



Dillard College of Business Administration

**Syllabus:
Intro to Econometrics - 30374 - ECON 3543 Section 201
Spring Session, 2023**

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, Rm 255
OFFICE PHONE: (940) 397-4722
E-MAIL: john.martinez@msutexas.edu
OFFICE HOURS: 10:00 am to 11:15 am Monday, Tuesday, Wednesday and
Thursday 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
The 2nd and 4th edition of the text by the same author parallel closely with the 3rd edition.
See APPENDIX I and II for comparison of 4th and 2nd edition 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, it focuses on the use and interpretation of software, while also demonstrating the logic, reasoning, and calculations that lie behind any statistical analysis. Furthermore, the text 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:

| | | |
|------------------|-----|------------|
| Two Major Exams | 40% | 400 Points |
| Final Exam | 40% | 400 Points |
| Research Project | 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)

Total Points:

[Avg. Exam Score X 4.0] + [Final Exam Score X 4.0] + [Res. Proj. X 2.0] + [Bon Pts.]

Major exams:

Two major **online** 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 PDF 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.

Final exam:

A final exam will be given, but only over the last section of the class. The final is scheduled to be taken during class time on the last day of class [July 1]. 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, because of a truly unavoidable situation, you are absolutely not able to take the final exam at the scheduled time/date, 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. 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.

Class Participation:

Students are expected to participate in all class discussions.

Bonus Points:

Students may earn bonus points on quizzes (see example above) and 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 more 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: Not applicable**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 (i.e., A to B, D to F) 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****Table of Contents**

Chapter 1 The Nature and Scope of Econometrics

[Problems to be solved with SAS] – 1.6 & 1.7

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, 7.13, 7.14, 7.15, 7.16, 7.18, 7.19, 7.20 7.21, 7.22 & 7.23

Exam I: Scheduled to begin on Sunday, Feb. 26 - with a two-hour time limit.

The online exam starts at 8:00am and is to be completed by 10:00pm.

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 for Sunday, Mar. 26 - with a two-hour time limit.

The online exam starts at 8:00am and is to be completed by 10:00pm.

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?

Part IV ADVANCED TOPICS IN ECONOMETRICS*

Chapter 15 Simultaneous Equation Models

Chapter 16 Selected Topics in Single Equation Regression Models

*This section is not covered.

Exam III- Scheduled for Thursday, May 4 12:30pm.

The exam is scheduled during class time with a one-hour and 15 minute time limit.

The exam covers chapters 11 to 14 only.

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

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>

SAS Skill Set Learning Goals

- Data Visualization
- SAS Programming
- Statistical Analysis
- Descriptive Analytics

APPENDIX I

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

| Essentials of Econometrics 4 th ed | Essentials of Econometrics 3 rd ed |
|--|---|
| Chap 1: The Nature and Scope of Econometrics | Chap 1 The Nature and Scope of Econometrics |
| Part I: The Linear Regression Model Chap 2: Basic Ideas of Linear Regression Chap 3: The Two-Variable Model: Hypothesis Testing Chap 4: Multiple Regression: Est. and Hyp. Testing EXAM-I Chap 5: Functional Forms of Regression Models Chap 6: Dummy Variable Regression Models EXAM-II | Part II The Linear Regression Model Chap 6 Basic Ideas of Linear Regression: Chap 7 The Two-Variable Model: Hypothesis Testing Chap 8 Multiple Regression: Est. and Hyp. Testing EXAM-I Chap 9 Functional Forms of Regression Models Chap 10 Dummy Variable Regression Models EXAM-II |
| Part II: Regression Analysis in Practice Chap 7: Model Selection: Criteria and Tests Chap 8: Multicollinearity: Correlated Explanatory Vars? Chap 9: Heteroscedasticity: Nonconstant Error Variance? Chap 10: Autocorrelation: Correlated Error Terms? FINAL EXAM | Part III Regression Analysis In Practice Chap 11 Model Selection: Criteria and Tests Chap 12 Multicollinearity: Correlated Explanatory Var? Chap 13 Heteroscedasticity: Nonconstant Error Variance Chap 14 Autocorrelation: Correlated Error Terms? FINAL EXAM |
| Part III: Advanced Topics in Econometrics Chap 11: Simultaneous Equation Models Chap 12: Selected Topics in Single Equation Regression Models | Part IV Advanced Topics In Econometrics* Chap 15 — Simultaneous Equation Models Chap 16 — Selected Topics in Single Equation Regression Models |
| Appendices Introduction: Basics of Probability and Statistics Appendix A: Review of Statistics: Probability and Probability Distributions Appendix B: Characteristics of Probability Distributions Appendix C: Some Important Probability Distributions Appendix D: Statistical Inference: Estimation and Hypothesis Testing Appendix E: Statistical Tables Appendix F: Computer Output of EViews, Minitab, Excel, and STATA | Part I BASICS OF PROBABILITY AND STATISTICS Chap 2 — Review of Statistics I: Probability and Probability Distributions Chap 3 — Characteristics of Probability Distributions Chap 4 — Some Important Probability Distributions Chap 5 — Statistical Inference: Estimation and Hypothesis Testing |
| | APPENDIX A: STATISTICAL TABLES APPENDIX B: COMPUTER OUTPUT OF EIEWS, MINITAB, EXCEL, AND STATA |

APPENDIX II

Essentials of Econometrics - 2nd edition compared to 3rd ed. Damodar N. Gujarati

| Essentials of Econometrics 2nd ed | Essentials of Econometrics 3rd ed |
|---|---|
| Chap 1: The Nature and Scope of Econometrics | Chap 1 The Nature and Scope of Econometrics |
| Part II: The Linear Regression Model Chap 5: Basic Ideas of Linear Regression Chap 6: The Two-Variable Model: Hypothesis Testing Chap 7: Multiple Regression: Est. and Hyp. Testing EXAM-I Chap 8: Functional Forms of Regression Models Chap 9: Dummy Variable Regression Models EXAM-II | Part II The Linear Regression Model Chap 6 Basic Ideas of Linear Regression: Chap 7 The Two-Variable Model: Hypothesis Testing Chap 8 Multiple Regression: Est. and Hyp. Testing EXAM-I Chap 9 Functional Forms of Regression Models Chap 10 Dummy Variable Regression Models EXAM-II |
| Part III: Regression Analysis in Practice Chap 11: Model Selection: Criteria and Tests Chap 10: Multicollinearity: Correlated Explanatory Vars? Chap 11: Heteroscedasticity: Nonconstant Error Var? Chap 12: Autocorrelation: Correlated Error Terms? FINAL EXAM | Part III Regression Analysis In Practice Chap 11 Model Selection: Criteria and Tests Chap 12 Multicollinearity: Correlated Explanatory Var? Chap 13 Heteroscedasticity: Nonconstant Error Variance Chap 14 Autocorrelation: Correlated Error Terms? FINAL EXAM |
| Part III: Advanced Topics in Econometrics Chap 14: Selected Topics in Single Equation Regression Models | Part IV Advanced Topics In Econometrics* Chap 15 — Simultaneous Equation Models Chap 16 — Selected Topics in Single Equation Regression Models |
| Appendices Chap 2 — Review of Basic Statistical Concepts: Probability and Probability Distributions — Characteristics of Probability Distributions Chap 3 — Some Important Probability Distributions Chap 4 — Statistical Inference: Estimation and Hypothesis Testing | Part I BASICS OF PROBABILITY AND STATISTICS Chap 2 — Review of Statistics I: Probability and Probability Distributions Chap 3 — Characteristics of Probability Distributions Chap 4 — Some Important Probability Distributions Chap 5 — Statistical Inference: Estimation and Hypothesis Testing |
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