

## EC3090 Econometrics, HT Part (i)

**Policy Sheet**  
(Subject to change)

**Lecturer:** Michael Curran

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**Course Material:** [mymodule.tcd.ie](http://mymodule.tcd.ie) – Econometrics

**Office Hours:** Mondays, 10.30–11.30

**Location:** Room 3012, Arts Building

**TA:** Clemens Struck

**Email:** [struckc@tcd.ie](mailto:struckc@tcd.ie)

**Office Hours:** Fridays, 11.30-12.30

**Location:** Room 3021, Arts Building

### **OVERALL EC3090 ECTS VALUE: 10**

**Required Textbook:** Wooldridge, J. (2013) *Introductory Econometrics: A Modern Approach* 5th edition, Cengage.

### **Overview:**

This course starts with a brief overview of the problem of identification – what could we claim to know if we were fortunate to be in the ideal scenario, having data on the entire population rather than a subset or sample – and the issue of how to deal with missing data. Logically, identification precedes inference. We will briefly touch on the issue of applying an alternative treatment to an entire population – we cannot observe the outcome that a person would experience under all possible treatments. Building on these foundations, we will then proceed to the question of inference and spend a large portion of the first half of this course on the topic of limited dependent variable models. Here we start by posing the question of how to deal with qualitative rather than quantitative information, e.g. incorporating gender, race, completion of a high school diploma or Leaving Certificate, etc. After studying the basic ‘dummy’ variable qualitative choice model, we will investigate more complicated limited dependent variable models, i.e. where the values of variables are extremely constrained (e.g. GPA, degree class, the number of times an individual votes for the same political party over the course of his/her lifetime). However, there may be an issue that we have so far neglected, *viz.* endogeneity and a subset of this, *viz.* Simultaneity – is there a two way causal link between the effect of the quality or the number of years in education on income levels? Does more education lead to higher incomes or is there a feedback between high incomes and some other ‘omitted’ variable that influences the choice of school a student attends or the number of years the student is in attendance? The instrumental variable (IV) approach deals with this issue. A related question pertains to how we can discern price and quantity data to determine whether we are observing quantity supplied or quantity demanded. This second question is dealt with in the topic of simultaneous equation models (SEM). The classical problem of simultaneity was once thought almost synonymous with that of identification, even though it is only a special case of it. However, even today the problem of simultaneity remains important. Given the inherent problem of endogeneity and the link with Instrumental Variables (IV), the latter part of this course is devoted to the related topics of IV and SEM. Materials include lecture slides and notes, work for tutorials including problem sets and Wooldridge (2013), which is the required textbook. The computer package used for this course is Stata and there will be lab demonstrations on its use pertaining to project work and problem sets.

## **Objectives:**

This part of EC3090 consists of five weeks of two-hour classes (10 hours in total). Laboratory sessions are designed to develop your Stata skills and to provide guidance on project work. These econometric computer programming sections are designed to facilitate your development as an economic scholar and to help with your preparation for the project and summer examination. The link between lectures and laboratory sessions is while lectures introduce material with some intuition provided, laboratory sessions will require more of your interaction with the subject matter and with each other, in addition to allowing you to benefit from the TA's supervision in an interactive classroom environment in the computer room. Active engagement and independent learning are key to your success in college. Firstly, I want you to be able to wield the concepts (memorising, applying, critiquing); based on this, I want you to be able to answer questions (formulating, method and application, solving accurately); and finally, I want you to be able to answer subject to time constraints, which will be up to you to practice. Solutions to problem sets will be posted online. Should you have any queries on the problem sets, please see Clemens Struck and I during our office hours.

## **Assessment:**

Project presentations in the second week of term count 5% towards the year mark and will be assessed by Prof Benetrix, Clemens Struck and I. Marking relates to clear communication of the research question and the chosen methodological approach. The project is due by 11.59pm on March 22nd and is worth 15% of the year mark. There will be two problem sets for my part, one covering the first three weeks due in week 4 and the other covering weeks 4 and 5 due in week 6. Problem sets contribute 20% towards the overall mark. There will be a written examination in June representing 60% of the total. The problem sets and written exam require you to solve theoretical and applied econometric problems on a range of topics studied in the course. The following are important aspects: formulating the research question and economic model, accurately choosing the econometric approach, rigorously testing and correcting for misspecification errors, discussing the results and writing the paper in a format that displays logical consistency and linguistic accuracy. Attendance at laboratory sessions is crucial for success in this course. Failure to submit homework assignments, without appropriate justification (e.g. medical certificates) may lead to a Non-Satisfactory report. Your tutor is a very important resource, so if you are having difficulties meeting the guidelines of a course (e.g. sickness, sport scholars, etc.), contact him/her directly.

**Plagiarism** is taken very seriously by the University. 'Plagiarism is interpreted by the University as the act of presenting the work of others as one's own work, without acknowledgement. Plagiarism is considered as academically fraudulent, and an offence against University discipline. The University considers plagiarism to be a major offence, and subject to the disciplinary procedures of the University.' (University Calendar, 2012-13)

## **Deadlines and Submissions:**

Homeworks excluding Stata do files and log files must be placed, in hard copy, into the EC3090 homework box in the Economics Department by **4pm Tuesday February 5th** and by **4pm Tuesday February 19th** for problem sets one and two, respectively. Stata do files and log files must be submitted electronically on Blackboard by the same deadlines. Solutions will be available on Blackboard from Wednesday at 3pm after each deadline.

## Lecture & Tutorial Rules:

- No ringing cell phones, no texting, no inappropriate computer use
- Respect the diversity of interests, experience, and background of your classmates

## Contacting Me:

The TA (Clemens Struck) is the first person you should contact if you have any issues with this course. He will pass on any significant queries to me. Please note that I stop checking email around 10:00pm. Any email I receive from you after that time will not be read until the following day. Apart from weekends, I typically respond to emails within 24 hours. It may not always be necessary to see me in office hours so feel free to send me an email if you have a problem related to the course that you were unable to resolve with the TA. If you plan to see me in office hours, do drop in, but you might wish to send me an email the day before (Monday) with some idea of the question(s) you may want to raise.

## Syllabus: (Metrics, HT Part (i))

1. **Foundations:** Identification & missing data (class slides + lab session one material)
2. **Limited Dependent Variable Models:** Dummy Variables (chapter 7.1-4); Qualitative Choice Models & Models with Limited Dependent Variables (chapters 7.5, 17)
3. **Simultaneity:** Instrumental Variables (chapter 15.1-6); Simultaneous Equation Models & Identification (chapter 16.1-3)

## Resources:

- College Calendar: <http://www.tcd.ie/calendar/>