

Quantitative Research Methods in Applied Research in Economics and Business

2013/2014

Codi: 42620

Crèdits: 15

Titulació	Tipus	Curs	Semestre
4313384 Recerca Aplicada en Economia i Empresa / Applied Research in Economics and Business	OB	0	1

Professor de contacte

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Utilització d'idiomes

Llengua vehicular majoritària: anglès (eng)

Prerequisites

none.

Objectius

To provide the students with the technical and quantitative tools necessary to carry out applied research in economics and business.

Competències

- Recerca Aplicada en Economia i Empresa / Applied Research in Economics and Business
- Possess and understand knowledge that provides a basis or opportunity for originality in the development and/or application of ideas, often in a research context
- Produce and draft projects, technical reports and academic articles in English, making use of the appropriate terminology, argumentation, communication skills and analytical tools for each context, and rigorously evaluate those produced by third parties.
- Select and apply different and adequate models and/or theoretical frameworks, methodologies and techniques for scientific research, data sources and IT tools for research applied to business and economics.
- Student should possess an ability to learn that enables them to continue studying in a manner which is largely self-supervised or independent
- Understand, analyse and evaluate the complexity, functions and main challenges of the current socio-economic and business reality using analytical tools and/or precise methodologies.
- Work in international and inter-disciplinary teams.

Resultats d'aprenentatge

1. Apply the main quantitative techniques of multivariate analysis for the testing of scientific hypotheses.
2. Identify the main scientific methodologies of a quantitative nature that are usable in the field of research applied to business and economics.
3. Possess and understand knowledge that provides a basis or opportunity for originality in the development and/or application of ideas, often in a research context
4. Produce and draft projects, technical reports and academic articles in English, making use of the appropriate terminology, argumentation, communication skills and analytical tools for each context, and rigorously evaluate those produced by third parties.
5. Student should possess an ability to learn that enables them to continue studying in a manner which is

largely self-supervised or independent

6. Understand the mathematical, statistical and econometric fundamentals and instruments required for statistical inference.
7. Utilize existing IT tools and packages (STATA, SPSS, etc.) for the quantitative analysis of statistical, business and bibliographic databases.
8. Work in international and inter-disciplinary teams.

Continguts

Mathematics

Themes:

- 1- Matrices.
- 2- Functions and distribution functions.
- 3- Derivatives and Taylor series.
- 4- Optimization.
- 5- Integrals
- 6- Differential Equations

Applied Statistics

Themes:

- 1- Analysis of one variable
- 2- Sampling and sampling distribution
- 3- Estimate using intervals
- 4- Test of hypotheses
- 5- Analysis of the relation between two variables: Contingency tables

Econometrics

Themes:

- 1-Linear regression model
- 2-Ordinary Least Squares (OLS) estimation
- 3-Inference in OLS regression
- 4-Asymptotic theory

Multivariate analysis

Themes:

- 1- Introduction and classification of multivariate analysis techniques
- 2- ANOVA and MANOVA
- 3- Principal Components Factor analysis

4- Correspondence factor analysis

5- Discriminant Analysis

6- Cluster Analysis

7- Structural Equation Models

Metodologia

Classes, Essays and tutorials, Study and research activities.

Activitats formatives

Títol	Hores	ECTS	Resultats d'aprenentatge
Tipus: Dirigides			
Classes	93,75	3,75	1, 2, 3, 4, 5, 6, 7, 8
Tipus: Supervisades			
Essays and tutorials	56,25	2,25	1, 2, 3, 4, 5, 6, 7, 8
Tipus: Autònomes			
Study and research activities	212	8,48	1, 2, 3, 4, 5, 6, 7, 8

Avaluació

Class attendance, presentation and discussion of essays and problems, exams.

Activitats d'avaluació

Títol	Pes	Hores	ECTS	Resultats d'aprenentatge
Class attendance	5%	0	0	1, 2, 3, 4, 5, 6, 7, 8
Exams	60%	8	0,32	1, 2, 3, 4, 5, 6, 7, 8
Presentation and discussion of essays and problems	35%	5	0,2	1, 2, 3, 4, 5, 6, 7, 8

Bibliografia

- [Hair, J.F.](#); [Black, W.C.](#); [Babin](#), B.J. and R.E. Anderson(2010), Multivariate Data Analysis. Prentice Hall (7th edition).
- Hubbard, J. H. (1999). Vector Calculus, Linear Algebra and Differential forms (a unified approach), Prentice Hall
- Sydsaeter, K., Hammond, P. and A. Strom (2012). Essential Mathematics for Economic Analysis, Pearson.
- Newbold, P. (2009) "Statistics for Business and Economics". Prentice-Hall, 7th Edition.
- Davison, R. and J. MacKinnon, (2004), Econometric Theory and Methods. Oxford Univ. Press.
- Green, W. (2008), Econometric Analysis. Prentice Hall. Sixth edition.
- Hayashi, F. (2000), Econometrics. Princeton University Press.

- Verbeek, M. (2001), A guide to modern econometrics. Wiley. 2nd edition.