1. **Title of the module**

MAST5951 (MA5951) An Introduction to Data Analytics

1. **School or partner institution which will be responsible for management of the module**

School of Mathematics, Statistics and Actuarial Science

1. **The level of the module (Level 4, Level 5, Level 6 or Level 7)**

Level 5

1. **The number of credits and the ECTS value which the module represents**

15 credits (7.5 ECTS)

1. **Which term(s) the module is to be taught in (or other teaching pattern)**

Autumn term

1. **Prerequisite and co-requisite modules**

Pre-requisite: None

Co-requisite: None

1. **The programmes of study to which the module contributes**

\*Standard Programme Title\* with a Year in Data Analytics

1. **The intended subject specific learning outcomes.  
   On successfully completing the module students will be able to:**
2. demonstrate knowledge and critical understanding of the underlying concepts and principles of data analytic techniques;
3. demonstrate the capability to use a range of established techniques and a reasonable level of skill in the use of basic graphical and numerical summaries of data, confidence intervals and testing for means and proportions;
4. select and deploy the concepts and principles in the use of data analytics;
5. make appropriate use of a statistical package, including basic graphical and numerical summaries of data, and testing for means and proportions.
6. **The intended generic learning outcomes.  
   On successfully completing the module students will be able to:**
7. make effective use of IT facilities for solving problems;
8. communicate straightforward arguments and conclusions reasonably accurately and clearly;
9. manage their own learning and development;
10. solve problems relating to quantitative and qualitative information.
11. **A synopsis of the curriculum**

This module is designed to provide students with an introduction to the statistical principles used in data analytics and their application using a suitable statistical package. The module begins by considering how graphical summaries and numerical summaries, such as mean, median, standard deviation and correlation, can be used to describe and understand data. The issue of data handling is then considered. The basic concepts of inferential statistics are discussed and the use of methods for understanding the statistical importance of differences in means and proportions are described.

Syllabus: An Introduction to R – data import, data manipulation; introduction to data handling; basic graphical methods and numerical summaries; writing simple reports of a data analysis; basic concepts of statistics (populations and sampling); confidence intervals for means and proportions; testing for differences in means and proportions; p-values

1. **Reading list (Indicative list, current at time of publication. Reading lists will be published annually)**

Zuur, A. (2009) A Beginner’s Guide to R, New York: Springer.

Verzani, J. (2014) Using R for Introductory Statistics, Second Edition, Chapman & Hall / CRC.

Mann, P. (2017) Introductory Statistics, 9th Edition, Wiley.

Weiss, N. A. (2014) Introductory Statistics, 9th Edition, Boston: Pearson Education.

1. **Learning and teaching methods**

30 contact hours

120 hours of private study

Total number of study hours: 150

1. **Assessment methods**
   1. Main assessment methods

5 computer-based quizzes to assess competence in the use of R (each worth 8%)   
Report – up to 10 pages (60%)

13.2 Reassessment methods

100% coursework

1. ***Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section12) and methods of assessment (section 13)***

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| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 9.1 | 9.2 | 9.3 | 9.4 |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |
| **Private Study** |  | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| Workshop | **X** |  | **X** | **X** | **X** | **X** |  | **X** |
| **Assessment method** |  |  |  |  |  |  |  |  |
| Computer quizzes |  |  | **X** | **X** | **X** |  | **X** | **X** |
| Report | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |

1. **Inclusive module design**

The School recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

1. **Campus(es) or centre(s) where module will be delivered**

Canterbury

1. **Internationalisation**

Data analysis is an international language using internationally recognised techniques developed and refined by statisticians and analysts across the globe. Mastery of the subject-specific learning outcomes, 8.1 to 8.4, will equip students to apply the theories and techniques of this module in a wide range of international contexts. The module team is drawn from the School of Mathematics, Statistics and Actuarial Science/School of Social Policy, Sociology and Social Research, which includes many members of staff with international experience of teaching and research collaboration.

In compiling the reading list, consideration has been given to the range of texts that are available internationally and a selection of texts has been identified to complement the delivery of the material.

Examples with an international dimension are included in the module where appropriate.

The support SMSAS/SSPSSR provides to its students is also internationally attuned given our international student body.

**FACULTIES SUPPORT OFFICE USE ONLY**

**Revision record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

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| Date approved | Major/minor revision | Start date of the delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
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