Testi del Syllabus

Resp. Did.	**STANCA LUCA MATTEO**	Matricola:	**000606**

Anno offerta:	**2015/2016**
Insegnamento:	**F5602M002 - QUANTITATIVE METHODS**
Corso di studio:	**F5602M - INTERNATIONAL ECONOMICS - ECONOMIA INTERNAZIONALE**
Anno regolamento:	**2015**
CFU:	**13**
Anno corso:	**1**
Periodo:	**Annualità Singola**

Testi in italiano

Testi in inglese

Lingua insegnamento	English
Contenuti	ECONOMETRICS Introduction to the linear regression model. Interpretation and comparison of regression models. Heteroskedasticity. Time series models and autocorrelation. Endogeneity. Models for qualitative data. Models for panel data. INFERENTIAL STATISTICS The module aims at providing an adequate knowledge of the main inferential techniques for sample data, aiming at the estimation of unknown parameters and at testing hypotheses.
Testi di riferimento	ECONOMETRICS "Introductory econometrics: a modern approach", by J.M. Wooldridge, Thompson South Western, Belmond, 2006. INFERENTIAL STATISTICS Milton, J.S., Arnold, J., Introduction to Probability and Statistics: Principles and Applications for Engineering and the Computing Sciences, McGraw Hill, 2002 Evans, M.J., Probability and Statistics: The Science of Uncertainty, Freeman, 2009
Obiettivi formativi	ECONOMETRICS The student will be able to identify the specific techniques suitable for the type of data and the inferential problem addressed. The student will develop a critical approach to the interpretation of findings produced by others, with specific attention to underlying assumption and their validity. The student will be able to select the correct way of presenting data analysis, and to choose adequate ways of communicating results produced by third parties to non-technical audiences. The student will have to acquire autonomy in understanding further statistical techniques, not covered by the course, suitable to specific contexts encountered in his/her study or work activity. INFERENTIAL STATISTICS The student will be able to identify the specific techniques suitable for the type of data and the inferential problem addressed. The student will develop a critical approach to the interpretation of findings produced by others, with specific attention to underlying assumption and their validity.

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Prerequisiti	Basic statistics. Descriptive statistics. Probability. Probability distributions.
Metodi didattici	Lessons. Practical sessions.
Modalità di verifica dell'apprendimento	ECONOMETRICS Oral and written examination INFERENTIAL STATISTICS Written and Oral examination.
Programma esteso	ECONOMETRICS The simple regression model. Multiple regression analysis: estimation. Multiple regression analysis: inference. Multiple regression analysis: OLS asymptotics. Multiple regression analysis: further issues. Multiple regression analysis with qualitiative information. Heteroskedasticity. More on specification and data problems. Basic regression analysis with time series data. Further issues in using OLS with time series data. Serial correlation and heteroskedasticity in time series regressions INFERENTIAL STATISTICS Populations and random samples. Statistics and sample moments. Sampling from normal and non-normal populations. Asymptotic distributions. Point estimation. Mean squared error criterion. Properties of estimators. Methods of moments and of maximum likelihood (optimal properties). Minimum variance estimators. Confidence intervals. Pivotal quantity method. Confidence intervals for normal and non-normal populations. Confidence intervals for a proportion. Confidence intervals for the variance of a normal population. Statistical hypotheses, test statistics, critical regions. Type-I and type-II errors. Power function. Optimal tests. Neyman-Pearson lemma. Choice of the null hypothesis and of the significance level. Tests of hypotheses for the mean of normal and non-normal populations. Tests of hypotheses for a proportion. Chi2 test. Tests for two means, two proportions, two variances. One-way analysis of variance. Simple linear model, strong and weak hypotheses. Maximum likelihood estimators of the parameters of the linear model and their sampling properties. Gauss-Markov theorem. Confidence intervals and tests of hypotheses for the parameters of the linear model. Prediction.