

**Department of Economics****EC 2019  
Sampling and Inference****MODULE INFORMATION****Academic Year:** 2011-2012**Lectures:** 20**Year:** 2**Classes:** 10**Credits:** 15**Private Study:** 80**Semester:** 1**Total Hours:** 130

**Prerequisites:** Students should have a good working knowledge of basic probability and distribution theory, simple matrix algebra and the rudiments of statistical inference. This background material will have been covered in modules EC1011, EC1012, EC1013 and EC1014.

**MODULE LECTURER****Lecturer:** Stephen Pollock**Room:** Astley Clarke 108**Telephone:** 0116 252 5368**Office Hours:** Wednesday 10.0—11.0, 15.0—16.0**Email:** [d.s.g.pollock@le.ac.uk](mailto:d.s.g.pollock@le.ac.uk)**MODULE AIMS**

**Main Purpose:** To deepen and consolidate knowledge of probability and statistics, with a focus on sampling and inference, as they pertain to Econometrics.

## MODULE DELIVERY

**Lectures:** Thursdays 12.0--14.00 Bennett Lecture Theatre 3

**Classes:**

Fridays 15:00—16:00 Ken Edwards Lecture Theatre 3

(The class may be continued beyond 16.00)

## ASSESSMENT

A proportion of the marks, with a 20% weighting, will be awarded for the answers to any one of the exercise sheets that are to be found on the website. The answers must be delivered to the office of the Economics Department in advance of the class in which they will be demonstrated. The main assessment will be by a two-hour exam at the end of the semester (in January).

## READING LIST

The texts of the lectures will be found on the following web address

<http://www.le.ac.uk/users/dsgp1/>

where they will accumulate as the course progresses

There are numerous texts that will serve the purposes of the course. Two texts that may be recommended are

[Irwin Miller](#), [Marylees Miller](#), (2003), *John E. Freund's Mathematical Statistics with Applications*, 7th Edition, Paperback, 624 pages ISBN13: 9780131246461, ISBN10: 0131246461

*Larsen, R.J. & M.L. Marx, (2005), An Introduction to Mathematical Statistics and Its Applications (4<sup>th</sup> edition), Prentice Hall, paperback, 928 pages, ISBN 0131867938*

An enduring classic is

*Hoel, P.G., (1984,) Introduction to Mathematical Statistics: John Wiley & Sons; 5th Edition, ISBN-10 0471890456 ISBN-13: 978-0471890454*

## **CALCULATOR**

Calculator should not be needed in answering the numerical questions in the exercises and the exams. Students are permitted to bring their own non-programmable calculator to the exams.

## **WHERE TO GO FOR HELP**

Students are encouraged to ask questions in the lectures and seminars. Problems relating to the course per se can be discussed during the lecturer's office hours.

## **MODULE CONTENTS**

- 1. Events and their probabilities*
- 2. Random variables and their distributions*
- 3. Discrete random variables*
- 4. Continuous random variables*
- 5. Expectation*
- 6. Sampling Theory*
- 7. Hypothesis Testing and Confidence Intervals*
- 8. Linear Regression*

## **EXERCISES/PROBLEM SHEETS**

*Available from the website at:-*

<http://www.le.ac.uk/users/dsgp1/>