1. **Title of the module**

MAST6703 (MA6503) - Communicating Mathematics

MAST7703 (MA7503) - Communicating 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 (MAST6703), Level 7 (MAST7703)

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

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

**Level 6:**

For delivery to students completing Stage 1 before September 2016:

Pre-requisite: MA552 (Analysis); MA553 (Linear Algebra); MA629 (Probability and Inference)

Specific topics may have additional pre-requisites.

Co-requisite: None

For delivery to students completing Stage 1 after September 2016:

Pre-requisite: MAST4010 (Real Analysis 1); either MAST4004 (Linear Algebra) or MAST4005 (Linear Mathematics); MAST4009 (Probability); MAST4011 (Statistics)

Specific topics may have additional pre-requisites.

Co-requisite: None

**Level 7:**

Pre-requisite: Students are expected to have studied material equivalent to that covered in the modules above.

Specific projects may have additional pre-requisites.

Co-requisite: None

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

For the level 6 module, BSc Mathematics, BSc Mathematics and Statistics, BSc Financial Mathematics, BA Mathematics and Accounting and Finance (including programmes with a Year in Industry), BSc Mathematics with a Foundation Year, MMath Mathematics, MMathStat Mathematics and Statistics, Graduate Diploma in Mathematics, International MSc in Mathematics and its Applications (including programme with an Industrial Placement).

For the level 7 module, MMath Mathematics, International MSc in Mathematics and its Applications, MSc in Mathematics and its Applications (including programmes with an Industrial Placement).

1. **The intended subject specific learning outcomes.  
   On successfully completing the level 6 module students will be able to:**

8.1 convey a systematic understanding of key aspects of a topic in mathematics, statistics or financial mathematics through scientific writing and oral presentation;

8.2 demonstrate a reasonable level of skill in written and oral presentation of a topic in mathematics, statistics or financial mathematics;

8.3 show judgement in the selection and presentation of material to communicate with both specialist and non-specialist audiences.

**On successfully completing the level 7 module students will be able to:**

8.4 convey a systematic understanding of a topic in mathematics, statistics or financial mathematics through scientific writing and oral presentation;

8.5 demonstrate a very good level of skill in written and oral presentation of a topic in mathematics, statistics or financial mathematics;

8.6 show good judgement in the selection and presentation of material to communicate with both specialist and non-specialist audiences.

1. **The intended generic learning outcomes.  
   On successfully completing the level 6 module students will be able to:**

9.1 manage their own learning and make use of appropriate resources;

9.2 communicate straightforward arguments and conclusions reasonably accurately and clearly;

9.3 manage their time and use their organisational skills to plan and implement efficient and effective modes of working;

9.4 make competent use of information technology skills such as word-processing and online resources (Moodle);

9.5 communicate technical and non-technical material competently;

9.6 demonstrate the acquisition of the study skills needed for continuing professional development.

**On successfully completing the level 7 module students will be able to:**

9.7 work competently and independently, be aware of their own strengths and understand when help is needed;

9.8 communicate arguments confidently with the effective and accurate conveyance of conclusions;

9.9 manage their time and use their organisational skills to plan and implement efficient and effective modes of working;

9.10 make effective use of information technology skills such as word-processing and online resources (Moodle);

9.11 communicate technical and non-technical material competently;

9.12 demonstrate the acquisition of the study skills needed for continuing professional development.

1. **A synopsis of the curriculum**

There is no specific mathematical syllabus for this module; students will chose a topic in mathematics, statistics or financial mathematics from a published list on which to base their coursework assessments (different topics for levels 6 and 7). The coursework is supported by a series of workshops covering various forms of written and oral communication. These may include critically evaluating the following: a research article in mathematics, statistics or finance; a survey or magazine article aimed at a scientifically-literate but non-specialist audience; a mathematical biography; a poster presentation of a mathematical topic; a curriculum vitae; an oral presentation with slides or board; a video or podcast on a mathematical topic. Guidance will be given on typesetting mathematics using LaTeX.

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

Stephen G. Krantz,, A Primer of Mathematical Writing, A.M.S., 1997.

Kevin Houston, How to think like a mathematician: a companion to undergraduate mathematics, C.U.P., 2009.

Hilary Glasman-Deal, Science Research Writing for Non-Native Speakers of English, Imperial College Press, 2009.

Anne E. Greene, Writing science in plain English, University of Chicago Press, 2013.

Alan Beardon, Creative Mathematics: a gateway to research, C.U.P., 2009.

Carmine Gallo, Talk Like TED : The 9 Public Speaking Secrets of the World’s Top Minds, Macmillan, 2014.

Toby Oetiker, The not so short introduction to LaTeX, available online, 1995.

1. **Learning and teaching methods**

Total contact hours: 12

Private study hours: 138

Total study hours: 150

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

Level 6:

Scientific writing: magazine or survey article 2-3 pages 50%

Oral presentation 10 minutes 40%

Other communication: outreach or career-related, requiring on average between 10 and 15

hours to complete 10%

Level 7:

Scientific writing: article based on single research article 4 pages 40%

Oral presentation 10 minutes 40%

Other communication: poster or contemporary media, requiring on average between 25 and 30

hours to complete 20%

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)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Level 6 Module learning outcome** | 8.1 | 8.2 | 8.3 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |  |
| Private Study | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| Workshops |  | **X** | **X** |  | **X** |  |  | **X** |  |
| **Assessment method** |  |  |  |  |  |  |  |  |  |
| Coursework | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Level 7 Module learning outcome** | 8.4 | 8.5 | 8.6 | 9.7 | 9.8 | 9.9 | 9.10 | 9.11 | 9.12 |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |  |
| Private Study | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| Workshops |  | **X** | **X** |  | **X** |  |  | **X** |  |
| **Assessment method** |  |  |  |  |  |  |  |  |  |
| Coursework | **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 8.6, will equip students to apply the techniques of this module in a wide range of international contexts. This module develops communication skills in mathematics, statistics and financial mathematics, which are directly transferable to English-speaking countries and, with appropriate language skills, to other countries around the world. The typesetting program, LaTeX, is universal.

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.

**DIVISIONAL 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.**

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