WISCONSIN
UNIVERSITY OF WISCONSIN–MADISON

A A E/ECON 421: ECONOMIC DECISION ANALYSIS

Credits: 4

Canvas Course URL: https://canvas.wisc.edu/courses/203186

Course Designations:
Breadth - Social Science
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S

Meeting Time and Location:
Tuesdays and Thursdays, 2:30 p.m. – 3:45 p.m., 3250 Helen C. White Hall (College Library)

Instructional Modality: blended

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.

INSTRUCTOR

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

Instructor Availability:
Office hours will be conducted remotely due to COVID-19. Please email me to request a meeting.

Instructor Email: awstevens@wisc.edu (Please include "421" in your email subject line.)

OFFICIAL COURSE DESCRIPTION

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)

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/203186. Students should explore and become familiar with Canvas and its functionalities.

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 four components: in-class learning activities, problem sets, a midterm project, and a final project:

- In-class learning activities: 20% of your final grade
    - There will be an in-class activity during each lecture between September 8 and November 24 (inclusive), totaling 23 unique activities. These activities will be completed on Canvas and may only be completed during the course meeting time. They will be graded on 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 all 23 activities, you will get full credit for this 20% of your final grade. If you complete 19 activities, you will get a score of 19/20 for this 20% of your final grade.
- Problem sets: 4 problem sets worth 40% of your final grade (they may not be equally weighted)
- Midterm project: 15% of your final grade
- Final project: 25% of your final grade

Note: attendance is not a component of your final grade.

I reserve the right to curve the following grading scale 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

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.

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.

HOMEWORK & OTHER ASSIGNMENTS

This course will include twenty-three in-class activities and four problem sets:
- 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 to work with your classmates to complete these activities. This provides an additional incentive to attend class in person.
- Problem sets:
  - Due dates are included in the course schedule below.
  - Submission will be through the course Canvas site.

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

*I will assign required readings from the Taylor textbook as needed throughout the semester.

I. DATA MANIPULATION

- Th – Sept 3: Welcome and course introduction
- Tu – Sept 8: Data manipulation in Microsoft Excel I
- Th – Sept 10: Data manipulation in Microsoft Excel II
- Tu – Sept 15: Data manipulation in R I
- Th – Sept 17: Data manipulation in R II
  - **Problem set 1 DUE**
- Tu – Sept 22: Data manipulation in R III
- Th – Sept 24: Data manipulation in R IV

II. FORECASTING AND REGRESSION ANALYSIS

- Tu – Sept 29: Forecasting and regression analysis by hand
- Th – Oct 1: Forecasting and regression analysis in Microsoft Excel
  - **Problem set 2 DUE**
- Tu – Oct 6: Forecasting and regression analysis in R I
- Th – Oct 8: Forecasting and regression analysis in R II
- Tu – Oct 13: Forecasting and regression analysis in R III
- Th – Oct 15: Forecasting and regression analysis in R IV
- Tu – Oct 20: Interpreting and communicating regression analyses I
- Th – Oct 22: Interpreting and communicating regression analyses II

III. LINEAR PROGRAMMING

- Tu – Oct 27: Linear programming I
- Th – Oct 29: Linear programming II
  - **Midterm Project DUE**
- Tu – Nov 3: Linear programming III
- Th – Nov 5: Linear programming IV

IV. NONLINEAR PROGRAMMING AND UNCERTAINTY

- <u>Tu – Nov 10</u>: Nonlinear programming I
- <u>Th – Nov 12</u>: Nonlinear programming II
    - **Problem set 3 DUE**
- <u>Tu – Nov 17</u>: Uncertainty I
- <u>Th – Nov 19</u>: Uncertainty II
- <u>Tu – Nov 24</u>: Uncertainty IIII
    - **Problem set 4 DUE**
- <u>Th – Nov 26</u>: THANKSGIVING BREAK – NO CLASS

V. FINAL PROJECT

- <u>Tu – Dec 1</u>: Introduce final project
- <u>Th – Dec 3</u>: Writing a report
- <u>Tu – Dec 8</u>: Editing a report
- <u>Th – Dec 10</u>: Recording an oral presentation

- <u>Tu – Dec 15</u>: **Final Project DUE**

USE OF RECORDED LECTURES AND OTHER COURSE CONTENT

Lecture materials and recordings for A A E/ECON 421 are protected intellectual property at UW–Madison. Course materials and recordings are available exclusively for students' 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. Students may not copy or have lecture materials and recordings outside of class outside the official course Canvas site, 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.

UW-MADISON FACE COVERING GUIDELINES
While on campus all employees and students are required to wear appropriate and properly fitting face coverings while present in any campus building unless working alone in a laboratory or office space.

Face Coverings During In-person Instruction (COVID-19)
Individuals are expected to wear a face covering while inside any university building. Face coverings must be worn correctly (i.e., covering both your mouth and nose) in the building if you are attending class in person. If any student is unable to wear a face-covering, an accommodation may be provided due to disability, medical condition, or other legitimate reason.

Students with disabilities or medical conditions who are unable to wear a face covering should contact the McBurney Disability Resource Center or their Access Consultant if they are already affiliated. Students requesting an accommodation unrelated to disability or medical condition, should contact the Dean of Students Office.

Students who choose not to wear a face covering may not attend in-person classes, unless they are approved for an accommodation or exemption. All other students not wearing a face covering will be asked to put one on or leave the classroom. Students who refuse to wear face coverings

appropriately or adhere to other stated requirements will be reported to the Office of Student Conduct and Community Standards and will not be allowed to return to the classroom until they agree to comply with the face covering policy. An instructor may cancel or suspend a course in-person meeting if a person is in the classroom without an approved face covering in position over their nose and mouth and refuses to immediately comply.

QUARANTINE OR ISOLATION DUE TO COVID-19

Students should continually monitor themselves for COVID-19 symptoms and get tested for the virus if they have symptoms or have been in close contact with someone with COVID-19. This course is designed in such a way that you should be able to continue your participation in this course even if you are quarantined. However, you should also reach out to me as soon as possible if you become ill or need to isolate or quarantine so we can ensure there is a plan for how to proceed with the course.

COURSE EVALUATIONS

UW–Madison now 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.

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.

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.