Dillard College of Business Administration

Syllabus:
Intro to Econometrics - 20370 - ECON 3543 Section 201
Spring Session, 2024

Classes are on Tuesday and Thursday from 12:30pm to 1:50pm
in Dillard Building 306

CONTACT INFORMATION:
INSTRUCTOR: Dr. John E. Martinez
OFFICE BLDG: Dillard College, Second Floor, Room 255
OFFICE PHONE: (940) 397-4722
E-MAIL: john.martinez@msutexas.edu
OFFICE HOURS: 10:00 am to 11:00 am Tuesday, Wednesday and Thursday
                       and from 2:30 pm to 4:30 pm on Wednesday or by appointment

COURSE MATERIALS:
Required Text:
Gujarati, Damodar; **Essentials of Econometrics**, Third edition
ISBN 978-0-07-297092-0, Publisher: McGraw-Hill Irwin, Publication date: 2006
4th edition of the text by the same author parallel closely with the 3rd edition.
See APPENDIX I and II for comparison of 4th with 3rd edition.
Optional Text:
Cody, Ron**: A Gentle Introduction to Statistics Using SAS® Studio in the Cloud,**
Copyright © 2021, SAS Institute Inc., Cary, NC, USA
978-1-954844-49-0 (Hardcover); 978-1-954844-45-2 (Paperback); 978-1-954844-46-9 (Web
PDF); 978-1-954844-47-6 (EPUB); 978-1-954844-48-3 (Kindle)

Important! Be sure to bring Required text to each class.

**Access to the following software is required for this class: SAS OnDemand for
Academics and access to EXEL**
SAS University Edition was a free version of SAS, but you had to download software to
create a virtual computer on your real computer, then download the SAS software, and
finally, set up a way to read and write files from your "real" computer to the "virtual computer".
This caused many people massive headaches (including the author). The great news about
SAS OnDemand for Academics (hence forth called **SODA – SAS OnDemand of
Academics**) is that you don't have to download anything! You access SAS on a cloud
platform. Also, reading data from your real computer is quite simple.

SODA uses SAS Studio as the interface. SAS Studio provides an environment that
includes a point-and-click facility for performing many common tasks, such as producing
reports, graphs, data summaries, and statistical tests.

Registering for SODA
To gain access to SODA, you need to register with SAS Institute. Part of the registration process is to create a SAS profile. If you already have a SAS profile, skip that portion of the instructions. To start, point your browser to: https://www.sas.com/en_us/software/on-demand-for-academics.html or https://welcome.oda.sas.com or https://welcome.oda.sas.com/displayCourse/10f9202c-5ba3-4c6c-b9dc-a5b322e2e663

The text is designed to help students fully understand statistical analysis, its components, and its uses. Taking into consideration current statistical technology, its focuses on the use and interpretation of software, while also demonstrating the logic, reasoning, and calculations that lie behind any statistical analysis. Furthermore, the test emphasizes the application of regression tools to real-life business concerns. This multilayered, yet pragmatic approach fully equips students to derive the benefit and meaning of a statistical analysis.

Other Required Materials:
Students are required to have a video webcam. RESPONDUS will be used for monitoring purposes. Each student should have a thumb drive (USB) on which to keep various data sets and assignments that will be a part of each class. Projects and other selected assignments will include the requirement that electronic versions of your work be submitted. Maintaining these items on an accessible storage device will reduce stress that may otherwise develop with respect to submissions

COURSE DESCRIPTION:
The application of statistical methods to economic and financial analysis; particular attention is given to the regression analysis including limited and dichotomous dependent variables, regression diagnostics, hypothesis testing, analysis of variance, and selected topics in time series forecasting. Students can earn a SAS Badge upon successful completion of this class, along with another approved course. See the **Addendum I** below for **Information about SAS Certification.**

COURSE PREREQUISITE:
Junior standing or above or consent of the chair, and BUAD 3033 or equivalent.

OBJECTIVES:
LEARNING GOALS:
General Learning Goals:
Upon successful completion of this course, the student should:
- Demonstrate problem-solving and decision-making abilities through the critical analysis, evaluation, and interpretation of business information.
- Demonstrate a competency in speaking and writing for common business scenarios.
- Be able to utilize available technology for common business applications.

Course Specific Learning Goals:
Upon successful completion of this course, the student should:
- Be able to utilize SAS and EXCEL programs for solving business and economic problems. Demonstrate a competency, not only in using SAS and EXCEL programs, but also in interpreting output generated from those technologies.
- Understand basic ordinary least squares (OLS) regression and its application in economic research.

- Grasp the assumptions under which OLS regression analysis is developed and understand the reasons for these assumptions.
- Develop an understanding of the classical regression model and understand issues that arise when its fundamental assumptions are violated and to develop an appreciation for limitations that accompany OLS regression analysis and be able to identify instances in which application exceed common sense limitations.
- Demonstrate ability to read and interpret articles in which regression analysis is employed and identify specific items that validate (or invalidate) the model(s) and application(s).
- Understand extended applications of basic OLS regression analyses in selected, specialized econometric models.

Assessment:
Attainment of learning goals will be assessed by a combination of class discussions, problems and exercises in class, quizzes, and exams. Exercises and exams will assess student problem solving and decision making abilities as demonstrated by critical analysis, evaluation, and interpretation of business and economic information.

SYLLABUS CHANGE POLICY:
This syllabus is a guide for the course and is subject to change. All changes will be announced in class and students will be responsible for incorporating the changes into the syllabus. If, at some point, the university switches to an online format, then there will be significant changes in the manner in which exams are administered. Any exam taken online will be monitored through RESPONDUS, which will require students to have access to a webcam video.

COURSE POLICIES:
A. Attendance Policy:
Attendance is required for all in-class sessions for this course. You are expected to log into D2L a minimum of once weekly to check for updates and announcements via postings and email. See the university catalog for the University Class Attendance Policy.

B. Other Related Policies
Contact Procedures: Sending messages either through my email [john.martinez@msutexas.edu] or through D2L is the easiest asynchronous method of contacting me with a substantial issue. I respond to your emails within 48 hours (usually much faster). Text messages to my cell phone work well for emergency issues. Calling me by cell is for pressing matters only.
Course Time: Deadlines indicated in the syllabus/D2L are for Central Daylight Time. If you are completing coursework in another time zone, please note the time difference and plan accordingly.
Missed Examination Policy: Not applicable. You are responsible for managing your schedule to complete the quizzes by the posted time / date. If an emergency arises (e.g. serious injury, serious illness or death in your immediate family) contact me ASAP for different test arrangements.

GRADING and EVALUATIONS:
A student's grade will be based on one of the following:
Option I

Three Major Exams 75%   750 Points
Research Project   25%   250 Points

Option II
Three Major Exams 60%   600 Points
Research Project   20%   200 Points
Final Exam   20%   200 Points

GRADE EVALUATION:
As a percent of total points:
A (Above 90), B (80-89), C (70-79), D (60-69), F (below 60)

Option I Total Points:
[Avg. Exam Score X 7.5] + [Final Exam Score X 4.0] + [Res. Proj. X 2.5] + [Bon Pts.]

Option II Total Points:
[Avg. Exam Score X 6.0] + [Final Exam Score X 2.0] + [Res. Proj. X 2.0] + [Bon Pts.]

Major exams:
Three major exams will be given. Each exam is equally weighted and will involve calculation and derivation of answers as well as their interpretation and meaning. **Questions will come primarily from output generated from designated SAS programs.** The SAS programs required to generate the SAS output are provided in a separate WORD file. Failure to take an exam on the scheduled date without prior approval will result either in an 'F' or 'I' (Incomplete) for the course. Online Exams are scheduled to begin at midday 12:00pm and to be completed by 10:00pm on Friday with a specified time limit of two hours. Students have the option as to the time, but are limited to one attempt only. Additional attempts constitute cheating and will be severely punished. The last major exam is scheduled to be taken during class time on the last day of class of the regular semester (prior to Final Exam week).

Final exam:
An optional final exam will be given with primary emphasis over the last section of the class. The Final will involve calculation and derivation of answers as well as their interpretation and meaning. **Questions will come primarily from output generated from designated SAS programs.**

Research Project:
See separate attachment about the requirements for your research project.

Missed Final Exam Policy:
No makeup exams are given. If a student has a legitimate reason for missing either Exam 1 or Exam 2, the final exam score will replace the missing exam score. It is **your responsibility** to talk to instructor well in advance to ask to take the exam early. If I am not available in my office, you must leave a text message or e-mail **before the exam begins.** Provided there is a legitimate reason for missing the last exam, a student will receive a grad of 'I' for the course.
Class Participation:
Students are expected to participate in all class discussions.

Bonus Points:
Students may earn bonus points on a variety of assignments or on any number or other instructor approved activities.

Campus Carry:
Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Areas excluded from concealed carry are appropriately marked, in accordance with state law. For information regarding campus carry, please refer to the University's webpage at Campus Carry Polices Link.

Academic Integrity:
With regard to academic honesty, students are referred to the "Student Honor Creed" of **Midwestern State University Undergraduate Catalog**.

Americans with Disabilities Act:
This class follows the guidelines suggested by the Center for Counseling and Disabilities Services for those students who qualify for disability services. **See Midwestern State University Undergraduate Catalog.**

D2L:
The Midwestern State University D2L program will be incorporated into this class and will provide the primary default means of communication. Grades will be posted using D2L. **Each student is expected to master the use of the university website, D2L.** Assistance to achieve comfort using this program will be available as needed.

Syllabus Change Policy:
This syllabus is a guide for the course and is subject to change. All changes will be announced in class and students will be responsible for incorporating the changes into the syllabus. This syllabus is a guide for the course—not a "contract"—and is subject to change. Syllabus changes will be communicated via D2L.

OTHER RELEVANT INFORMATION:

Midwestern State University Student Handbook:
See the most recent MSU Student Handbook for a statement of the university's policy on academic dishonesty. Any other questions not specifically addressed by this syllabus are governed by the student handbook. Make sure you have a copy and are familiar with all the procedures therein. Pay close attention to the Code of Student Conduct section.

Medical or Other Serious Problems:
Please take time and make the effort to advise me if you have difficulties that require my attention to properly evaluate your classroom participation and activities.

Tape Recordings and Cell Phones:
Tape recording of lectures is permitted. You may not tape record any information or class discussion when a graded test is being reviewed. Cell phones and pagers are prohibited unless the instructor has granted permission to have them in class.

Return of Exams: For any in-class exam, failure to return exam will result in a 0 for that exam.

Grade Postings: Exam grades will be posted using D2L.

Plagiarism Statement:
"By enrolling in this course, the student expressly grants MSU a "limited right" in all intellectual property created by the student for the purpose of this course. The "limited right" shall include but shall not be limited to the right to reproduce the student's work product in order to verify originality and authenticity, and educational purposes."

Lower Grades:
The instructor reserves the right to lower any student's final grade by a letter grade for:
(A)   A negative, rude, unreasonably argumentative or inattentive attitude in class, or,
(B)   Repeatedly disrupting the class for any reason (tardiness), or,
(C)   Not showing respect for fellow classmates' questions or opinions.

Course Content and Outline:
Essentials of Econometrics, 3/e Damodar N. Gujarati
Chap 1   The Nature and Scope of Econometrics
[Problems to be solved with SAS] – 1.6 & 1.7
Part I BASICS OF PROBABILITY AND STATISTICS
Chap 2   Review of Statistics I: Probability and Probability Distributions
[Problems to be solved with SAS] – 2.14, 2.16-17
Chap 3   Characteristics of Probability Distributions
[Problems to be solved with SAS] – 3.9-10, 3.13, 3.15-16
Chap 4   Some Important Probability Distributions
[Problems to be solved with SAS] – 4.10-11, 4.13, 417, 4.19-20
Chap 5   Statistical Inference: Estimation and Hypothesis Testing
[Problems to be solved with SAS] – 5.7-10, 5.12, 5.15, & 5.20
Exam I: Scheduled to begin on Thursday, Feb. 22 starting at 8:00am and to be completed by 10:00pm on Saturday, Feb. 24. The Exam will be online via D2L - with a two-hour time limit – and monitored by RESPONDUS.

Part II THE LINEAR REGRESSION MODEL
Chapter 6   Basic Ideas of Linear Regression: The Two-Variable Model
[Problems to be solved with SAS] – 6.12, 6.13, 6.15, 6.16, 6.17, 6.18, 6.19 & 6.21
Chapter 7   The Two-Variable Model: Hypothesis Testing
[Problems to be solved with SAS] – 7.12-16, 7.18-23
Chapter 8   Multiple Regression: Estimation and Hypothesis Testing
[Problems to be solved with SAS] – 8.14, 8.16, 8.17, 8.18, & 8.19
Chapter 9   Functional Forms of Regression Models
[Problems to be solved with SAS] – 9.12, 9.13, 9.15, 9.16, 9.17, 9.18, 9.19 & 9.21
Chapter 10 Dummy Variable Regression Models
[Problems to be solved with SAS] – 10.11, 10.12, 10.19, 10.20 & 10.21
Exam II: Scheduled to begin on Thursday, March 21 starting at 8:00am and to be completed by 10:00pm on Saturday, March 23. The Exam will be online via D2L - with a two-hour time limit – and monitored by RESPONDUS.

Part III REGRESSION ANALYSIS IN PRACTICE
Chapter 11 Model Selection: Criteria and Tests
Chapter 12 Multicollinearity: What Happens if Explanatory Variables are Correlated?
Chapter 13 Heteroscedasticity: What Happens if the Error Variance is Nonconstant
Chapter 14 Autocorrelation: What Happens if Error Terms are Correlated?
Exam III: Is scheduled for the last class period of the regular semester on Thursday, May 2. The Exam is scheduled for in-class with a one-hour and 15 minute time limit.

Final exam- https://msutexas.edu/registrar/_assets/files/pdfs/spring24finals.pdf
Thursday May 9 from 10:30am-12:30pm.

ADDENDUM I
Information about SAS Certification

Taking SAS certification exams help you validate your skills and increase your value to an employer. You can choose SAS certifications across many subjects, including programming, data management, and analytics, to name a few. For more information on SAS certification go here: https://www.sas.com/en_us/certification.html. All students, teachers, professors or staff associated with an academic institution qualify for **50% discount** on all SAS certification exams. Please contact certification@sas.com to receive the discount code that will reduce the exam fee by 50% during the registration process.

Resources for Learning SAS
SAS Certification Prep Guides: https://www.sas.com/store/books/categories/certification-guide/cBooks-cbooks_categories-cbooks_categories_12-p1.html
SAS Skill Set Learning Goals include: Data Visualization, SAS Programming, Statistical Analysis, and Descriptive Analytics. Visit SAS Communities Visit our online sites to share and connect with other SAS users and build your SAS skills. Don't miss key communities including: SAS Certification, SAS Training, SAS Academy for Data Science, SAS Programming, New SAS User, SAS Analytics U and SAS Viya for Learners.
https://communities.sas.com/t5/Learn-SAS/ct-p/learn

Spring Semester 2024* Priority Application Date for Admission

Martin Luther King's Birthday observed...January 15
Classes begin..January 16
Change of Schedule and Late Registration...January 16-19
Final Deadline for May graduates to file for graduation ....February 12
Part of Term A Last Day for "W", 4:00 p.m. –
Drops after this date will receive grades of "F." >>>>>>>>>>>………………....February 28
Spring Break begins 5:00 p.m. ....March 9 (March 10-16)
Classes resume ....March 18
Holiday Break begins 10:00 p.m. ....March 27
Classes resume .... April 1
Last day of classes... May 3
Last Day for "W", 4:00 p.m. – Drops after this date will receive grades of "F." ....April 24
Final examinations begin .... May 4
Commencement .... May 11

APPENDIX I

Essentials of Econometrics - 4th edition compared to 3rd ed. Damodar N. Gujarati

ECON 3543 – Econometrics
Student Econometric Research Projects - General guidelines

- Select three of the following nine research projects to complete.
- All research problems below require estimating regression models using updated table data.
- Use SAS to generate all the required output.
- Test all the assumptions (A8.1-A8.7, pp. 212-13) for any multiple regression model estimated.
- Be sure to interpret the results of the output for each model estimated.
- For any assumption violated, provide remedial measures.
- The SAS code used to generate output should be attached in an Appendix at the end of each problem.
- All projects are due by midnight on _____.

Research Project I:
A. With updated data for Table 1-1, test whether the 'added' or 'discouraged' worker hypothesis is correct using Eq. 1.2.
B. With updated data for Table 1-4, test whether the 'added' or 'discouraged' worker hypothesis is correct using Eq. 1.2.

Research Project II:
A. With the updated data for Table 6-12, provide answers for Prob 6.17.
B. With the updated data for Table 6-13, provide answers for Prob. 6.18 (refer to Ex. 6.3).

Research Project III:
A. With the updated data for Table 7-4, provide answers for Prob 7.12.
B. With the updated data for Table 7-6, (Table 11-1), provide answers for Prob. 7.23 (refer to Ex. 11.3).

Research Project IV:
A. With the updated data for Table 9-6, test to determine if the Phillips curve model holds for the U.S. (refer to Ex. 9.6). Provide answers for Prob 10.23.
B. With the updated data for Table 9-2, provide answers for Prob. 9.11 (refer to Ex. 9.2).

Research Project V:
A. With the updated data for Table 10-2, estimate Eq. 10.7 (refer to Ex. 10.2 on right-to-work laws).
B. By adding per capita income as an explanatory variable to Eq. 10.7, how do the results differ?

Research Project VI:
A. With the updated data for Table 10-7, estimate Eq. 10.26 (refer to Ex. 10.4 on Saving-income relationship).
B. By adding per capita wealth as an explanatory variable to Eq. 10.26, how do the results differ?

Research Project VII:
A. With the updated data for Table 8-6, provide answers to 8.14 a-g.
B. With the updated data for Table 8-6 (or Table 13-5), estimate Eq. 11.6-7 (refer to Ex. 11.1 on Child Mortality).

Research Project VIII:
A. With the updated data for Table 7-6, provide answers to Prob. 7.23.
B. With the updated data for Table 7-6 or Table 11-1, estimate Eq. 11.13-4 (refer to Ex. 11.3 on U.S. Import Expenditures) and provide answers to Prob. 13.18-20 .

Research Project IX:
A. With the updated data for Table 12-5, provide answers to Prob. 12.14.
B. With the updated data for Table 12-5, provide answers to Prob. 12.15-19.
Research Project X:
A. With the updated data for Table 14-1, re-produce Table 14-5.

B. With the updated data for Table 14-6, provide answers to Prob. 14.17-18.

Format policies and instructions for research Project :

Name_____ _
Provide screenshot of your SODA Registration or license #
Research Project #
A.
B.

The following is strictly for example purposes:

Name John Doe
u45422697
Research Project II:
A. With the updated data for Table 6-12, provide answers for Prob 6.17.
B. With the updated data for Table 6-13, provide answers for Prob. 6.18 (refer to Ex. 6.3).

1. For each Research Project submitted, enter your name in the header above. This is your signature.
2. By signing this assignment, you agree that you are using the Word version posted on D2L.
3. By signing this assignment, you agree to work independently. However, if the instructor finds out that you have received help, you and the helper will receive zero credits.
4. You must submit your assignment through the Drop Box on D2L by the deadline. Late submissions will receive zero credit. Please follow the instructions: click on assessments, then on assignments, then on Homework, then on add file, then on my computer, then on upload, then choose your file, then on open, then on add, then on submit, and then on done. Then, your will receive a submission receipt email.
5. You can use all class material and the textbook for answering any research project.
6. Include this page in your submission.
7. You must submit a Word document. Do not submit pictures of your homework, they will not be accepted, and you will receive zero credits.
8. I will not reply to emails regarding homework issues the last 6 hours prior to the deadline.
9. If I cannot open your file due to a different computer operating system, you will receive zero credits. If you have a computer that uses a Mac operating system, make sure your file can be open with a computer that uses Microsoft Windows. The student is responsible for submitting a file that can be managed with Microsoft operating system.
10. One submission per research project will only be accepted.
11. For each project, submit your assignment as one Word document only.
12. Make sure your submission has the answers to each problem – A and B. Do not share your answers, it will hurt your grade.
13. If you change the format of the homework, a 20% penalty will apply.