

Module Details for INTRODUCTION TO STATISTICS I

Module Code ST1251

Module Name INTRODUCTION TO STATISTICS I

Module Short Title Probability

ECTS weighting 5

Semester/term taught Semester I

Contact Hours Lectures: 22

Tutorials: 11

Total: 33

Module Personnel Lecturer: Fergal Shevlin, School of Computer Science and Statistics.

Learning Outcomes At the end of this module students should be able to:

- Explain the elementary ideas underlying probability models
- Distinguish between discrete and continuous random variables
- Apply a number of simple probability models to practical problems in a range of disciplines
- Demonstrate an understanding of the elementary properties of random variables (expectation, variance and covariance)

Module Learning Aims Introduction to the elementary ideas of probability and the use of simple probability models

Module Content

- Sample Space and Probability: Sets; Probabilistic Models; Conditional Probability; Total Probability Theorem and Bayes' Rule; Independence; Counting.
- Discrete Random Variables: Probability Mass Functions; Functions of Random Variables; Expectation, Mean, and Variance; Joint PMFs of Multiple Random Variables; Conditioning; Independence.
- General Random Variables: Continuous Random Variables and PDFs; Cumulative Distribution Functions; Normal Random Variables; Joint PDFs of Multiple Random Variables; Conditioning; Continuous Bayes' Rule.

Recommended Reading List Introduction to Probability, 2nd Edition, 2008, Bertsekas and Tsitsiklis, Athena Scientific.

Module Pre Requisite

Module Co Requisite

Assessment Details Examination: 100%.

Module Website

Module approval date

Approved By

Academic Start Year 2017

Academic Year of Data 2017-2018