CATÓLICA LISBON
BUSINESS & ECONOMICS

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Econometrics

Academic Year: **2020/2021** **1st Semester**

Level of curricular unit: Undergraduate (1st cycle, as defined in the Framework of Qualifications for the European Higher Education Area)

Instructor(s):

Patrícia Cruz

Contact(s) and Office hours:

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Course overview and objectives:

Econometrics is an introductory course for the Undergraduate programs. Students are introduced to the basic techniques of econometric analysis. The course is taught in English.
The main objectives of the course are to introduce students to basic econometrics techniques and to prepare them to do their own applied work.

Course Content:

I. Introduction

II. The classical linear regression model

1. The simple linear regression model
   - 1.1 The economic model
   - 1.2 The statistical model and data
   - 1.3 The least squares estimator.
   - 1.4 Sampling properties of the OLS estimator.
   - 1.5 Variance–Covariance matrix of the OLS estimators of the regression coefficients.
   - 1.6 Variance estimator.

2. Inference in the simple linear regression model
   - 2.1 Interval estimation
   - 2.2 Hypothesis testing
   - 2.3 Prediction
   - 2.4 The coefficient of determination

3. The general linear regression model
   - 3.1 The economic model
   - 3.2 The statistical model and data
   - 3.3 The least squares estimators of the regression coefficients and of the error variance.
   - 3.4 Sampling properties of the least squares estimator
   - 3.5 Variance–Covariance matrix of the OLS estimators of the regression coefficients.
   - 3.6 The coefficient of determination.
   - 3.7 Specification errors

4. Inference in the general linear regression model
   - 4.1 Interval estimation
   - 4.2 Hypothesis testing
   - 4.3 Prediction

III. Econometric Topics

5. Dummy variables
6. Multicollinearity
7. Linear Regression models with a general error covariance matrix
   - 7.1 Heteroskedasticy
   - 7.2 Autocorrelated Errors

Required background:

This course assumes a good working knowledge of basic statistics (in particular, random variables, parameter estimation and tests of hypotheses) and some knowledge of matrix algebra.

Grading:

Two written exams (90% of the final grade).
In-class question papers (10% of the final grade).
The final exam will be waived only if the two following conditions are met: *(i)* final grade higher or equal to 10; and *(ii)* none of the grades in the written exams below 7,0. Admission to final exam requires a final grade higher or equal to 7,5.

Students taking the Final Exam will pass if they have at least 10 in the exam. The grade will be an average of the performance in the exam and the final grade at Econometrics.

For students who pass the course this semester and take the Final Exam to try to improve their grade, the final grade will be an average of the performance in the exam and the final grade at Econometrics.

Bibliography:

Griffiths, Hill e Judge, LEARNING AND PRACTICING ECONOMETRICS; Wiley.
Wooldridge, J. M., INTRODUCTORY ECONOMETRICS, Thomson.

Code of conduct and ethics:

Católica Lisbon School of Business and Economics is a community of individuals with diverse backgrounds and interests who share certain fundamental goals. A crucial element to achieve these goals is the creation and maintenance of an atmosphere contributing to learning and personal growth for everyone in the community. The success of CATÓLICA-LISBON in attaining its goals and in maintaining its reputation of academic excellence depends on the willingness of its members, both collectively and individually, to meet their responsibilities.

Along with all the other members of our community, students are expected to follow professional standards and CATÓLICA-LISBON standards of Academic Integrity. Some details should be mentioned here: Please arrive on time for class with uninterrupted attendance for the duration of the class. Signing attendance sheet for anyone else in the class constitutes fraud and a violation of the CLSBE code of conduct. Use of computers and other electronic devices during the class is not allowed, unless expressly requested by the instructor of the course. Students who persistently act in a disruptive and disrespectful manner during the class session may be invited to leave.

Students are expected to behave at all times according to the fundamental principles of academic integrity, including honesty, trust, fairness, respect, and responsibility. In particular,

a) In **individual graded assignments** of any type, students may not collaborate with others or use any materials without explicit permission from the instructor of the course;
b) In **group assignments and reports**, all students listed as authors shoud have performed a substantial amount of work for that assignment;
c) It is dishonest to fabricate or falsify data in experiments, surveys, papers, reports or other circumstances; fabricate source material in a bibliography or "works cited" list; or provide false information in other documents in connection with academic efforts;
d) **Plagiarizing**, i.e. "to steal and pass off the ideas or words of another as one's own and or to use another's production without crediting the source" (Merrian-Webster Dictionary) is an Academic Integrity breach. It can be avoided by using proper methods of documentation and acknowledgement. Visit this guide for additional resources on how to avoid plagiarism in your written submissions http://en.writecheck.com/plagiarism-guide
e) In **exams** students must not receive or provide any unauthorized assistance. During an examination, students may use only material and items authorized by the faculty. Use of smartwatches or other communication devices is not permitted during the exam.

Academic integrity breaches will be dealt with in accordance with the school's code of Academic Integrity: https://www.clsbe.lisboa.ucp.pt/system/files/assets/files/academicintegritycode.pdf