



ECONOMICS SHORT COURSES

- **Advanced Time Series Econometrics**
- **Econometric Analysis of Panel Data**
- **Time Series Econometrics for the Practitioner**
- **Economic Indicators: Monitoring the South African Economy**

Presented by the Department of Economics,
University of Pretoria

Shifting knowledge to insight



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

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Company overview

Having played a profound part in the history of South Africa for more than 100 years, the University of Pretoria boasts a lasting legacy that endures through a cluster of innovative and multidisciplinary Training Solutions and Research Solutions rendered through **Enterprises University of Pretoria (Pty) Ltd**.

Our Training Solutions and Research Solutions translate to increased productivity, enhanced customer service excellence and improved profitability within any industry. Drawing on the knowledge of academic and industry experts from the University of Pretoria, our track record includes high-quality, customised and practical solutions that set us apart from the traditional skills development and research organisation.

With some of South Africa's most acclaimed academics and thought leaders on our teams of research specialists and course leaders, we ensure that our clients continuously engage in groundbreaking knowledge transfer – ***shifting knowledge to insight***.

TRAINING SOLUTIONS

We offer the best possible Training Solutions to organisations and individuals through career-focused short courses that provide proactive, relevant responses to the skills development needs identified in various industry sectors, places of work, communities, the country, and beyond.

Already having made a significant impact on the careers of more than 320 000 individuals from across the globe, we are taking our commitment to lifelong learning even further. Not only do we offer a selection of more than 500 short courses across 20 industry fields, we also provide a choice of training options that include scheduled courses, Continued Professional Development (CPD) courses, online and blended learning interventions and customised corporate training solutions.

Scheduled courses

Our scheduled courses are specifically designed to meet the training needs of our broader communities and are open to all prospective delegates throughout the year. In fact, at any given time we schedule in excess of 100 courses during a three-month period. This affords delegates and opportunity to pursue a variety of industry-related short courses, while being able to plan ahead and reap the benefits of workplace and professional skills development.

CPD courses

We offer various CPD courses, activities and seminars for engineers, educators, veterinarians and medical professionals, among others, who need to continuously update their knowledge, acquire CPD points and maintain their professional status through their respective professional bodies. We also offer online CPD activities that cover various topics and include online tests, assessments and quizzes that can be completed towards CPD points.

Professional Online Development (PODs)

By recognising that many professionals would like to continue honing their knowledge and skills, but often struggle to find the time to attend formal lectures, we provide intensive, collaborative and focused online or blended learning opportunities that can be accessed anywhere, at any time. Integrated under the University

of Pretoria's Professional Online Development (PODs) offering, our online training options include Open Educational Resources (OERs), online short courses, open online courses and online CPD.

Customised corporate solutions

In an effort to address identified industry- or sector-specific training needs, our customised, in-house course options are geared towards organisations that need to upskill and develop their staff accordingly. We can design a basic course to introduce newly appointed staff to a specific topic, or provide specialised training to an executive committee on thought-leading management and leadership issues. All these courses can be presented on one of the various University campuses, any suitable venue or on-site.

RESEARCH SOLUTIONS

We are also in the unique position to offer our clients Research Solutions to help us better serve them as an add-on to our wide range of short courses. We facilitate research projects to clients through personalised services and innovative business solutions that are conducted by specialised project teams.

Our focus areas include, among others, engineering and construction, sensory research and food product evaluation, economic modelling, statistical data mining solutions, agribusiness and actuarial risk management solutions and client retention strategies – with close to 400 projects successfully completed in 2014 alone.

WE ARE PART OF A GLOBAL COMMUNITY

In pursuit of international markets for the extension of our business activities and services across the world, we have adopted a proactive approach in acquiring new business partnerships on the African continent (and beyond) for the successful execution of various training and research projects.

In 2014, delegates from 56 different countries (of which 37 are on the African continent) registered for scheduled short courses, while a total of 170 different courses were attended by international delegates. Other international activities included 69 research projects for 42 clients in 25 countries, and the collaboration with 29 universities and other academic institutions.

ACCREDITATION, CERTIFICATION AND OWNERSHIP

Enterprises University of Pretoria (Pty) Ltd is wholly owned by the University of Pretoria. The University is registered as a multipurpose, public training provider in the higher education and training band. Delegates who successfully complete a course and comply with the related assessment criteria are awarded certificates by the University in recognition of their professional skills development.

We are also registered as a service provider with and member of a selection of national and international organisations and professional bodies through which we can deliver business insight beyond the academic realm that not only showcases market relevance, but also suits clients' unique organisational and industry needs.

Enterprises University of Pretoria is a level 4 contributor to broad-based black economic empowerment (B-BBEE) with a BEE procurement recognition level of 100%.

Background and terms

The Department of Economics at the University of Pretoria is committed to the University's vision of being globally competitive and locally relevant. Our short courses and programmes are benchmarked against the best international practices to enable you to "work and play anywhere in the world".

Academic leadership in research

With internationally-recognised research leaders on our complement of staff, we publish widely in areas related to monetary and fiscal policy, economic growth and development, international trade, health policy, financial markets and economic forecasting. We occasionally leverage research expertise to undertake policy-specific research projects for various local and national governments, local and international businesses, as well as local, national and international institutions.

Academic leadership in teaching

We are committed to providing you with the opportunity to develop into the workforce of tomorrow. We have also recently embarked on an international search for innovative, often technical, options that will allow you more individualised access to our lecturers and course presenters

Course structure and venues

We offer a variety of short courses for professionals who are interested in upgrading their skills and knowledge in various aspects of economics and econometrics. You can attend any of our five-day short courses on the main campus of the University of Pretoria in one of our highly-equipped computer labs, where you will have access to and training on EViews® (Version 8) software.

Accreditation and certification

Enterprises University of Pretoria (Pty) Ltd is wholly owned by the University of Pretoria. As a public higher education institution, the University of Pretoria functions in accordance to the Higher Education Act 101 of 1997. Enterprises University of Pretoria offers short courses on behalf of the University and these short courses are not credit-bearing, and do not lead to formal qualifications on the National Qualifications Framework (NQF) – unless stated otherwise. Delegates who successfully complete a short course and comply with the related assessment criteria (where applicable) are awarded certificates of successful completion and/or attendance by the University of Pretoria.

General conditions of admission

- Course fees **include** all course material, notes, textbooks, computer lab access, lunch and refreshments during contact days. Travel costs, accommodation and subsistence allowances are **excluded** from course fees.
- Full payment of the courses fees is to be made **14 working days** before the start of the first module of a course.
- Cancellations are accepted **in writing and without penalty up to 14 working days** prior to start date of courses. Delegates cancelling in less than 14 days prior to the start of courses will be liable for the full fee.
- In a case of a delegate cancelling, qualified substitute delegates will be accepted for in-house courses.
- Enterprises University of Pretoria reserves the right to cancel courses without prior notice. In this unlikely event, delegates will be informed and all fees will be refunded where applicable.
- Enterprises University of Pretoria reserves the right to refuse a delegate admission to the any course if any payment is outstanding.

The closing date on any of the Economics short courses is two weeks before the date of commencement on any particular intake. It is highly recommended to apply timeously as limited seats are available. Please ensure that all fields on your application form are completed accurately. Enrol online or download the enrolment form at www.enterprises.up.ac.za and return it by email to enrolments@enterprises.up.ac.za or fax to +27 (0)12 434 2505.

Advanced Time Series Econometrics

Course duration: 5 days

19–23 November 2018



This course addresses modelling techniques for time-series data when unit roots are present in the data. An overview of the technical characteristics of time-series data and the concept of non-stationarity is provided; and the econometric techniques of co-integration and error correction modelling are revised in single equations (residual-based co-integration), with emphasis on their empirical application. The main focus of the course is however on the theory and application of multivariate co-integration. The course concludes with a discussion on the application of volatility models.

The course takes place in a computer lab on the main campus of the University of Pretoria. Delegates use Eviews version 9.5 for practical applications.

Course content

Overview of residual-based cointegration

- Data generating processes
- Stationary vs. non-stationary time series
- Cointegration in single equations (Engle-Granger)
- Error-correction models (ECM)

Multivariate cointegration (focus of course)

- Vector autoregressive (VAR) models
- Impulse response functions and variance decompositions
- Johansen cointegration methodology (Maximum Likelihood Estimation)
- Vector error-correction models (VECM)
- Block causality and exogeneity test
- Weak exogeneity tests and model identification

Introduction to volatility models

- Properties and theoretical and empirical issues
- ARCH and GARCH models
- Estimation and prediction

Learning outcomes

After successful completion of this programme, delegates will be able to

- understand and apply non-stationary time-series analysis;

- understand the concept of stationarity and unit root testing;
- apply the advanced econometric techniques of cointegration and error-correction modelling, specifically in the multivariate context; and
- understand and apply basic volatility modelling.

Delegates complete an open-book evaluation on the last day of the course. A certificate will be awarded upon successful completion of the course.

Who should enrol?

Experience as a researcher or analyst in any of the following fields of economic application is required: financial markets, socio-economics and health, development economics, public finance and tax policy or international trade and finance.

Programme duration

The programme consists of four modules of one contact week each, spread over a period of four months. Lectures are presented from Monday to Friday between 08:00 and 17:00.

Course fees

R17 000.00 per delegate (VAT incl.)

Course fees include all course material, lunch and refreshments during contact days.

Admission requirements

Prospective delegates should at least have a relevant honours degree with a focus on time-series econometrics, including a knowledge of the concepts of unit root testing and residual-based (Engle-Granger) cointegration. An understanding of matrix algebra is essential as well as experience as a researcher or analyst in any of the fields of economic application. Proficiency in EViews® software is recommended.

Econometric Analysis of Panel Data

Course duration: 5 days

26–30 November 2018

This course is of an applied nature and focuses on hands-on experience in estimation, interpretation and evaluation of economic relationships within a panel data context. The course covers techniques applicable to both stationary and non-stationary panel data sets, as well as static and dynamic model specifications; accounting for intercept and slope heterogeneity and cross-sectional dependence in the data and model specification.

The next topic is simultaneous equations with error components: we consider endogenous regressors, dynamic linear model relationships and sources of persistence; Nickel bias and correction; instrumental variables (IV) and general method of moments (GMM) estimation, including the Arellano and Bond (1991) DIF-GMM estimator; Arellano and Bover (1995) estimator; Blundell and Bond (1998) SYS-GMM estimator and Keane and Runkle (1992) estimator. We also revisit panel heterogeneity, paying attention to cross-sectional dependence.

The course takes place in a computer lab on the main campus of the University of Pretoria. Delegates use EViews version 9.5 and Stata 14 for practical applications.

Course content

1. Stationary panel data:
 - One-way error component models
 - Two-way error component models
 - Hypothesis testing
2. IV and dynamic panel data
 - Instrumental variables
 - Dynamic panel data models
3. Panel heterogeneity revisited, spatial dependence
 - Heterogeneity in slope coefficients
 - Cross-sectional dependence
4. Non-stationary panel data
 - Overview of the issues
 - Unit root tests
 - Estimation of non-stationary time series
 - Cointegration tests

Learning outcomes

After successful completion of this programme, you will be able to

- estimate regression models for data organised in a panel
- deal with violations of the basic assumptions of regression analysis, and
- apply techniques of unit root testing and cointegration.

Who should enrol?

This course is ideal for you if you are a researcher or analyst in all fields of economic application, including development economics, public finance and tax policy, socioeconomics and health, financial markets, as well as international trade and finance.

Course fees

R17 000.00 per delegate (VAT incl.)

Course fees include all course material, lunch and refreshments during contact days.

Admission requirements

Prospective delegates should at least have a relevant honours degree with a focus on time-series econometrics, including a knowledge of the concepts of unit root testing and cointegration. An understanding of matrix algebra is essential, as well as experience as a researcher or analyst in any of the fields of economic application. Proficiency in EViews® software is recommended.



Time Series Econometrics for the Practitioner

Course duration: 5 days

12–16 November 2018



A basic introduction to the concepts of regression (ordinary least squares estimation) and statistical inference, violations of the classical linear regression model and the consequences of these violations, and practical ways of detecting (diagnostic testing) and solving these problems are included in this course. The aim is to reconcile economic theory with practice, thereby empowering delegates with analytical skills and a hands-on approach to decision-making processes.

The course takes place in a computer lab on the main campus of the University of Pretoria. Delegates use EViews version 9.5 for practical applications.

Course content

Delegates attend class contact session between 08:00 and 16:30.

The course covers the following topics:

- Principles and methodology of econometric analysis
- Introductory statistics
- Basics of regression analysis
- Single equation estimation
- Violations of the classical assumptions
- Regressions with intercept and slope dummy variables
- Detecting structural breaks using multiple breakpoint tests
- Non-stationarity and unit root testing
- Residual-based (Engle-Granger) cointegration
- Error correction models
- Vector autoregressive (VAR) models and impulse response functions
- Multivariate (Johansen) cointegration test (Note: VECM not included in this course)
- Simulation (forecasting and policy analysis)

Learning outcomes

After successful completion of this programme, you will be able to

- apply regression analysis
- use dummy variables
- deal with structural breaks
- deal with violations of the basic assumptions of regression analysis, and
- apply techniques of residual-based (Engle-Granger) cointegration and error correction modelling.

Who should enrol?

Experience as a researcher or analyst in any of the following fields of economic application is required: financial markets, socio-economics and health, development economics, public finance and tax policy, or international trade and finance

Course fees

R17 000.00 per delegate (VAT incl.)

Course fees include all course material, lunch and refreshments during contact days.

Admission requirements

Prospective delegates should at least have a National Senior Certificate (Grade 12) with relevant knowledge of and/or experience with empirical economic analysis. Statistics at a second-year tertiary level is recommended.

Economic Indicators: Monitoring the South African Economy

Course duration: 5 days

3–7 December 2018

The course in **Economic Indicators: Monitoring the South African Economy** focuses on the available data sources and appropriate techniques to measure the macroeconomic performance of the South African economy. The central focus of the course is on extracting meaningful information from various economic indicators that are typically reported in the daily press. The course will provide insight into the detailed components that the base data as recorded by specialist data collection institutions comprises. The course also deals with basic economic and statistical manipulation techniques with the aim of extracting information from raw data. Emphasis is placed on the meaningful interpretation of the information in order to compile an informed opinion on the state of economic performance. Practical training is provided on ways of presenting this information to assist in the decision-making process.

The course takes place in a computer lab on the main campus of the University of Pretoria.

Course content

- Description of context and basic techniques in economic analysis
- Analysis of aggregate production, income and expenditure: selected national accounts information
- Economic growth
- Business cycles
- Inflation
- Balance of payments data and international indicators (exchange rates, terms of trade, etc)
- Employment and unemployment data and related concepts
- Income distribution and various measures of welfare
- Financial indicators
- Fiscal indicators

Learning outcomes

After successfully completing the course, delegates will be able to:

- extract and analyse meaningful information on the macroeconomic performance of the South Africa economy
- identify and collect the relevant data, apply various data manipulation techniques and interpret the data to reach informed conclusions regarding the economic issue at hand.

A certificate will be awarded upon compliance of the following requirements: successful completion of the closed-book evaluation, successful completion of all assignments and full attendance of the programme.

Who should enrol?

The course is relevant for researchers, analysts and individuals who deal with issues related to the current macroeconomic performance of the South African economy. The course is also highly recommended for anyone dealing with economic policy matters.

Course fees

R14 000.00 per delegate (VAT incl.)

Course fees include comprehensive lecture notes, a textbook, lunch and refreshments during contact days.

Admission requirements

Prospective delegates should at least have a National Senior Certificate (Grade 12) and/or relevant work experience in economic analysis.

Reference material

Mohr, P. 2007. *Economic indicators*. 3rd edition. Pretoria: Unisa.

Basic Principles of Economics

Course duration: 5 days

The **Basic Principles of Economics** short course is intended to provide a basic understanding of how economics impacts our everyday environment. It is targeted at both novices to the field of economics and at individuals with previous exposure to the field of economics to serve as a refresher of the interaction between various economic variables. It provides a thorough understanding of the mechanics of economics but eventually will also enable the course participant to perform basic evaluations and interpretations of topical economic events and basic assessment of macro-economic policies.

Course content

1. The basic functioning of the world of economics

- Economic description
- Introduction to microeconomics: demand and supply; behaviour of market participants; market structures; consumer and producer surplus; market outcomes; changes in market equilibrium; elasticities
- Introduction to macroeconomics: aggregates, performance criteria; basic interactions of variables for policy assessment.
- An introduction of the basic concepts of macro- and microeconomics to enable the understanding and analysis of various macroeconomic variables in the subsequent sections of the course

2. Introduction to various sub-disciplines of economics.

- Monetary economics: Dealing with the basic fundamentals of monetary economics (demand, supply, equilibrium, interest rate outcomes).
- Labour economics: The basic fundamentals of labour economics (demand, supply, equilibrium, wage and employment outcomes, issues like minimum wages, job reservation, labour market discrimination, and labour union involvement in labour market outcomes will be investigated).
- International economics: The basic fundamentals of international economics (basics of international trade, trade protection, trade blocs).
- Public economics: The basic fundamentals of public economics (basics of budgeting, government expenditure, taxation). Providing a better understanding of the relationship between various important variables in the economy and how these may impact the macroeconomic and policy outcomes.

3. Introduction to government intervention in the economy.

- Basics of government intervention through fiscal instruments. Building on the previous modules by considering the various types of market failures and the ways that government can intervene in economic outcomes.
- Basics of government expenditure: The ways that government spending is typically allocated, the impact it may have on economic outcomes, focus on effective social spending, dangers of crowding out the private sector in the economy.
- Basics of taxation: The different tax bases and how these could be used to complement each other to achieve certain macroeconomic outcomes; the principles of a good tax, tax policy and international trends in tax reform.
- Fiscal policy and debt management: Broader fiscal policy; how it impacts macroeconomic outcomes; how deficit financing and debt management choices impact intergenerational equity etc.
- Enabling a better understanding of the impact that the government's various policy interventions would have on macroeconomic outcomes and overall economic performance.

4. Monitoring macroeconomic performance

- Basics of national accounting: National accounting framework; it will explain the most important variables in the national accounts and the interrelationship between these. It will also devote time to identify and analyse the most important sources of national accounting data in South Africa.
- The focus of this section will be to enable a quantitative analysis of macroeconomic outcomes that will be introduced in the following section.

5. Quantitative assessment of the key macroeconomic variables

- Economic growth: Measurement of economic growth, using national

accounting data; several concepts such as different calculation formulae and interpretation thereof will be investigated.

- Price stability: The basics of a composite index construction with the aim of understanding the consumer and producer price indices; several concepts such as different calculation formulae for consumer and producer inflation and interpretation thereof will be investigated.
- Balance of payments stability: The basics of the balance of payments and the discussion of the key variables in the balance of payments; the ultimate aim is to enable a quantitative understanding of the interaction between the domestic economy and the foreign sector on both financial and trade flows.
- Employment: The basics of the employment and unemployment in South Africa, with a specific focus on interpreting the available data sources for quantifying unemployment in South Africa.
- A quantitative analysis of macroeconomic outcomes, but also to enable meaningful basic interpretations of the above macroeconomic outcomes.

6. Quantitative analysis: Introduction to regression analysis

- Fundamental concepts of econometric methodology.
- The classical assumptions of linear regression analysis.
- The ordinary least squares (OLS) estimator.
- Model specification based on economic theory.
- Empirical estimation of the model.
- Interpretation of coefficients of estimation result.
- Purposes of econometric analysis: structural analysis, forecasting and policy simulation.
- An overview of empirical quantitative analysis – which allow us to make informed policy decisions based on price or income elasticities for example.

Course fees

R12 250.00 per delegate (VAT incl.)

Course fees must be paid in full 14 days prior to course start dates. Proof of payment can be submitted to enrolments@enterprises.up.ac.za.

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Registration and enquiries

Course coordinator

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Course leaders

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Notes

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Notes

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