

## Eligibility

The applicants for the Summer School are expected to have at least a Master's degree in economics and/or econometrics or in relevant subjects with a strong background in economics and currently be engaged in academia. Some may be chosen from outside academia (e.g., government, private sector, NGOs), if they have the minimum academic qualification and relevant experience.

In the description of the course, there is an indication of the background in econometrics, finance, economic theory or other subjects that participants should possess in order to take full advantage of the course. In addition, participants must have a good knowledge of the English language.

All these are, however, basic guidelines, and all cases will be considered on their own merits.

## Important Dates

**April 1, 2016** Application deadline

**April 15, 2016** Notification of acceptance

**May 15, 2016** Deadline for payment of fees

**June 15, 2016** Deadline for cancellation

**July 31 - August 7, 2016**

Summer school duration

## Scientific Committee

A. Colin **Cameron**, Professor  
University of California - Davis, USA

Margarita **Genius**,  
University of Crete, Greece

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# eCONOMICS & eCONOMETRICS

11<sup>TH</sup> ADVANCED SUMMER SCHOOL

## Nonlinear Cross-Section and Panel Regression Models with Focus on Count Data

A. Colin Cameron, Professor  
Dept. of Economics, University of California - Davis

RETHYMNO, CRETE, GREECE  
July 31<sup>th</sup> – August 7<sup>th</sup>, 2016



UNIVERSITY OF CRETE  
SCHOOL OF SOCIAL SCIENCES  
DEPT. OF ECONOMICS



ARISTOTLE UNIVERSITY OF  
THESSALONIKI  
DEPT. OF AGRIC. ECONOMICS

## Overview

Since 2006 the Department of Economics of the University of Crete has been successfully running its Advanced Summer School in Economics and Econometrics. The broader objective of this series of events is to provide advanced training for young researchers from all over Europe and beyond on important disciplines of economics and econometrics. The Summer School follows a traditional structure: lectures in the morning and computer practical sessions in the afternoon. The specialized topic varies from year to year and reflects issues that are currently lively areas of new research and policy interest.

The faculty is comprised of leaders in the field, and offers an overall coverage of the specialist area.

The 11<sup>th</sup> Advanced Summer School in Economics and Econometrics will be held from **July 31<sup>st</sup> to August 7<sup>th</sup>**, 2016, at the University Campus in Rethymno, Crete. The topic of the School “**Nonlinear Cross-Section and Panel Regression Models with Focus on Count Data**”.

A. Colin **Cameron**, Professor of Econometrics, University of California-Davis, will be the Distinguished Guest Professor.

“ This is a wonderful time to be a young economist. I urge you all to rush through graduate training in some or all of neurology, biochemistry, cognitive psychology, and anthropology, and with the full toolkit this provides, get to work on completing the new science of pleasure, and the enlightened perspectives this will bring to economic policy and the well-being of consumers. ”

D. McFadden

The New Science of Pleasure-Consumer Behavior and the Measurement of Well-Being

## Course Objective

The course will cover regression methods for count data, such as number of doctor visits, where the dependent variable is a nonnegative integer. While the focus is on count data, most of the methods are applicable to nonlinear regression models in general, and the relevant general frameworks will be presented ahead of specialization to counts.

We will cover methods, theory, and applications. All methods will be carefully illustrated in full detail by applications to cross-section and panel count data examples.

## Outline

### Day 1: Cross-section data models.

The first lecture will focus on standard regression models for count data: quasi-ML estimation of the Poisson model, the closely related generalized linear models framework, and maximum likelihood estimation of the negative binomial model.

### Day 2: Cross-section data models continued

The second lecture continues with more specialized models. Two-part models and with-zeros models control for excess zeros commonly-observed with count data. Finite mixture or latent class models are also more flexible parametric models.

### Day 3: Panel data models

The third lecture will focus on short panel data models where the number of cross-sectional units is large. We begin with random effects and fixed effects models for count data. We then present estimation of dynamic count data models that is a generalization of Arellano-Bond methods for linear models.

## Instructor

**Colin Cameron** is a Professor of Economics at the University of California – Davis. He is the co-author with Pravin Trivedi of Regression Analysis of Count Data (Econometric Society Monograph No. 53, 2013), Microeconometrics using Stata (Stata Press, 2010) and Microeconometrics: Methods and Applications (Cambridge University Press, 2005). His current research focuses on cluster-robust inference for regression models.

### Day 4: Estimation by simulation methods

The fourth lecture will present maximum simulated likelihood estimation and Bayesian estimation (using Markov chain Monte Carlo) of parametric models for count data.

### Day 5: Semiparametric methods

The final lecture will introduce semiparametric methods such as single-index models for count data.

### Practical Lab Sessions

The afternoon sessions will illustrate the various methods using Stata, and Stata programs and datasets will be provided. Additionally the final day will use R. No prior experience with Stata or R is assumed, though prior exposure to Stata will be beneficial.

### Reading List

Virtually all the material is covered in A. Colin Cameron and Pravin K. Trivedi (2013), Regression Analysis of Count Data, Second Edition, Cambridge University Press. (See especially chapters 1-4 and 9-12.)