

MODULE DESCRIPTOR

MODULE TITLE	ACTUARIAL MATHEMATICS AND STATISTICS		
MODULE CODE	MA3877	CREDIT VALUE	10 CREDITS/5ECTS
CAMPUS	UCLAN CYPRUS		
SCHOOL	SCHOOL OF SCIENCE		

MODULE AIMS

To introduce students to the insurance system and understand different life insurance products and principles in order to apply these principles to solve complex problems related to mathematics of insurance.

MODULE CONTENT

Economics of insurance: Utility Theory, Insurance and Utility, Elements of Insurance, Optimal Insurance.

Risk Models: Models for individual claim random variable, sums of independent random variable, approximation for the distribution of sum, application to insurance.

Survival Analysis: Survival functions, time until death, curtate future lifetimes, force of mortality, life tables and relation to survival function, deterministic survivorship group, life table characteristics and recursion formulas, fractional age assumptions, other laws of mortality, select and ultimate tables.

Life Insurance: Insurance payable at moment of death (MOD): level benefit, endowment, deferred, varying benefit. Insurance payable at end of year of death (EOY), relationships between MOD and EOY.

INTENDED LEARNING OUTCOMES

On successful completion of this module a student will be able to:	
1.	Apply the basic principles and methods of the actuarial science.
2.	Formulate and solve problems related to mathematics of insurance.
3.	Apply concepts related with decrement models, for example, probability of survival, decrement rate (failure rate, mortality rate), expectation of life, hazard rate to a range of problems in mathematics, statistics, and financial economics and to the problems of assessing mortality risks and insurance.

TEACHING METHODS

The class contact will consist of teaching classes together with workshops. Teaching classes will introduce new material and provide examples. Tutorials have no new material introduced. Students will attempt problems during the tutorials. Key elements of the learning strategy are regular sessions during which problems are attempted. Throughout the week students will be given a list of problems to attempt.

ASSESSMENT METHODS

The module is assessed through a Written Exam.