

**College of Social Science**

**Department of Economics**

**Fall 2022**

**ECN 5012: Econometrics [3 Credits]**

**Course Prerequisite: ECN2083, ECN3103, ECN3185, ECN3186**

**Course Deliberation Date, Time and Venue: Saturday:19:00-20:15; #308Valikhanov bld**

**Instructor Details:**

Alma Kudebayeva PhD

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**Office Hours: T, Th 9:30-11:30; 16:00-17:00 and by appointment**

**Relationship of course and program**

The MAE program teaches students how to develop social and economic systems. This gives them flexibility in thinking and in choice of career. The program constructs logical thinking of students and estimations based on hypotheses. Students will learn where and why inflation occurs and how to predict the rate of inflation.

**Course Description and Scope**

The development of an econometric model is an integral part of econometric analysis. The objective of this course is to cover the theory and practical problems of the classical linear regression models and their complications such as endogeneity. The course covers nonlinear models in the application of economics and business. Topics cover a review of econometric models and diagnostics. This is followed by a detail discussion of estimations and hypothesis tests of the problems arising from the cross section regression models with spherical, non-spherical disturbances and others. During the course, students are expected to undertake project by utilizing both theoretical and analytical tools of econometric models.

**Learning objectives**

The main of objective of the course to develop analytical, statistical skills to analyse data and construct econometric models for the real economic world.

To make conclusions based on the estimation outputs of the regression models.

**Intended Learning Outcomes**

Upon completion of the subject, students should be able to accomplish the following:

1. Build Classical Regression models and estimate, identify and analyze those;
2. Construct Generalized Regression models with Autocorrelated Error Structure and

estimate and analyze those;

1. Analyse Generalized Regression models with Heteroschedastic Error Structure and estimate and analyze those;
2. Compose Dummy Variable Regression models and estimate, analyse and critize those;
3. Formulate Limited Dependent Variable Regression Models and estimate and analyse those;
4. Model Diagnostic, Misspecification Tests and Detection of Multicollinearity for different econometric Regression Models. Based on results of the tests to modify the model.

**Recommended Texts**

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| **WM** | **Introductory econometrics : a modern approach /** Jeffrey M. Wooldridge. Boston: Cengage Learning, 2016. SIXTH ED. |
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| --- | --- |
| **GW** | **Econometric analysis** / William H. Greene. Pearson, 2018. 8TH ED |
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**Additional References**

DC **Introduction to Econometrics** Dougherty,C. New York: Palgrave Macmillan

2011

Boffelli, Simona, **Financial econometrics using Stata** Stata Press, 2016.

1st Edition

**Stata11 Manuals**

**Proposed Lectures Schedule**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Week** | | **Topics Covered** | | **Reference** |
| 1-3 | | Linear Regression with One Regressor | | **W/M:** Ch 4, 5  **D/C: Ch1, 2** |
|  | | Hypothesis test and confidence intervals | | L:\Alma Kudebayeva\Fall2019\ECN5012 Econometrics/ Chapter1, Chapter2 |
| 4-5 | | Linear Regression with Multiple Regressors. Hypothesis Tests and Confidence Intervals in Multiple Regression | | **S/W:** Ch 6,7 |
|  | | Simultaneous equations.  Instrumental Variable estimation. | | D/C: Ch3 |
|  | | Difference in Differences | | L:\Alma Kudebayeva\Fall2019\ECN5012 Econometrics/ Chapter3  **DC: Ch9, WD:11** |
| 6-8 | | Nonlinear Models and Dummy Variables | | D/C Ch4,5 |
|  | | **Midterm 1** | | L:\Alma Kudebayeva\Fall2017\ECN5012 Econometrics/ Chapter4, Chapter5 |
| 9 | | **Mid Term Break** | |  |
|  | |  | |  |
| 10 | | Heteroscedasticity | | **D/C:** Ch 7 |
|  | |  | | L:\Alma Kudebayeva\Fall2019\ECN5012 Econometrics/ Chapter7 |
| 11 | | Simultaneous Equations Estimation | | **D/C: Ch9**  L:\Alma Kudebayeva\Fall2019\ECN5012 Econometrics/ Chapter9 |
| 12-14 | | Autocorrelation. Tests for autocorrelation: Durbin-Watson statistics. Normality of the disturbance term. Tests for normality **(Midterm 2)** | | **B/C:** Ch 5  D/C Ch12  L:\Alma Kudebayeva\Fall2019\ECN5012 Econometrics/ Normality\_autocorrelation |
| 15 | | Writing up of the Final Project | |  |
|  | |  | |  |
| 16 |  | Submission of **Final Project** |  | |

\* The schedule is tentative and may change

**Relationship of course and program**

Prerequisites: Bachelor degree in science.

The given course is deemed as a course building upon and encompassing an array of economic disciplines including ECN3081 Micro- and ECN3082 Macroeconomics, ECN3184 Econometric methods, etc

**Teaching and learning philosophy and methodology**

There will be both lectures and computer lab sessions. Continuous interactive discussions will be made in group setting throughout the session. Individual and group assignments will be discussed thoroughly.

Students are encouraged to come to the class with prior preparation in order to contribute class participation and discussions. Questions and Problems will be set by both the course instructors and the students time to time for group discussions. Students are expected to spend at least 3 hours per week for reading related lectures materials, papers, and text book chapters in advance. Also student has to prepare their own problem solving questions related to their subject topics, lectures and Computer Lab Exercise for discussions and for Examination preparation should spend at least 4 hours per week. These will help them for solving their assignment questions, Computer Practice Session and the preparation for their final examination. The students learn how to work in STATA - the statistic software to run regressions and tests during the computer labs.

**Guidelines for the Final Project:**

**1.** Define the topic from the economic subjects, examples are:

* Foreign direct investments and economic growth;
* Economic growth and inequality;
* Determinants of Poverty;
* Gender gaps in earnings;
* Gender gaps in education;
* Gender differences in employment;
* Unemployment and inflation.

2. Collect data, you have to find statistic data for your research, which can be freely available.

3. Define an economic model, hypothesis that you would like to test.

4. Run regressions, provide tests for multicollinearity, heteroscedasticity, autocorrelation and normality.

5. Give the analysis and interpretation of the coefficients of regression.

6. Submit me the hard and electronic copy of your final project, do file in STATA and data file that you used in the project.

**Course Assessment Scheme**

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| --- | --- |
| **Components** | **Grades** |
|  |  |
| Attendance | 5% |
| Midterm #1 | 25% |
|  |  |
| Midterm #2 | 30% |
| Final Project | 40% |
|  |  |
| Total | 100% |

Throughout the Semester students will be expected to be tested through Quizzes, assignments, presentation and final examination. Only students who acquired half of the Midterm Examinations marks will be allowed to sit for the final examination. Course Grading Scale will be followed according to KIMEP University Grading Scale:

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| --- | --- | --- | --- |
| A+ | 90-100 | C+ | 67-69 |
| A | 85-89 | C | 63-66 |
| A- | 80-84 | C- | 60-62 |
| B+ | 77-79 | D+ | 57-59 |
| B | 73-76 | D | 53-56 |
| B- | 70-72 | D- | 50-52 |
|  |  | F | 0-49 |

**Course Discipline, Policies and Grading Scale**

**Course discipline, policies and grading scale will be followed strictly according to the KIMEP Catalogue: 2016-2017**

**Special Instructions and Necessary course related notices will be provided to the Student Corner of the Instructor Course Related information in the L Drive. Students are encouraged to check that time to time**

**Class Makeup**

**All makeup requires a documented, excused absence**. Emergencies will be handled ona case-by-case basis. These include documented medical and family emergencies and travel with university organizations only. These do not include going home for a long weekend, having a cold, or oversleeping.

**Class Attendance**

Regular attendance is expected and explicitly graded. I expect you to be on time and not to be disruptive. If you miss class it is your responsibility for knowledge of all material and information presented in class, including announcements. **If you come to class, turn** **off your seller phones, don’t sleep, don’t SMS, don’t read Magazines, don’t solve Sudoku.**

**Academic Discipline and Cheating**

Students are expected to have high level of academic honesty. Any dishonesty will be treated according to the KIMEP University rules and regulations. The penalty for cheating on an exam is a failing grade in this course. I reserve the right to require special seating for anyone taking an exam.

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