

COURSE SPECIFICATION DOCUMENT

Academic School/Department: Richmond Business School

Programme: Accounting and Finance
Business Management (All Concentrations)
Computer Science
Digital Marketing
Economics
Fashion Management and Marketing
Finance and Investment
International Relations
International Sports Management
Political Science
Psychology

FHEQ Level: 4

Course Title: Probability and Statistics I

Course Code: MTH 4120

Total Hours: 120

Timetabled Hours: 45

Guided Learning Hours: 0

Independent Learning Hours: 75

Credits: 12 UK CATS credits
6 ECTS credits
3 US credits

Course Description:

An introductory course in probability and statistics, primarily designed for business, economics and psychology majors. The course coverage will include descriptive statistics, elementary probability theory, random variables and expectations, discrete probability distributions (Binomial and Poisson distributions), continuous probability distribution (Normal distribution), linear regression analysis and correlations, elementary hypothesis testing and Chi-square tests, non-parametric methods and SPSS lab sessions targeting applications of statistical concepts to business, economics and psychology. All practical work will be produced using SPSS statistical software.

Prerequisites: MTH 3000 or Placement Test Score

Aims and Objectives:

The course aims to provide students with an understanding of a number of topics in probability and statistics. Students will be encouraged to develop a keen interest in the subject based on their specific majors. In particular, the course will help students develop the right statistical vocabulary, understand and apply essential ideas and concepts of statistics, perform some of the most useful statistical methods such as using statistical tables and SPSS statistical software, be able to discern which statistical method is most appropriate in a given situation and be aware of the assumptions and pitfalls of the various statistical methods used. Students should be able to interpret and explain meaningfully an SPSS statistical output.

Programme Outcomes:

Accounting and Finance: A2, B2, C1, D2
Business Management (All Concentrations): B4, C1, C2, D1, D2, D3
Computer Science: A2, B7, C2
Digital Marketing: B4, C1, C2, D2
Economics: D
Fashion Management and Marketing: B4, C1, C2, D2
Finance and Investment: A4, B3, B4, C1, C2, D2, D5
International Relations: Cii, Diii
International Sports Management: A2, B2, B4, C1, D2
Political Science: Cii, Diii
Psychology: 4Bi, 4Biii, 4Cii

A detailed list of the programme outcomes is found in the Programme Specification. This is maintained by Registry and located at: <http://www.richmond.ac.uk/programme-and-course-specifications/>

Learning Outcomes:

- Have a broad understanding of the concept of probability, random variables, discrete and continuous probability distribution and their applications in solving problems
- Have a broad understanding of how to organise raw data, use statistical software and interpret results
- Have a broad understanding of the principles of linear regression analysis and how to estimate model parameters by using least square method and interpret model parameters using examples of business, economics and psychology
- Have a broad understanding of the principles of hypothesis testing procedures, non-parametric methods, their viability and usefulness

Indicative Content:

- Introduction to statistical terms and definitions, types of data and its organisation Measures of Location and Measures of Dispersion
- Introduction to probability Discrete distribution Binomial Distribution Poisson Distribution
- Normal Distribution and applications
- Hypothesis Testing
- Simple Linear Regression Non-Parametric Methods
- Use of statistical software throughout

Assessment:

This course conforms to the University Assessment Norms approved at Academic Board and located at: <https://www.richmond.ac.uk/university-policies/>

Teaching Methodology:

The Course will consist of interactive learning sessions of material presented using PowerPoint slides, small group discussions, integrated tutorials and computer projects.

Bibliography:**IndicativeText(s):**

P. S. Mann, *"Introductory Statistics"*, 9th edition, Wiley, 2016

Recommended reading:

M. Sheldon, *"Introductory statistics"*, 4th edition, Elsevier/AP, 2017

R. Sheldon, *"A first course in probability"*, 9th edition, Publisher: Boston Pearson, 2014

Murray R. Spiegel, *et al*, *"Probability and statistics"*, 4th edition, McGraw-Hill, 2013

S. Lipschutz & J. J. Schiller, *"Introduction to probability and statistics"*, McGraw Hill, 2012

N. A. Weiss, *"Introductory statistics"*, 7th edition, Addison-Wesley, 2004

D.G. Rees, *"Essential Statistics"*, 4th edition, Chapman & Hall/CRC, 2001

A. Bryman, *"Quantitative Data Analysis with IBM SPSS 17, 18 & 19"*, Routledge, 2011

Web Sites

SPSS tutorials, IBM corporation, <https://www.spss-tutorials.com/basics/>, sited July 2019 [also available on the University network under licence]

Please Note: The core and the reference texts will be reviewed at the time of designing the semester syllabus

Change log for this CSD:

Nature of Change	Date Approved & Approval Body(School or AB)	Change Actioned by Academic Registry
Reading list, course description, indicative content	September 19	
Revision – annual update	May 2023	
Total Hours Updated	April 2024	