MODULE **DESCRIPTOR**

MODULE TITLE	INTRODUCTION TO PROBABILITY AND STATISTICS		
MODULE CODE	MA1861 (L4)	CREDIT VALUE	20 CREDITS (10 ECTS)
CAMPUS	UCLAN CYPRUS		
SCHOOL	SCHOOL OF SCIENCE		

MODULE **AIMS**

The aims of the module are to:
1. Give students a grounding in the basic concepts and techniques of applied statistics.
2. Develop students' critical and analytical skills in discerning the correct and incorrect use of statistics in practice
3. Develop students' skills in solving statistical problems.

MODULE **CONTENT**

Data and surveys: Sampling; Questionnaires; Bias, error and precision.

Descriptive Statistics: Measures of location and dispersion; Diagrams and data presentation.

Statistical Inference: Significance testing and confidence intervals (sample means).

Probability: Axioms and interpretations; Addition and multiplication laws; Conditional probability.

Probability Distributions: Binomial, Poisson and Normal.

Further Inference: z-tests, t-tests, paired and unpaired tests, χ^2-tests.

Correlation and regression: Linear regression and significance tests on *r*.

Use of statistical packages in analysing data will appear as relevant in the syllabus, with an emphasis on the use of the spreadsheet software Excel.

There will be a strong emphasis throughout the module on the understanding of the context of practical use of statistics.

INTENDED **LEARNING OUTCOMES**

On successful completion of this module a student will be able to:	
1.	Assess, analyse and interpret basic statistical problems.
2.	Discern when statistics are being misused.
3.	Present results of basic statistical analyses (both descriptive and inferential).
4.	Apply simple probabilistic and statistical concepts.
5.	Construct and apply mathematical descriptions of probability distributions.

TEACHING **METHODS**

The module will be delivered on campus, with weekly lecture/tutorial sessions. Printed notes will be given for each part of the course. Concepts and underlying theory will be explored in the lecture period. Students will learn through a formative process of tackling the exercises at the end of each section, with feedback and extension in tutorials.

In the first semester, students will be taught to use the spreadsheet software Excel to help with their statistical calculations. The material taught in the first semester (data, descriptive statistics, and an introduction to inference) will be tested by a practical assignment using realistic data sets in Excel. In the second semester, the course will be of a more theoretical nature (from the axioms of probability to different inferential tests). This theoretical work shall be assessed in the final examination.

ASSESSMENT **METHODS**

The module is assessed through an assignment and a written examination.