommodations because of a disability or chronic illness, or if they need to make special arrangements in case the building must be evacuated, the student should notify their instructor in writing and provide a copy of their Student Accommodations Report (SAR), which is available only from Accessibility Services. Faculty cannot offer accommodations without timely receipt of the SAR; further, no retroactive accommodations will be given.

For more information, please contact [Accessibility Services](#).

Center for Academic Success

The [Center for Academic Success](#) provides services, programs, and opportunities including academic coaching, peer tutoring, drop-in tutoring and supplemental instruction to help all undergraduate students succeed academically.

For more information, contact them: (678) 839-6280 or cas@westga.edu.

Resources for Online Students

Students enrolled in online courses can find answers to many of their questions in the [Online/Off-Campus Student Guide](#).

If a student is experiencing distress and needs help, please see the resources available at the [UWG Cares](#) site. [Online counseling](#) is also available for online students.

Honor Code

At the University of West Georgia, we believe that academic and personal integrity are based upon honesty, trust, fairness, respect, and responsibility.

Students at West Georgia assume responsibility for upholding the honor code. Students pledge to refrain from engaging in acts that violate academic and personal integrity. These include, but are not limited to, plagiarism, cheating, fabrication, aiding academic dishonesty, lying, bribery or threats, and stealing.

Academic Dishonesty Tracking System

UWG maintains and monitors a confidential Academic Dishonesty Tracking System that collects and reports patterns of repeated violations across all colleges, the Ingram Library, and the School of Nursing. Each incident is reviewed by the instructor and may result in academic penalties including, but not limited to, failing the assignment or the course. Conduct sanctions may range from a warning to suspension or expulsion.

Students are responsible for safeguarding their computer accounts. All actions originating from their account or network connection are their responsibility. Impersonation or misrepresentation of identity is prohibited.

For more details, see the [Student Handbook](#).

Credit Hour Policy

UWG grants one semester hour of credit for work equivalent to a minimum of one hour (50 minutes) of in-class instruction and two hours of out-of-class student work per week for approximately fifteen weeks.

Each syllabus must document the in-class and out-of-class requirements to earn the assigned credit hours. Out-of-class work may include assignments, readings, observations, or musical practice.

Credit may also be granted via competency-based testing (e.g., AP, CLEP, or departmental exams) that demonstrates mastery of course outcomes.

Mental Health Support

If you or another student are experiencing a mental health issue, free and confidential services are available through the [Counseling Center](#).

Students who have experienced sexual or domestic violence can access confidential support through Patient Advocates in [Health Services](#).

To report a concern anonymously, please visit [UWG Cares](#).

English Language Learning (ELL) Resources

If you are having difficulty with English or U.S. academic culture, specialized resources are available to help you succeed. Visit the [ELL Resource Page](#) for more information.

Artificial Intelligence Use Policy

Generative Artificial Intelligence (Gen AI) is not allowed in any coursework.

In this course, the use of Gen AI is not allowed; all coursework must be original and created for this course. Use of Gen AI will be treated as plagiarism. Any violations of this guideline will be subject to the academic and disciplinary policies listed in the UWG Honor Code (see: [Student Handbook](#)).

Title IX & Equal Opportunity

University of West Georgia faculty are committed to helping create a safe and open learning environment for all students. If you (or someone you know) have experienced any form of sexual misconduct, including sexual assault, dating or domestic violence, or stalking, know that help and support are available. The University strongly encourages all members of the community to take action, seek support, and report incidents of sexual misconduct to the [Office of Title IX & Equal Opportunity](#). Please be aware that under Title IX of the Education Amendments of 1972, I am required to disclose information about such misconduct to the Office of Title IX & Equal Opportunity. If you wish to speak to a confidential employee who does not have this reporting responsibility, you can contact the University of West Georgia Counseling Center (678-839-6428) or Advocate Services (470-215-9946).

Preferred Pronouns Statement

At UWG everyone has the right to be addressed by the name and personal pronouns that correspond to their gender identity, including non-binary pronouns, for example: they/them/theirs, ze/zir/zirs, etc. As of 2023, students can update their pronouns in their Self-Service Banner user settings. If you have not yet updated your pronouns in Self-Service Banner, you can do so at the beginning of the term so that I can make sure to refer to you using the correct pronouns. If your pronoun set is not available in Self-Service Banner/CourseDen, please let me know. I recognize that preferred names and pronouns may change during the semester, if at any point during the semester you would like to be addressed differently, please let me know.

Technology Requirements

As part of this course, we will need reliable access to the internet and technology to be successful. The Ingram Library on the Carrollton campus has public computers with internet access available. The UWG Newnan campus has public computers with internet access available for students.

General technical skills and proficiencies necessary to be successful in the course include: Accessing and using CourseDen as a learning management platform; Communicate by email with attachments; Create and submit files using word processing software

Minimum Technology Requirements include: Reliable access to a PC, Mac, Chromebook, or tablet; A webcam with speakers or headphones; High speed internet connection; Up-to-date Chrome, Firefox, or Safari browsers; CourseDen access; Microsoft Word or Google Docs access

Technology Support and Guidance Available for Students: [TechWest Student ITS Support](#); [UWG Online](#); [24/7 CourseDen \(Brightspace D2L\) support](#)

Changes to the Syllabus

I reserve the right to modify the course schedule or content as necessary to support the learning objectives of the class. Any such changes will be communicated in advance and will only be made in ways that are beneficial to students, such as reducing the scope of material covered.