SIdE 2017 PhD Courses:

- **Course 1: Introductory Econometrics (26 June- 1 July 2017)**
- **Course 2: Time Series and Financial Econometrics (3-8 July 2017)**

Coordinator:

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Lecturers

- **Introductory Econometrics**

Giorgio Calzolari, University of Firenze
Francesca Di Iorio, University of Napoli Federico II
Marco Lippi, Einaudi Institute for Economics and Finance, Roma
Giulio Palomba, Università Politecnica delle Marche, Ancona
Umberto Triacca, University of L'Aquila

- **Time Series and Financial Econometrics**

Alessandra Amendola, University of Salerno
Giorgio Calzolari, University of Firenze
Francesca Di Iorio, University of Napoli Federico II
Riccardo Lucchetti, Università Politecnica delle Marche, Ancona
Malvina Marchese, University of Genova and Cass Business School
Giuseppe Storti, University of Salerno

Basic Requirements

The Courses require a working knowledge of basic linear algebra, statistical inference and multiple linear regression model with the notation of linear algebra (matrices and vectors).

To this aim the following preliminary readings are suggested:

- Chapt. 1, 2, 3, 6 in Greene, W. H. (2002): Econometric Analysis (5-th edition). Upper Saddle River (NJ): Prentice Hall.
- Or chapt. 1-6 in Johnston, J. (1984): Econometric Methods (3rd edition). New York: McGraw-Hill, Inc. Italian translation by M. Costa and P. Paruolo (1993): Econometrica (3rd edition). Milano: Franco Angeli.

Reference textbook for the course:

Handouts, readings and further material will be provided before the beginning of the course and during the lectures.

Schedule of the course:

First Week: Introductory econometrics

- Linear regression, seemingly unrelated regressions, simultaneous equations, maximum likelihood

- Classical linear regression model (refresh).
- Elements of asymptotic theory: law of large numbers and central limit theorem (outline).
- Likelihood: definition, score vector, information matrix, Cramer-Rao inequality, maximum likelihood, consistency, asymptotic efficiency.
- Seemingly unrelated regression equations (SURE): generalized least squares (GLS), feasible GLS, maximum likelihood (iterative GLS, hints).
- Simultaneous equations model: structural form and reduced form, static and dynamic solution, impact and dynamic multipliers, forecast, scenarios and economic policy.
- Identification: rank and order condition.
- Estimation: instrumental variables, limited-information methods (2SLS, LIVE, IIV)

Second Week - Time series and Financial Econometrics

- Classical tests: Wald, Likelihood Ratio, Lagrange Multipliers (or Score test)
- Linear models for time series (AR / MA): Box-Jenkins approach, identification, estimation, forecast.
- Non-linear models for estimating and forecasting volatility: ARCH and GARCH.
- Non-stationarity: definitions and tests, spurious regression, cointegration and common trends, single equation approach (Engle and Granger), approach of Johansen (outline).
- SVAR and FVAR (outline).
- Applications: estimation of volatility on equities, GARCH estimation of Value at Risk, interest rates, behaviour of some national accounting time series.
- GARCH extensions and multivariate GARCH

Tutorials

Practical applications using the software package Gretl (free software; download at http://gretl.sourceforge.net/)

Venue

The Courses will last two weeks and will be held in the University Residential Centre, Via Frangipane 6, 47032 Bertinoro (FC). The two weeks are expected to be indivisible for most participants, but participation in a single week is allowed. Participants will be accommodated at the Centre guest quarters, (as an exception, in case of reduced availability of rooms in the Centre, they will be accommodated in local hotels). To register the partecipants upon their arrival on Sunday, the Center will remain open between 18.00 and 21.00. Since the Centre does not have a 24h reception service, a different arrival time can be agreed on, calling few days in advance, in office hours, CEUB. Eleonora Campori +39 0543 446556 or +39 0543 446500.

Nearest airport is Bologna (http://www.bologna-airport.it), and the nearest train station is Forlì (http://www.trenitalia.com/) . A shuttle bus service will be organized by CEUB and partecipants will be promptly informed.

Timetables

Each Course requires full-time attendance, and participation is not compatible with other jobs at the same time (e.g. preparation of other exams). Lectures and tutorials will be in English, with the following schedule (provisional):

- Monday to Friday: lectures: 9.00-10.50, 11.10-13.00, 15.30-17.20; tutorials: 17.40-19.30.
- Saturday (also the second week): lectures: 9.00-10.50, 11.10-13.00.

For the computer tutorials, participants will use their mobile PCs, after installing the software used. Exceptionally, who does not own a laptop, must inform in advance the coordinator (and will use the facilities of the Centre).

Fees

Students, Master student, PhD students and temporary university staff	600 euro per Module
University staff	700 euro per Module
Others	2300 euro per Module

Fee includes: accommodation (usually in double room) with breakfast and lunch starting from Sunday evening.

Partecipants who wish to attend two or three courses, are allowed the following reduced fees per Module

Students, Master students, PhD students and temporary university staff	500 euro per Module
University staff	600 euro per Module
Others	1750 euro per Module

Partecipants attending Course 1 and 2 will have free accommodation the night of Sunday 2 July 2017 in Bertinoro included in the fee

Enrollment

SIdE courses and summer schools are open to scholar and practitioners of all levels, but are particularly aimed at junior researchers and PhD students. The only requirement is SIdE membership (annual fee 30 Euro). Regular members of SIdE are admitted upon application to the Steering Committee. Together with the application to SIdE, prospective regular members give their consent to the distribution of their CV and list of publications, in the spirit of disclosure of research in econometrics stated in the goals of SIdE. The interest in econometrics is identified by the curriculum of studies and/or the scientific or professional career.
How to apply:
Go to http://www.side-iea.it/become-member and provide personal details (name, affiliation), and upload your CV (pdf file, max 2 Mb). Once your application is validated, you will receive a link to a payment gateway for the collection of membership dues. Once the payment is confirmed by our Staff, you will receive a username and password to login into your personal profile and access to restricted contents and the Enrollment procedure

Contacts

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