

## COURSE SPECIFICATION DOCUMENT

<b>Academic School/Department:</b>	Richmond Business School
<b>Programme:</b>	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
<b>FHEQ Level:</b>	4
<b>Course Title:</b>	Probability and Statistics I
<b>Course Code:</b>	MTH 4120
<b>Student Engagement Hours:</b>	120
Lectures:	30
Seminar / Tutorials:	15
Independent / Guided Learning:	75
<b>Semester:</b>	Fall/Spring/Summer
<b>Credits:</b>	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”*, 4<sup>th</sup> edition, Elsevier/AP, 2017

R. Sheldon, *“A first course in probability”*, 9<sup>th</sup> edition, Publisher: Boston Pearson, 2014

Murray R. Spiegel, *et al*, *“Probability and statistics”*, 4<sup>th</sup> 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”*, 4<sup>th</sup> 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*

Major or Minor Change?	Nature of Change	Date Approved & Approval Body(School or AB)	Change Actioned by Academic Registry
	Reading list, course description, indicative content	September 19	