1. **Title of the module**

MAST6010 (MA601) - Individual Project in Mathematics

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 6

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

30 credits (15 ECTS)

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

Autumn and Spring

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

None

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

BSc Mathematics with Secondary Education

1. **The intended subject specific learning outcomes.
On successfully completing the module students will:**

8.1 have appreciated a particular area of mathematical thought or mathematical exposition in greater depth than in previous taught courses;

8.2 have developed skills in mathematical computation and/or communication relevant to the topic;

8.3 be able to draw conclusions from statistical data, mathematical calculations or computer output;

8.4 have a reasonable ability to apply mathematical concepts and/or statistical techniques in a particular context;

8.5 have written a reasonably coherent account of an area of mathematical thought, or a statistical method;

8.6 have performed computations that show their understanding of the techniques relevant to the topic;

8.7 have improved their ability in mathematical and statistical modelling of particular problems.

1. **The intended generic learning outcomes.
On successfully completing the module students will have:**

9.1 improved communication skills;

9.2 enhanced intellectual independence;

9.3 relevant computing skills, including use of appropriate document preparation and word-processing packages;

9.4 improved problem solving skills

9.5 awareness of important issues relating to good written presentation of results;

9.6 greater ability to select material from source texts, either recommended to or found by the student, and shown awareness of the relationship of the material to background and to more advanced material;

9.7 increased their ability for independent learning and time management.

1. **A synopsis of the curriculum**

This module provides an opportunity for students on the Mathematics with Secondary Education programme to explore and research a topic in mathematics or statistics that is of interest to the student. Under the guidance of a supervisor, the student will engage in self-directed study to produce a dissertation. Outline syllabus: This is determined by the topic of the project. Indicative mathematics titles include the following: Knot theory; Logistic map; Totally non-negative matrices; Signed permutations and the four colour theorem; Generating functions; Latin squares; Teaching further Linear Algebra; Graph theory; Exploring mathematics with origami; Classical invariant theory; Zeta functions; Foundations of the real numbers; Euler's formula; Creative use of random numbers to teach Statistics; The National Lottery; Circular data.

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

An appropriate reading list will be provided by the supervisor for each topic.

1. **Learning and teaching methods**

Total contact hours: 9

Private study hours: 291

Total study hours: 300

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

Project approx. 30 pages 100%

13.2 Reassessment methods

Like-for-like

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

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 8.7 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Private Study | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| Workshop |  |  |  |  |  |  |  | **X** |  | **X** |  | **X** |  |  |
| Supervisor meetings |  | **X** | **X** | **X** |  |  | **X** |  |  |  | **X** |  | **X** |  |
| **Assessment method** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Project | **X** | **X** | **X** | **X** | **X** | **X** | **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**

Mastery of the subject-specific learning outcomes, 8.1 to 8.7, will equip students to apply the techniques of this module in a wide range of international contexts. This module develops communication skills in mathematics and/or statistics, which are directly transferable to English-speaking countries and, with appropriate language skills, to other countries around the world.

The module team is drawn from the School of Mathematics, Statistics and Actuarial Science, which includes many members of staff with international experience of teaching and research collaboration.

The published list from which the student selects a topic on which to base their assessment will include a range of topics with an international focus, as well as topics with a UK focus and those that are applicable globally.

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

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 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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Revised FSO Jan 2018