



A A E/ECON 421: ECONOMIC DECISION ANALYSIS

Credits: 4

Canvas Course URL: <https://canvas.wisc.edu/courses/255816>

Course Designations:

Breadth - Social Science

Level – Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Course Description:

Managerial oriented, applied presentation of microeconomic theory. Quantitative emphasis with extensive homework use of spreadsheets and written executive summaries of applied economic analyses. Applications on natural resources and agricultural markets.

Requisites:

STAT 301, 371, ECON 310, SOC/C&E SOC 360, PSYCH 210, or (GEN BUS 306 and 307)

Meeting Time and Location:

Lectures: **Tu/Th, 2:30 p.m. – 3:45 p.m.**

Lab: **F, 2:25 p.m. – 3:15 p.m.**

Location for both: **3250 Helen C. White Hall**
(College Library)

Instructional Modality: In-person

How Credit Hours are Met by the Course:

The credit standard for this course is met by an expectation of a total of 180 hours of student engagement with the course learning activities (at least 45 hours per credit), which include regularly scheduled lectures, reading, writing, problem sets, studio time, labs, field trips, and other student work as described in the syllabus.

Regular and Substantive Student-Instructor Interaction

This course achieves regular and substantive student-instructor interaction through direct instruction, providing feedback on student work, providing information about course content, and facilitating discussion of course content during two in-person lecture periods and one in-person lab each week.

INSTRUCTOR

Instructor: Dr. Andrew W. Stevens, Assistant Professor, Agricultural and Applied Economics

Instructor Availability:

Office hours (opportunity to speak with me about the course material, problem sets, projects, and other topics like future plans): **Tu, 9:00 a.m. – 10:00 a.m., 330 Taylor Hall**

Instructor Email: awstevens@wisc.edu (please include “421” in email subject line)

COURSE LEARNING OUTCOMES

By the end of this course, you will be able to:

- Manipulate, organize, and visualize quantitative economic data using computer software
- Conduct statistical analyses and estimate basic linear regression models of economic data
- Correctly report and interpret results from statistical analyses in the context of informing economic decisions
- Set up and solve linear and non-linear programming problems that inform economic decision-making using computer software
- Integrate uncertainty into the analysis of economic decisions and articulate how uncertainty influences economic behavior
- Effectively communicate verbally, visually, and in writing the process and results of economic decision analyses

GRADING

Your course grade will depend on five components: in-class learning activities, lab attendance, problem sets, a midterm project, and a final project:

- **In-class learning activities: 10% of your final grade**
 - I am planning to have an in-class activity during each lecture between September 14 and November 30 (inclusive), totaling an expected 22 unique activities. You will complete these activities on Canvas and may only complete them during classtime. They will be graded on successful completion, each worth one point.
 - This component of your course grade will be evaluated out of 20 points, with no extra credit for additional activities. If you complete 20, 21, or 22 activities, you will get full credit for this 10% of your final grade. If you complete 19 activities, you will get a score of 19/20 for this 10% of your final grade.
- **Lab attendance: 5% of your final grade**
 - I am expecting to have 12 Friday labs over the course of the semester. For each lab that you attend, you will get one lab attendance point.
 - This component of your course grade will be evaluated out of 10 points, with no extra credit for additional labs. If you attend all 10, 11, or 12 labs, you will get full credit for this 10% of your final grade. If you complete 9 activities, you will get a score of 9/10 for this 10% of your final grade.
 - You will only get a lab attendance point if you attend the whole lab. If you show up more than a couple of minutes late or leave before the lab is done, you will not receive a lab attendance point.
- **Problem sets: 4 problem sets collectively worth 40% of your final grade** (they may not be weighted equally)
- **Midterm project: 20% of your final grade**
- **Final project: 25% of your final grade**

I reserve the right to curve the following grading scale (based on the final, weighted course score) in students' favor at the end of the semester. However, I do not expect to do this.

- A: >92
- AB: 88-92
- B: 82-88
- BC: 78-82
- C: 70-78
- D: 60-70
- F: <60

LEARNING MANAGEMENT SYSTEM

This course utilizes Canvas for all major learning management functions including hosting lecture recordings, in-class activities, assignment submissions, and more. The link to this course's Canvas site is: <https://canvas.wisc.edu/courses/255816>. Students should explore and become familiar with Canvas and its functionalities.

REQUIRED TEXTBOOK, SOFTWARE & OTHER COURSE MATERIALS

There is one required textbook for this course:

- "Introduction to Management Science, 13th Edition" by: Bernard W. Taylor III. Pearson.

You will also need access to the software programs R (free) and Microsoft Excel (available for free through UW–Madison licensing).

All other course materials will be provided via the course Canvas site.

HOMEWORK & OTHER ASSIGNMENTS

I plan for this course to include 22 in-class activities, 12 labs, and four problem sets in addition to occasional assigned readings.

- In-class activities:
 - In-class activities will be formative assessments; that is, their purpose is to help you learn and master material rather than to "test" you
 - Activities will be structured in such a way that you will have multiple opportunities to answer each question and you should complete the activity correctly by the end of that day's lecture: if you attempt the activity, you should eventually complete it with a score of 100%. That is, these activities are essentially graded on completion.
 - You are allowed (and encouraged!) to work with your classmates to complete these activities. This provides an additional incentive to attend class in person.
- Friday labs will often be discussion-based, and your participation is what makes them valuable. You are graded on attendance. If readings are assigned ahead of time, be prepared to discuss or analyze them.
- Problem sets:
 - Due dates are included in the course schedule below
 - All submissions should occur through the course Canvas site

EXAMS, QUIZZES, PAPERS & OTHER MAJOR GRADED WORK

This course will include a midterm project and a final project that will both be submitted via Canvas. I will provide specific instructions for each at appropriate times during the semester.

COURSE SCHEDULE (I reserve the right to make adjustments if needed)

*I will assign required readings from the Taylor textbook and other sources (which will be available on Canvas) as needed throughout the semester.

I. DATA MANIPULATION

- Th – Sept. 9: Welcome and course introduction
- F – Sept. 10: **Lab: *No lab first week of class***
- Tu – Sept. 14: Data manipulation in Microsoft Excel I
- Th – Sept. 16: Data manipulation in Microsoft Excel II
- F – Sept. 17: **Lab:** Data visualization in Microsoft Excel (w/ DesignLab)
- Tu – Sept. 21: Data manipulation in R I
- Th – Sept. 23: Data manipulation in R II
 - **Problem Set 1 DUE**
- F – Sept. 24: **Lab:** Evaluating different data visualizations
- Tu – Sept. 28: Data manipulation in R III
- Th – Sept. 30: Data manipulation in R IV
- F – Oct. 1: **Lab:** Data visualization in R (w/ DesignLab)

II. FORECASTING AND REGRESSION ANALYSIS

- Tu – Oct. 5: Forecasting by hand and in Microsoft Excel
- Th – Oct. 7: Regression analysis by hand
 - **Problem Set 2 DUE**
- F – Oct. 8: **Lab:** Identifying key insights from a sea of information
- Tu – Oct. 12: Regression analysis in Microsoft Excel
- Th – Oct. 14: Forecasting and regression analysis in R I
- F – Oct. 15: **Lab:** Summarizing key information
- Tu – Oct. 19: Forecasting and regression analysis in R II
- Th – Oct. 21: Forecasting and regression analysis in R III
- F – Oct. 22: **Lab:** Designing fact sheets and infographics (w/ DesignLab)
- Tu – Oct. 26: Interpreting and communicating regression analyses I
- Th – Oct. 28: Interpreting and communicating regression analyses II
- F – Oct. 29: **Lab:** Revising written summaries

III. LINEAR PROGRAMMING

- Tu – Nov. 2: Linear programming I
- Th – Nov. 4: Linear programming II
 - **Midterm Project DUE**
- F – Nov. 5: **Lab:** Review midterm project
- Tu – Nov. 9: Linear programming III
- Th – Nov. 11: Linear programming IV
- F – Nov. 12: **Lab:** Case Study I

IV. NONLINEAR PROGRAMMING AND UNCERTAINTY

- Tu – Nov. 16: Nonlinear programming I

- Th – Nov. 18: Nonlinear programming II
 - **Problem Set 3 DUE**
- F – Nov. 19: **Lab**: Case Study II
- Tu – Nov. 23: Uncertainty I
- Th – Nov. 25: THANKSGIVING BREAK – NO CLASS
- F – Nov. 26: **Lab**: THANKSGIVING BREAK – NO CLASS
- Tu – Nov. 30: Uncertainty II

V. FINAL PROJECT

- Th – Dec. 2: Introduce final project
 - **Problem Set 4 DUE**
- F – Dec. 3: **Lab**: Video presentations (w/ DesignLab)
- Tu – Dec. 7: TBD (Built-in flexibility)
- Th – Dec. 9: TBD (Built-in flexibility)
- F – Dec. 10: **Lab**: Course reflection and wrap-up
- Tu – Dec. 14: Watch video presentations
 - **Final Project DUE by midnight, Dec. 13**

TEACHING & LEARNING DATA TRANSPARENCY

For information about what teaching and learning data are collected by UW–Madison, how those data are used, and how those data are protected, please refer to the university’s Teaching and Learning Data Transparency Statement, available at: <https://teachlearn.provost.wisc.edu/teaching-and-learning-data-transparency-statement/>.

COPYRIGHT OF COURSE MATERIALS AND 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. Students may not copy or share 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 course 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.

COURSE EVALUATIONS

UW–Madison uses an online course evaluation survey tool, AEFIS. You should receive an official email two weeks prior to the end of the semester when your course evaluation is available. You will receive a link to log into the course evaluation with your NetID where you can complete the evaluation and submit it, anonymously. 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.

DIVERSITY & INCLUSION

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 CALENDAR & RELIGIOUS OBSERVANCES

Please refer to the official UW–Madison academic calendar for important deadlines including the last day to drop courses or withdraw without notation on your transcript, the last day to drop courses with full tuition refund, the last day to drop courses, and the last day to apply for a pass/fail grade or convert your enrollment from for-credit to audit:

<https://secfac.wisc.edu/academic-calendar/>.

Wisconsin law mandates that any student with a conflict between an academic requirement and any religious observance must be given an alternative for meeting the academic requirement. If you wish to request relief from any aspect of this course for a religious observance, please notify me via email within the first two weeks of class and specify the specific days or dates for which you are requesting relief. We will work together to determine an appropriate way to satisfy the affected course requirements in an appropriate way.

ACADEMIC INTEGRITY

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 are 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 (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Providing reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform me of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. I will work either directly with you or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA.