

ECO 391

ECONOMIC AND BUSINESS STATISTICS

Summer 2021

Live lectures on M, T, W, and Th from 12:00 (noon) to 1:30 via Zoom

<https://uky.zoom.us/j/86029237544>

Instructor Information

Students are requested to read the syllabus and see announcements on canvas before contacting me. Emails regarding information that you can find in the syllabus and announcements are not replied to.

Instructor: Zhao, Linli

Office: Gatton College of Business & Economics 245B

Email: Start the subject line with **ECO 391-Subject** to my UK email Linli.zhao@uky.edu

Office Hours: M, T, W, and Th from 1:30 to 1:45 or by app <https://uky.zoom.us/j/86029237544>

Course Description

Statistical ideas are part of the language of business. An understanding of statistics will enhance your value as a manager or executive. Many of the upper division courses in Accounting, Agriculture Economics, Economics, Finance, Management, Marketing, and Public Policy use and build upon the statistical techniques and analysis learned in ECO391. This course provides a survey of statistical techniques relevant to modern economics and business, with major emphasis on estimation, hypothesis testing, correlation, modeling, regression, and forecasting.

Course Prerequisites

Statistical Methods (STA 296) or equivalent.

Student Learning Outcomes

1. Students will be able to do regression analysis. They will be able to choose a topic conducive to regression analysis, specify a regression equation, enter data into Excel, run descriptive statistics on the data, run regressions in Excel, interpret and evaluate the results, and write a series of reports detailing the regression project and the results.
2. Students will be able to evaluate regression results, including being able to determine whether the estimated regression coefficients have the expected sign, whether the estimated regression coefficients are statistically significant, whether the equation includes irrelevant variables or omits theoretically relevant variables, whether an alternative functional form should be used, and whether the goodness of fit of the equation appears adequate.
3. Students will be able to calculate in Excel and use in real-world applications the mean, the variance, the covariance, the coefficient of variation, and the correlation coefficient.
4. Students will be able to do hypothesis testing using either the traditional rejection-region approach or the p-value approach.
5. Students will be able to distinguish between quantitative and qualitative variables and will be able to construct and use dummy variables – both intercept dummies and slope dummies.

Required Materials

1. Supplemental Course Packet:

This packet is designed for ECO 391 note taking at UK. The packet contains numerous practice activities. Completing practice questions is a vital means to assist you in learning the material.

The Supplementary Course Packet is available on Canvas for free.

2. Textbook: Anderson, D.R.; Sweeny, D.J.; Williams, T.A.; Camm J.D.; Cochran J.J. *Modern Business Statistics*. 6th Edition. Reading assignments are listed in the syllabus. The book is engaging, well written, up-to-date, and provides a wonderful foundation for our course.

MindTap Materials: To enhance your learning experience and provide affordable access to the required course materials for this class, this course is part of an inclusive access model called First Day. You can easily access the required materials for this course at a discounted price, and benefit from single sign-on access with no access codes required in Canvas. UK Student Account Office will bill you at the discounted price as a course charge for this course. It is NOT recommended that you Opt-Out, as these materials are required to complete the course. You will be billed for access to these materials when your student tuition is due.

Cengage Unlimited: You can choose to upgrade to Cengage Unlimited from your Cengage Account, should you have other courses at UK requiring Cengage this Semester. The cost of your First Day materials will be deducted from your total cost when you complete the process and upgrade to Cengage Unlimited in your Cengage Account Dashboard.

Evaluation Criteria

The weight for the final grade:

Daily Attendances, 20%
Weekly Assignments, 20%
First Exam, 30%
Final Exam, 30%

Grading scale:

90 – 100% = A
80 – 89% = B
70 – 79% = C
60 – 69% = D
Below 60% = E

Extra points opportunities:

Survey participation
Class participation
Office hour questions
Teaching evaluation participation
....

Assignments and Exams

1. **Attendance** can be checked through two ways:
 - 1) **Come to zoom class**, and your attendance will be checked through zoom participation.
 - 2) **Watch the pre-recorded video and answer a corresponding question** for each lecture posted on canvas.
You **cannot** discuss with your classmates, and you can **submit your answer on canvas by the end the week (11:59pm Sunday night)**. Late submissions lose 10% for each additional hour late.
For the best learning outcomes, I would recommend that you watch the videos on that day as a daily assignment.
2. There will be canvas **homework** along with each lecture. Each homework consists of a varying quantity **of multiple-choice questions and Excel data analysis work**. Homework is posted along with lectures before the class time. We will have zoom group in the 2nd part of the class time to do the homework together if we have time class left after lecturing.

You **can discuss with your classmates and submit your own version of the homework for that week by the end the week (11:59pm Sunday night)**. Late submissions lose 10% for each additional hour late.

I would recommend you do the homework after you've watched the videos on that day for the best learning result.

The answers and the corresponding explanation videos will be posted on Monday of next week.

3. **Exams:** There are two exams consisted of multiple-choice questions, with each worth 100 points. The final exam is comprehensive. The exams cover material from class, homework, and any additional assigned readings. The exam will be posted on canvas for a couple of hours on that day with the requirements of lockdown browser and webcam.

*You can refer to the following schedules unless there are unavoidable changes; and I will let you know if that happens.

Tentative Weekly Course Schedule	
Part I. Basic Statistic Concepts	
1.1 Syllabus 1.2 Measures of Central Location and Dispersion (Ch. 03) 2.1 Normal and Standard Normal Distribution (Ch. 06) 2.2 Hypothesis Testing (Ch. 09) 2.3 Simple Linear Regression (Ch. 14) 2.4 Simple Linear Regression (Ch. 14) 3.1 Simple Linear Regression (Ch. 14) 3.2 Midterm Review	June 30th
3.3 Midterm Exam	July 14th
Part II. Regression Analysis (+ Excel Analysis)	
3.4 Goodness-of-Fit Measures (Ch. 12) 4.1 Multiple Linear Regression (Ch. 15) 4.2 Multiple Linear Regression (Ch. 15) 4.3 Confidence Intervals (Ch. 08) 4.4 Regression Models with Dummy Variables (Ch. 15) 5.1 Regression Models with Dummy Variables (Ch. 15) 5.2 P-values, t-test, and F-test (Ch. 14) 5.3 P-values, t-test, and F-test (Ch. 14) 5.4 Case Study (Surviving the Titanic) 6.1 Final Review I 6.2 Final Review II	
Final Exam (cumulative)	Aug 4th

LockDown Browser and Webcam Requirement

1. This course requires the use of Lock-Down Browser and a webcam for online exams. The webcam can be the type that is built into your computer or one that plugs in with a USB cable. Watch this **brief video** to get a basic understanding of Lock-Down Browser and the webcam feature:
<https://www.respondus.com/products/lockdown-browser/student-movie.shtml>
2. **Download and install Lock-Down Browser** from this link:
<https://download.respondus.com/lockdown/download.php?id=747933856>
Once Installed: **Start Lock-Down Browser - Log into to Canvas - Navigate to the quiz**
Note: You will not be able to access a quiz that requires Lock-Down Browser with a standard web browser. If this is tried, an error message will indicate that the test requires the use of Lock-Down Browser. Simply start Lock-Down Browser and navigate back to the exam to continue.
3. When taking an online exam, follow these **guidelines**:
 - Ensure you are in a location where you will not be interrupted
 - Turn off all other devices (e.g. phones, second computers) and place them outside of your reach
 - Before starting the test, know how much time is available for it, and that you are allotted sufficient time to complete it
 - Clear your desk or workspace of all external materials not permitted - books, papers, other devices
 - Remain at your computer for the duration of the test
 - **If the computer, Wi-Fi, or location is different than what was used previously with the "Webcam Check" and "System & Network Check" in Lock-Down Browser, run the checks again prior to the exam**
 - To produce a good webcam video, do the following:
 - Avoid wearing baseball caps or hats with brims
 - Ensure your computer or device is on a firm surface (a desk or table). Do NOT have the computer on your lap, a bed, or other surface where the device (or you) is likely to move
 - If using a built-in webcam, avoid readjusting the tilt of the screen after the webcam setup is complete
 - Take the exam in a well-lit room, but avoid backlighting (such as sitting with your back to a window)
 - **Remember** that Lock-Down Browser will prevent you from accessing other websites or applications; you will be unable to exit the test until all questions are completed and submitted
4. **Several resources** are available if you encounter problems with Lock-Down Browser:
 - The Windows and Mac versions of Lock-Down Browser have a "Help Center" button located on the toolbar. Use the "System & Network Check" to troubleshoot issues. If an exam requires you to use a webcam, also run the "Webcam Check" from this area
 - Respondus has a Knowledge Base available from support.respondus.com. Select the "Knowledge Base" link and then select "Respondus Lock-Down Browser" as the product. If your problem is with a webcam, select "Respondus Monitor" as your product
 - If you're still unable to resolve a technical issue with Lock-Down Browser, go to support.respondus.com and select "Submit a Ticket". Provide detailed information about your problem and what steps you took to resolve it

Technology Information and Requirements

Technology Requirements

Minimum technical requirements for UK courses and suggested hardware, software, and internet connections are available at [ITS Student Hardware & Software Guidelines](#).

Technical Support

For account help, contact UK's [Information Technology Customer Services online](#), by [email](#), or by phone at 859-218-HELP (4357).

Make up Exams

If you miss either exam and do not request an excused absence before the exam, your exam grade will be a zero. For those with excused absences, the make-up exam will be given soon after the missed exam at a common time reasonably convenient to all parties. Make up exams cannot be taken before the exam date and need to be administered by Friday of the exam week.

Excused Absences: Senate Rules 5.2.4.2 defines the following as acceptable reasons for excused absences: (a) significant illness, (b) death of a family member, (c) trips for members of student organizations sponsored by an educational unit, trips for university classes, and trips for participation in intercollegiate athletic events, (d) major religious holidays, (e) interviews for graduate/professional school or full-time employment postgraduation,

and (f) other circumstances found to fit "reasonable cause for nonattendance" by the instructor of record. Students should notify the professor of absences prior to class when possible.

If a course syllabus requires specific interactions (e.g., with the instructor or other students), in situations where a student's total EXCUSED absences exceed 1/5 (or 20%) of the required interactions for the course, the student shall have the right to request and receive a "W," or the Instructor of Record may award an "I" for the course if the student declines a "W." (Senate Rules 5.2.4.2.1)

Verification of Absences (Senate Rules 5.2.4.2.A, B, C, and E): Students may be asked to verify their absences for them to be considered excused. *Senate Rule 5.2.4.2* states that faculty have the right to request appropriate verification when students claim an excused absence due to: significant illness; death in the household, trips for classes, trips sponsored by an educational unit and trips for participation related to intercollegiate athletic events; and interviews for full-time job opportunities after graduation and interviews for graduate and professional school. (Appropriate notification of absences due to university-related trips is required prior to the absence when feasible and in no case more than one week after the absence.)

Students may be asked to verify their absences for them to be considered excused. *Senate Rule 5.2.4.2* states that faculty have the right to request "appropriate verification" when students claim an excused absence because of illness, or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence when feasible and in no case more than one week after the absence.

Grievance Procedure: Anyone feeling that a dispute exists after the grading of an exam may submit a written grievance. The grievance should identify the item in dispute and provide arguments supporting the student's position. Grievances must be **submitted within two class periods following the return of the exam/assignments.**

Academic Integrity – Prohibition on Cheating (Senate Rules 6.3.2)

Per University policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to university policy on cheating and plagiarism in all courses. **The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the University may be imposed.**

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found on the Academic Ombud page. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Senate Rule 6.3.1 (see current Senate Rules) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about a question of plagiarism involving their work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording, or content from another source without appropriate acknowledgment of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's work (including, but not limited to a published article, a book, a website, computer code, or a paper from a friend) without clear attribution. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work, which a student submits as his/her own, whoever that other person may be. Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone.

When a student's assignment involves research in outside sources or information, the student must carefully acknowledge exactly what, where and how he/she has employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content, and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas, which are so generally and freely circulated as to be a part of the public domain.

Non-discrimination Statement and Title IX Information

UK is committed to providing a safe learning, living, and working environments for all members of the University community. The University maintains a comprehensive program which protects all members from discrimination, harassment, and sexual misconduct. For complete information about UK's prohibition on discrimination and harassment on aspects such as race, color, ethnic origin, national origin, creed, religion, political belief, sex, and sexual orientation, please see [the electronic version of UK's Administrative Regulation 6:1 \("Policy on Discrimination and Harassment"\)](#). In accordance with Title IX of the Education Amendments of 1972, the University prohibits discrimination and harassment on the basis of sex in academics, employment, and all of its programs and activities. Sexual misconduct is a form of sexual harassment in which one act is severe enough to create a hostile environment based on sex and is prohibited between members of the University community and shall not be tolerated. For more details, please see [the electronic version of Administrative Regulations 6:2 \("Policy and Procedures for Addressing and Resolving Allegations of Sexual Assault, Stalking, Dating Violence, Domestic Violence, and Sexual Exploitation"\)](#). Complaints regarding violations of University policies on discrimination, harassment, and sexual misconduct are handled by the Office of Institutional Equity and Equal Opportunity (IEEO), which is located in 13 Main Building and can be reached by phone at (859) 257-8927. You can also visit [the IEEO's website](#). Faculty members are obligated to forward any report made by a student related to IEEO matters to the Office of Institutional Equity and Equal Opportunity. Students can *confidentially* report alleged incidences through the Violence Intervention and Prevention Center, Counseling Center, or University Health Services.

Accommodations

If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (DRC). The DRC coordinates campus disability services available to students with disabilities. Visit the [DRC website](#), [email the DRC](#), contact them by phone at (859) 257-2754, or visit their office on the corner of Rose Street and Huguelet Drive in the Multidisciplinary Science Building, Suite 407.