1. KentVision Code and title of the module

MAST7210 Foundations of Data Science

# Division and School/Department or partner institution responsible for the module

CEMS/SMSAS

# The level of the module

Level 7

# The number of credits and the ECTS value which the module represents

20 credits (10 ECTS)

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

Any term to allow for a January start.

# Delivery of the module

* 1. **Mode of study**

In person

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

Canterbury

# Prerequisite and co-requisite modules and/or any module restrictions

None

# The course(s) of study to which the module contributes

* 1. **The module is compulsory for the following courses**

MSc in Data Science, MSc in Data Science with an Industrial Placement

* 1. **The module is optional for the following courses**

None

# A synopsis of the curriculum

The module will provide the statistical and computing skills required to undertake the subsequent MSc Data Science modules delivered by SMSAS. This will include subjects such as introductory probability and statistics (e.g., hypothesis testing), R programming including data visualisation, and linear regression for multiple variables. Employability skills such as report writing, production of slides using appropriate software, and presentation skills. Ethical implications will be discussed throughout.

# Contact Hours

Private Study: 170

Contact Hours: 30

Total: 200

# Learning and teaching methods

The module will be delivered through a mixture of lectures and computer laboratory sessions.

# The intended subject specific learning outcomes

On successfully completing the module students will be able to:

*1)* Demonstrate a comprehensive understanding of the relevant parts of probability theory and statistical techniques such as hypothesis testing and apply them systematically.

*2)* Use R, including a conceptual understanding of programming in that language, and an ability to apply data visualisation techniques.

*3)* Demonstrate a systematic understanding of methods such as linear regression for multiple variables and be able to apply them to original problems and unseen data sets.

# The intended generic learning outcomes

On successfully completing the module students will be able to:

*1)* Deal with complex issues relating to theory and data and make sound judgments in handling data.

*2)* Communicate conclusions clearly to diverse audiences.

*3)* Exercise initiative and personal responsibility.

*4)* Work effectively in groups when handling a large data science project.

5) Carry out independent learning.

# Assessment Strategy

* 1. **Main assessment methods**

Group report on data analysis – 40%

Following feedback provided on the report, preparation, and delivery of an individual presentation with slides and a Q&A session – 60%

* 1. **How the assessment methods outlined above fit with the course assessment strategy?**

The course prepares students to become practicing data scientists. This role places a strong emphasis on the application of statistical and computing skills to large, sometimes messy, sets of data and the ability to communicate both technical and non-technical information effectively to other members of the team. The assessment methods used in this introductory module will help the students to develop team-working skills, strong skills in statistical analysis (within the topics covered by this module), reporting skills, the ability to make a presentation and to respond effectively to technical queries that might be raised. The assessment methods used in future modules build on these skills.

**Reassessment methods**

100% coursework, repeating individual presentation with slides.

# Mapping of Learning Outcomes

Map of module learning outcomes (sections 12 & 13) to learning and teaching methods (section 11) and methods of assessment (section 14).

* 1. **Module learning outcomes against learning and teaching methods**

| **Module learning outcome** | 12.1 | 12.2 | 12.3 | 13.1 | 13.2 | 13.3 | 13.4 | 13.5 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Private Study | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| Lectures | **X** | **X** | **X** | **X** | **X** |  | **X** |  |
| Computer laboratories | **X** | **X** | **X** | **X** | **X** | **X** | **X** |  |

* 1. **Module learning outcomes against assessment methods**

| **Module learning outcome** | 12.1 | 12.2 | 12.3 | 13.1 | 13.2 | 13.3 | 13.4 | 13.5 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Group report | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| Individual presentation | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |

# Reading list

The University is committed to ensuring that core reading materials are in accessible electronic format in line with the Kent Inclusive Practices.

The most up to date reading list for each module can be found on the university's [reading list pages](https://kent.rl.talis.com/index.html).

# Inclusive module design

The Division 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

# University Division responsible for the course CEMS

**MODULE RECORD**

**All revisions for this module are recorded in the table below for student and staff information.**

| **Date approved** | **New/ Material/ Major/ Minor revision** | **Start date of delivery of this version** | **Applies to new cohorts and/ or existing students**  | **Sections revised (if applicable)** |
| --- | --- | --- | --- | --- |
| 09/02/2024 | NEW | 2024/25 | New |  |
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