

# EC122-12 Statistical Techniques A

**20/21**

**Department**

Economics

**Level**

Undergraduate Level 1

**Module leader**

Subham Kailthya

**Credit value**

12

**Module duration**

10 weeks

**Assessment**

30% coursework, 70% exam

**Study location**

University of Warwick main campus, Coventry

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## Description

### Introductory description

This module allows the students to become familiar with the basic concepts of statistics, including graphical analysis and simple calculations conducted on the data. It is intended to provide the students with basic data analysis skills as well as the foundations, necessary for the second year econometrics module.

[Module web page](#)

### Module aims

To provide the requisite quantitative background for a thorough and rigorous study of economic analysis, econometric methods and applied economics subjects, commensurate with joint honours courses with Economics.

### Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

Descriptive Statistics; Measures of location, dispersion, and asymmetry. Measurement of inequality, the Lorenz curve and the Gini coefficient; Probability theory; The concept of probability,

events, The rules of probability. Independent events. Random variables and probability distributions. Discrete random variables: Bernoulli, binomial, Poisson. Expectations and variance. Continuous random variables: uniform, Gaussian ('Normal') distributions; The distinction between risk and uncertainty. Bivariate probability distributions; joint, marginal and conditional probability distributions; covariance and correlation. Statistical Inference; Sampling and sampling distributions for means and proportions. Applications of the t, chi-square and F distributions; Point estimation and confidence intervals; Hypothesis testing. Type I and Type II errors. Significance level and power of a test; Two variable correlation and regression. Testing for dependence between two variables.

## **Learning outcomes**

By the end of the module, students should be able to:

- To acquire the tools of quantitative methods necessary to study core and optional first and second year modules in economics for the single honours course in Economics.
- To develop further their techniques of statistical methods and statistical modelling;
- To generate an awareness and analysis of data and of data handling.

## **Indicative reading list**

Please see Talis Aspire link for most up to date list.

[View reading list on Talis Aspire](#)

## **Subject specific skills**

Students will have the opportunity to develop skills in:

Analytical thinking and communication

Analytical reasoning

Critical thinking

Problem-solving

Abstraction

Policy evaluation

Concepts of Simultaneity and Endogeneity

Understanding of Uncertainty and Incomplete Information

## **Transferable skills**

Students will have the opportunity to develop:

Research skills

Numeracy and quantitative skills

Data-based skills

IT skills

Written communication skills

Oral communication skills

Mathematical, statistical and data-based research skills

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# Study

## Study time

Type	Required
Lectures	10 sessions of 2 hours (17%)
Seminars	4 sessions of 1 hour (3%)
Demonstrations	4 sessions of 1 hour (3%)
Private study	92 hours (77%)
Total	120 hours

## Private study description

Private study will be required in order to prepare for seminars/classes, to review lecture notes, to prepare for forthcoming assessments, tests, and exams, and to undertake wider reading around the subject.

## Costs

No further costs have been identified for this module.

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## Assessment

You do not need to pass all assessment components to pass the module.

Students can register for this module without taking any assessment.

## Assessment group D2

	Weighting	Study time
Test 1 50 minute online test	12%	
Test 2 50 minute online test	12%	
Set of 6 problem sets Set of 6 problem sets (1% each)	6%	
Online Examination	70%	

A paper which examines the course content and ensures learning outcomes are achieved.

~Platforms - AEP

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- Online examination: No Answerbook required
- Students may use a calculator
- Economics dept. statistical tables (yellow/ red)

## **Feedback on assessment**

The Department of Economics is committed to providing high quality and timely feedback to students on their assessed work, to enable them to review and continuously improve their work. We are dedicated to ensuring feedback is returned to students within 20 University working days of their assessment deadline. Feedback is returned on a standardised assessment feedback cover sheet which gives information both by tick boxes and by directed comments. Students are informed how to access their feedback, either by collecting from the Undergraduate Office, from seminar tutors or within their seminar group sessions. Module leaders provide generic feedback for the cohort in addition to the individual-specific feedback on assessment performance.

[Past exam papers for EC122](#)

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## **Availability**

### **Pre-requisites**

At least a grade A in GCSE Mathematics, or equivalent.

### **Post-requisite modules**

If you pass this module, you can take:

- EC208-15 Industrial Economics 1: Market Structure
- EC221-15 Mathematical Economics 1B
- EC221-12 Mathematical Economics 1B
- EC203-30 Applied Econometrics
- EC203-30 Applied Econometrics
- EC220-15 Mathematical Economics 1A
- EC220-12 Mathematical Economics 1A

## **Courses**

This module is Core optional for:

- Year 1 of UIPA-L1L8 Undergraduate Economic Studies and Global Sustainable

## Development

- Year 1 of UPHA-L1CA Undergraduate Economics, Psychology and Philosophy
- UPHA-V7ML Undergraduate Philosophy, Politics and Economics
  - Year 1 of V7ML Philosophy, Politics and Economics (Tripartite)
  - Year 1 of V7ML Philosophy, Politics and Economics (Tripartite)
  - Year 1 of V7ML Philosophy, Politics and Economics (Tripartite)

This module is Core option list B for:

- Year 1 of UIPA-L1L8 Undergraduate Economic Studies and Global Sustainable Development
- UECA-3 Undergraduate Economics 3 Year Variants
  - Year 1 of L116 Economics and Industrial Organization
  - Year 1 of L116 Economics and Industrial Organization
- UECA-LM1D Undergraduate Economics, Politics and International Studies
  - Year 1 of LM1D Economics, Politics and International Studies
  - Year 1 of LM1D Economics, Politics and International Studies
- Year 1 of ULNA-R1L4 Undergraduate French and Economics (4-year)
- Year 1 of ULNA-R9L1 Undergraduate Modern Languages and Economics (4-year)
- UPHA-V7ML Undergraduate Philosophy, Politics and Economics
  - Year 1 of V7ML Philosophy, Politics and Economics (Tripartite)
  - Year 1 of V7ML Philosophy, Politics and Economics (Tripartite)
  - Year 1 of V7ML Philosophy, Politics and Economics (Tripartite)

This module is Core option list C for:

- Year 1 of ULNA-R4L1 Undergraduate Hispanic Studies and Economics (4-year)
- Year 1 of ULNA-R3L4 Undergraduate Italian and Economics (4-year)

This module is Core option list D for:

- Year 1 of ULNA-R2L4 Undergraduate German and Economics (4-year)