

ECONOMETRICS APPLICATIONS

Syllabus - SPRING 2018 - Econ400 - Item Code: 5127HYA

Classroom: D103 Time: Monday, 5.30pm – 7.40pm

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Course Descriptions

This course introduces Econometrics methods that are used in economics, business, finance, marketing, management and other disciplines, with emphasis on practical use and application. Students will construct models using real-world empirical data, conduct hypothesis testing, forecast outcomes, and learn to estimate and interpret the parameters of models.

Course Outcomes

- Apply appropriate econometric tools to model, estimate, and forecast economic problems
- Apply appropriate models using indicator variables onto various real-world situations
- Identify and interpret error problems in the model and apply appropriate treatments
- Use and apply regression analysis with time-series data and panel data
- Use econometrics software to process data and incorporate modeling techniques
- Perform model assessment and suggest improvements
- Critically evaluate the conclusions of others' econometrics research studies.

Course Prerequisites

A 60 prior credits of college is recommended, with a good understanding of Math, good knowledge of Statistics, and Microsoft Excel. Additionally, you should have good English reading and writing skills.

How Outcomes will be met

- Please make sure you have your MyBC Account activated, and your Canvas account.
- Always check regularly on Canvas: for "Announcements"& "Modules".
- Read through the Syllabus.
- Submit assignments on time; weekly and bi-weekly
- Research and writeTerm Paper
- Computer Lab will be conducted a couple times to introduce a software and to start with some commands and functions relevant to the course.

Grading

Each of your work will graded with 100 point-base and then will be taken in percentage as follows:

		А	92-100
Participation	20%	A-	88-91.9
Weekly Discussion	20%	B+	84-87.9
Project Assignments (4)	20%	В	80-83.9
Term Paper	20%	B-	76-79.9
Final Exam	20%	C+	72-75.9
		С	68-71.9
Total	100%	C-	65-67.9
		D+	60-64.5
		D	56-59.5

Your grade reflects your understanding of the chapter readings, assignments, and the time and efforts that you put into it. If the average class score is below 68.0, points will be added to all to bring the mean score to 68.0 percent.

Books & Materials

1) Introductory Econometrics With Applications, by Ramu Ramanathan, 5th edition, Harcourt. We'll use this textbook for the proceeding of the class; it's out of print at the moment; you could order via Amazon for a low price.

2) *Principles of Econometrics*, by Hill, Griffiths and Lim, 5th edition, Wiley. I'll use this as an additional reference as a more updated textbook, and include some of updated examples.

3) Software: We will be using Microsoft Excel and in comparison with an open-source software: Gretl. Go to this link to get the manuals on how to download and use Gretl: www.learneconometrics.com/gretl/

4) e-Resources: Journals related to Econometrics via JEL (Journal of Economic Literature) for a list of related journals.

5) External Databases for Economic Data: FRED, federalreserve.org, BLS, BEA, Penn World Tables, Census Data Ferrett, EconEdLink, Economagic, CIA, IMF, WorldBank.

Participation

The Participation constitutes 20 percent of your final grade.

This includes your attendance, participation in problem-solving, questions and answers, and a positive attitude in class. A successful student have the following positive traits:

- 1. Dependable: Attend every class and be on time. If you must be absent, let the instructor know and find out what you missed, and catch up by the next class. If you must leave class early, let the instructor know prior to class.
- 2. Prepared for class and complete homework on time. Bring *tools* needed: books, syllabi, handouts, folder to neatly store assignments. Patience. Kindness. Hardwork.
- 3. Paying attention, focused and not distract others. Avoid disruptive behaviors such as texting, interrupting others, walk out of the class, loud, putting others down, doing other courses' homework, etc.
- 4. Do your own work: confident building, and avoid plagiarism by quoting the sources.
- 5. Turn-off all other distractions: cellphone, laptop/ipad (unless necessary for class contents).

Weekly Discussion

<u>The assignments constitute 20 percent of your final grade</u>. Being in a Hybrid course, we meet only once-a-week in person, you will write a summary of each week's materials (chapters covered in each week), and you post them on Canvas. This will show on the canvas' modules each week. More information will be available on the Modules.

Homework/Project Assignments

The assignments constitute 20 percent of your final grade.

There will be four assignments throughout the quarter. The assignments will be conducted every other week in the form of a project that reflects the materials discussed in class and it will be a combination of theoretical concept and the use of the software with data provided. You will run a research, create an econometric model, and then write a report. Any late submission (homework/projects or term paper) will be deducted 10 percent point for each day late.

Term Paper

The Term Paper constitutes 20 percent of your final grade.

- You will work individually on a paper with a topic that you may choose from the following, but not limited to, topics:
 - 1. Economic Growth, Manufacturing and Trade
 - 2. Sustainable Economics: solar cells, hybrid cars, plastic use, toxic substances, etc.
 - 3. Social Media: Facebook, Tweeter
 - 4. Finance: stock market, DJIA, SP500, Nasdaq
 - 5. Housing market (local cities, states or nation-wide)
 - 6. Healthcare, Medicare, Medicaid
 - 7. Insurance Premiums
 - 8. Social Security and Welfare Programs
 - 9. Driving Safety: cellphone, texting
 - 10. Tehnology and Economy
 - 11. Consumerism, Consumption
 - 12. Fast Food, Soda, Obesity
 - 13. Luxury Goods and Income Groups
 - 14. Minimum Wage
 - 15. Price Control and Quantity Control
 - 16. International Trade (NAFTA, Trans-Pacific Trade Agreement)
 - 17. Businesses: small, medium, large businesses
 - 18. Emerging Economies: China, India, Russia, Chile, Israel
 - 19. Climate Change and Economies
 - 20. Taxes (Sales, Income, Property)
 - 21. GDP and National Debt
 - 22. GDP and Happiness

Specification:

By week 5, you will have to decide which topic, claim the topic and each student should have different topic;

By week 7 submit an outline (1-page): statement of problem or question, sources of data that you can work on, with components of the paper, with one line of sentence on each, to describe how you are planning to start it:

(1) opening/introduction (why you're interested in this topic)

(2) data sources (describe the data and its relevance to your topic, the sources website, any proxies used)

(3) models and methodologies used (minimum four indicator variables, sample must be random and at least 50 sets of samples, apply the methodologies discussed in class)

(4) data analysis and interpretation (analyze the output of your data: check the correlations of the variables and error terms, and conduct tests and treatment)

(5) tentative or potential findings

(6) and lastly, appendix (consists of your data output using software, biblio) - include this in your Final report.

On week 10, be prepared to present your paper to your class, and prepare minimum 5 slides, maximum 10 slides of powerpoint. Finalized paper should be submitted on the day of the Final Exam. Minimum 5 pages and maximum 10 pages, not including the appendix (your data output), typed double-spaced, 12-sized font, one-inch margin all around; free of spelling or grammatical error.

Grade for this Term Paper will be based on both the content of the paper and the clarity of presentation.

Final Exam

The Final Exam constitutes 20 percent of your final grade. Final Exam will follow the College's schedule.

You will be given more information and review one week prior to the final exam.

Please do not miss the exam. If it is an emergency, **you must notify me beforehand, and hand in a written document.** You may do this makeup exam before the end of the quarter to get your final grade. This exam will not be corresponding with the exam that your other classmates had completed.

COURSE OUTLINE (Tentative) - Please lookup the MODULES on Canvas

Week 1 Chapters 1 – 4

Introduction to Econometrics Review of Probability and Statistics Review of Simple Linear Model & Multiple Regression Model

Week 2 Chapter 14

Carrying out an Empirical Project Computer Lab Sessions: Introduction to using software *Project Assignment #1* – Due the following week

Week 3Chapter 5Multicollinearity: Identifying, Measuring, Dealing with MC

Week 4Chapter 6Choosing Functional Forms and Testing for Model Specification
Semi-Log, Double-Log, Polynomials

Project Assignment #2 – Due the following week

Week 5 Chapter 7

Qualitative Independent Variables Binary, Seasonal Effects, Interactive Terms

Week 6Chapter 8HeteroscedasticityCauses of HSK, Detecting, Effects, Testing, RemediesProject Assignment #3 – Due the following week

Week 7 Chapter 9

Serial Correlation: Consequences, Identification, Treatments, Testings: Durbin-Watson, BG-LM *Submit topic of the term paper*

Week 8 Chapter10

Distributed Lag Models Stationarity, Okun's Law, Philips Curve, LM test, Durbin h-test Submit an <u>outline</u> of your topic of the term paper Project Assignment #4 – Due the following week

Week 9Chapter 11Unit Roots and Dickey-Fuller TestsVector Error Correction Models, Cointegration, Causality and Granger Test

Week 10 Review for the Final Exam

Week 11 Submit Paper, and FINAL EXAM; Grade will be available within a week.

Division Statements

PROCEDURES AND GUIDELINES OF THE DIVISION

Cheating, Stealing and Plagiarizing*

Cheating, stealing and plagiarizing (using the ideas or words of another as one's own without crediting the source) and inappropriate/disruptive classroom behavior are violations of the Student Code of Conduct at Bellevue College. Examples of unacceptable behavior include, but are not limited to: talking out of turn, arriving late or leaving early without a valid reason, allowing cell phones/pagers to ring, and inappropriate behavior toward the instructor or classmates. The instructor can refer any violation of the Student Code of Conduct to the Dean of Student Services for possible probation or suspension from Bellevue College. Specific student rights, responsibilities and appeal procedures are listed in the Student Code of Conduct, available in the office of the Dean of Student Services.

Incomplete

If a student fails to complete all the required work for a course, an instructor may assign the grade of Incomplete ("I"). The student must complete the coursework by the end of the next quarter, or receive the assigned letter grade (usually an "F").

F Grade

Students who fail a course will receive a letter grade of "F."

Final Examination Schedule

The Social Science Division will adhere to the final examination schedule as stated in the BC Schedule. Final examinations will be held at the end of each quarter at fixed times. Instructors will not give examinations in advance of the regular schedule. A student who is absent from any examination held at any time during the quarter may forfeit the right to make up the examination. If, for illness or some other circumstance beyond the student's control, the student is unable to be present at any scheduled examination and has contacted the instructor on a timely basis, the student may be permitted to take such examination at a time designated by the instructor.

Withdrawal From Class

College policy states that students must formally withdraw from a class by the end of the seventh week of the quarter (Registration Office, B125). If a student has not withdrawn by that date, an appropriate letter grade will be assigned for the course.

Hardship Withdrawal

Instructors may assign the grade of "HW" (hardship withdrawal) at their discretion in the event that a student cannot complete the coursework due to extreme and exceptional circumstances. Students may also contact the Enrollment Services office BEFORE grades are assigned in cases of hardship.

Distribution of Grades

Grades will not be posted in the Social Science Division or in faculty offices, and secretaries will not give out grades. Students should access their grades through the BC Web site.

Return of Papers and Tests

Paper and/or Scantron score sheet returns will be arranged in the following ways ONLY: by mail, if student supplies the instructor with stamped, self-addressed envelope (with appropriate postage); or by the instructor designating a time and place whereby the student may retrieve his/her papers. Unclaimed papers and/or Scantron score sheets must be kept by the instructor for a minimum of sixty (60) instructional days following the end of the quarter.

*If you are accused of cheating, stealing exams and/or plagiarism, there is a Bellevue College Student Discipline and Appeals Procedure (the right to due process) which you may pursue. Contact the office of Division Chair (D110), the Dean of Student Services (B231A) or the Associated Student Body (C212) for information regarding the appeals process.

Bellevue College E-mail and access to MyBC and Canvas

All students registered for classes at Bellevue College are entitled to a network and e-mail account. Your student network account can be used to access your student e-mail, log in to computers in labs and classrooms, connect to the BC wireless network and log in to *My*BC. To create your account, go to: <u>https://bellevuecollege.edu/sam</u>. BC offers a wide variety of computer and learning labs to enhance learning and student success. Find current campus locations for all student labs by visiting the <u>Computing Services website</u>.

Disability Resource Center (DRC)

The Disability Resource Center serves students with a wide array of learning challenges and disabilities. If you are a student who has a disability or learning challenge for which you have documentation or have seen someone for treatment and if you feel you may need accommodations in order to be successful in college, please contact us as soon as possible. If you are a person who requires assistance in case of an emergency situation, such as a fire, earthquake, etc, please meet with your individual instructors to develop a safety plan within the first week of the quarter.

The DRC office is located in B 132 or you can call our reception desk at 425.564.2498. Deaf students can reach us by video phone at 425-440-2025 or by TTY at 425-564-4110. Please visit our website for application information into our program and other helpful links at www.bellevuecollege.edu/drc

Affirmation of Inclusion

Bellevue College is committed to maintaining an environment in which every member of the campus community feels welcome to participate in the life of the college, free from harassment and discrimination. We value our different backgrounds at Bellevue College, and students, faculty, staff members, and administrators are to treat one another with dignity and respect. http://bellevuecollege.edu/about/goals/inclusion.asp

Addendum: Getting Started - will be posted separately as a Welcoming Note

Welcome to the class! Listed here are the elements that will help you go through the quarter smoothly. The basic structure of the class will be based on "weekly" units, with each week requiring assigned reading, and homework problem sets.

First of all: Please read through the Syllabus.

Basically there are five things you'll need to do each week over the course of the quarter:

- 1. Always check Canvas for: "Modules" and "Announcements"
- 2. Read the assigned chapter for that week
- 3. Submit the homework assignments on time
- 4. Prepare your term paper early
- 5. Final Exam by the end of the quarter.

<u>**Textbook**</u>: You can find the textbook *Introductory Econometrics with Applications*, by Ramanathan, on Amazon, at low price since it's out of print at the moment; additionally I will also use some examples/data from a later book, *Principles of Econometrics*, by Hill, Griffiths, and Lim, fourth edition from Wiley Publisher.

A Typical Week

From Monday to Friday you'll want to read the chapter(s) for that week. On Friday/Saturday/Sunday you should work through as much of the weekly discussion assigned, and make sure to submit it on the set deadline. Every other week, there will be project that you will hand in on the following Monday.

Final Exam: The final exam will be covering all chapters for the quarter. I will post further information as we're approaching the last week.

Term Paper: It should cover application of econometrics methods that we discussed in class or used in the homework and computer lab, and be prepared to present your findings in class. The finalized term paper should be submitted on the day of the Final Exam.

Grading

Your final grade will come from the following: 20% from Participation (my observation), 20% from the homework assignments, 20% from projects, 20% from term paper, and 20% from the Final Exam.

Example: Suppose Tom received an *average* of 85/100 from homework assignments, an average of 90/100 from term paper, 85/100 for project, and received 80/100 on the final exam, and from my observation throughout the term he earns 85/100 for participation. The grade calculation:

 $(20\% \times 85) + (20\% \times 90) + (20\% \times 80) + (20\% \times 80) + (20\% \times 85) = 85.0$ points.

That is 82.0 points overall, which according to the table below is a B+.

92 - 100 =	А	(4.0 gpa)
88-91.9 =	A-	(3.7 gpa)
84-87.9 =	B+	(3.3 gpa)
80-83.9 =	В	(3.0 gpa)
76-79.9 =	B –	(2.7 gpa)
72-75.9 =	C+	(2.3 gpa)
68-71.5 =	С	(2.0 gpa)
65-67.9 =	C-	(1.7 gpa)
60-64.5 =	D	(1.3 gpa)
Below $60 =$	F	(0.0 gpa)

For other information, please read through the SYLLABUS.