Module Code	STU12501						
Module Name	Introduction to Statistics I (Probability)						
ECTS Weighting	5 ECTS						
Semester taught	Semester 1						
Module Coordinator/s	Fergal Shevlin						
Module Learning Outcomes	<ul> <li>On successful completion of this module, students will be able to:</li> <li>LO1. Understand the elementary ideas underlying probability models.</li> <li>LO2. Distinguish between discrete and continuous random variables.</li> <li>LO3. Apply a number of simple probability models to practical problems in a range of disciplines.</li> <li>LO4. Demonstrate an understanding of the elementary properties of random variables (expectation, variance and covariance.)</li> </ul>						
Module Content	<ul> <li>Sample Space and Probability: Sets; Probabilistic Models; Conditional Probability; Total Probability.</li> <li>Theorem and Bayes' Rule; Independence; Counting.</li> <li>Discrete Random Variables: Probability Mass Functions; Functions of Random Variables;</li> <li>Expectation, Mean, and Variance; Joint PMFs of Multiple Random Variables; Conditioning;</li> <li>Independence.</li> <li>General Random Variables: Continuous Random Variables and PDFs; Cumulative Distribution</li> <li>Functions; Normal Random Variables; Joint PDFs of Multiple Random Variables; Conditioning;</li> <li>Continuous Bayes' Rule.</li> </ul>						
Teaching and Learning Methods	Lectures, homework, tutorials.						
Assessment Details	Assessment Component Examination	Brief Description Written, 2 hours.	Learning Outcomes Addressed LO1,2,3,4.	% of total 100%	Week set n/a	Week due n/a	

<sup>&</sup>lt;sup>1</sup> <u>TEP Glossary</u> <sup>2</sup> <u>TEP Guidelines on Workload and Assessment</u>

Reassessment Details	Examination, Written, 2 hours, 100%.				
Contact Hours and	Contact Hours (scheduled hours per student over full module), broken down by	33 hours			
Indicativo Student	Lectures (11 weeks x 2 hours.)	22 hours			
	Tutorials (11 weeks x 1 hour.)	11 hours			
Workload	Independent study (outside scheduled contact hours), broken down by:	92 hours			
	Suggested lecture preparation (11 weeks x 3 hours.)	33 hours			
	Suggested homework problem-solving (11 weeks x 3 hours.)	33 hours			
	Exam preparation (2 weeks x 13 hours.)	26 hours			
	Total Hours	125 hours			
List	2008, Bertsekas and Tsitsiklis, Athena Scientific.				
Module Pre-requisites	Prerequisite modules: None.				
	Other/alternative non-module prerequisites: Secondary school-level mathematics.				
Module Co-requisites	None.				
Module Website	None.				
Last Update	17/06/2019 by Fergal Shevlin.				