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Organisation Name: **London Mathematical Society**

Are you responding to the consultation as: **On behalf of your organisation**

Which of the following best describes your role?: **From a HE Sector body (not a civil servant)**

To which draft revised subject benchmark statement do your comments refer?: **Mathematics**

6 - Overall, does the revised subject benchmark statement continue to define the nature of the subject area and the academic standards expected of graduates in the subject? **(Y)**

#### **COMMENTS**

(a) Generally yes and very well, particularly as the aim is to accredit a very diverse set of provision in MSOR; this is difficult for a single benchmarking statement to achieve.

(b) There is welcome emphasis on the ways in which MSOR is very different from other subjects – in course design, delivery and assessment.

(c) However, there seems to be here no real concern about absolute standards, which could decline (further) without affecting the ‘benchmarking’ process, although it is clear that this would eventually attract attention.

(d) Again there is very little reference to international comparison, which inevitably does arise directly, certainly in degree programmes which include a year abroad, but also in the reputation of the qualifications achieved – in graduate employment and in progression to research degrees..

7 – Does the information in the introductory section successfully describe the nature of the subject and its defining principles? **(Y)**

#### **COMMENTS**

(a) In general the wide applicability is described well, although an important driver should also be to study the subject for its own sake.

(b) A further emphasis is on the ways that MSOR differs from other subjects in its essential uses as a language and in its progressive nature, building on a common core of material towards a wide variety of options.

(c) The wide range of programmes embraced by this Benchmarking Statement makes it difficult for a user to differentiate between programmes, since their interpretation of the standards can in practice be very different. In this regard the standards, learning, knowledge and skills are to a very large extent not absolute, but relative to the desired outcomes of the particular programmes and institutions.

(d) More prescription, including any move towards a ‘National Curriculum’ at the HE level is very undesirable and we welcome that this has not been proposed [see(3.4)].

(e) There is only a brief mention here [see (2.10)] of programmes containing a Year Abroad. The whole matter of European comparison via ECTS is avoided in this document. It surely should have

some role in benchmarking – and this is particularly sensitive with an MMath or MSci year, and the interplay with the traditional UK (perceived as) ‘short’ taught course MSc.

8- Does the section on subject knowledge and understanding still describe the core aspects of the subject area? **(Y)** Generally so.

Are there any area of knowledge that should be included to reflect newly emerged areas of teaching/research? Are there any areas that have become redundant?

#### **COMMENTS**

(a) The natural diversity of MSOR provision is welcomed in this benchmarking Statement, and in consequence the actual subject knowledge expected must be judged appropriately [see (3.1) et al]. It is then an institutional matter to make its judgement of the depth and width of its programme content, with the planned logical structure of progression.

(b) The aim of such standards should be enabling, rather than restrictive. We would not want Quality Assurance processes to inhibit innovation through the special interests of academic staff [(2.4)] as these may evolve. Nor would we wish to see students encouraged to be overly conservative with their option choices for reasons of perceived difficulty, or form of assessment [see below in e.g. 11(b)].

9 – Does the section relating to subject-specific skills cover adequately the skills expected of a graduate in the subject-area? **(Y)** Generally so.

#### **COMMENTS**

(a) Important subject skills [see (3.12) – (3.18)] are embedded within a programme and attempts should not be made to assess them separately and in isolation.

(b) The fundamental ‘problem-based’ nature of the subject is emphasised [see (3.20), (3.21)] and we welcome this.

(c) On account of 9(b) above (in particular) the range of marks produced in assessment has a far wider range than for other subjects [see below in 11(b) and 12(b)].

10 – Is the coverage of the generic skills expected to be acquired by a graduate in the subject area adequate and appropriate? **(Y)** Generally yes.

#### **COMMENTS**

(a) The listing of generic skills referred to [(3.23) – (3.25)] seems appropriate.

(b) However it is recognised [(3.23)] that they are essentially embedded, rather than to be taught/assessed separately.

11 – Does the section in teaching, learning and assessment continue to provide an appropriate indication of the types of teaching and assessment relevant to the subject area? **(Y)** Broadly so.

#### **COMMENTS**

(a) We agree that a wide variety of learning and teaching methods can be employed very usefully in MSOR programmes. We would however certainly wish to highlight the comment of ‘arguments developed by tutors in real time’ [(4.10)]. In general this requires space for display and we would emphasise most strongly that ‘traditional board-based lectures continue to be widely used’ for a very good reason – and not in a general aversion to the use of electronic methods.

(b) We referred above to the very wide range of marks achieved by some quite successful students on MSOR programmes. It is then not appropriate to require in all cases that every module needs to be passed – particularly among option courses – that is as long as the overall mark is at the appropriate level [see below]. We think this [see(4.14)-(4.16)] is very important and would like this to receive even greater emphasis.

12 – Does the benchmark section successfully articulate what is expected of a graduate in the subject area in terms of a threshold level of attainment (and, where relevant, typical and excellent attainment)? **(Y)** Generally yes.

#### **COMMENTS**

(a) The achievement levels [(5.4), (5.5)] are not given as absolutes (fortunately), but their relative rather than absolute nature makes them almost universally applicable – and at other than HE levels. However, it is difficult to see how the description of these levels might be made more precise/useful in their interpretation.

(b) Inevitably the quite common range of achievement registered by individual students across a programme [see (11b) above] necessitates a mechanism for condolence [see (4.17)] in regard to defined threshold levels. It might be that this will not be allowed for certain specific programme elements – e.g. a programme-specific assignment or a major project. In practice the condolence mechanism is applied in order to balance in a reasonable way some deleterious effects of any institutional blanket requirement for passing every module [see 11(b) above]. These matters are (fortunately) not addressed directly in the threshold standards in e.g. (5.4).

(c) The incorporation of MMath/MSci provision within this Benchmarking Statement [see (5.5)] is welcome. However the thresholds also need to be differentiated very carefully relative to the corresponding thresholds for taught course MSc programmes. This also of course has an important European standards dimension.

13 – Please use this space to add any further observations relating to the revised benchmark statement not covered in the questions above.

#### **COMMENTS**

(a) While the Statement seems fine in its general description, it is unclear from an operational point of view how it will actually serve the many stakeholders, including, of course, external reviewers of each particular programme.

(b) The role of Mathematics as a ‘service’ subject, in e.g. Engineering degrees, is a contentious issue – politically and particularly in the way it is funded. It is recognised [see (2.21)] that this

Benchmarking Statement is not directly applicable to such provision, but the balance of theory and practical application within such programmes needs careful consideration within the relevant Benchmarking Statements.

(c) The European comparison omission is a major one in that the EU persists in monitoring level standards not purely in terms of the knowledge and skills identified here, but also in hours of engagement by students through ECTS counts. In this regard nearly all Masters provision in the UK – in integrated form or free-standing - is seen as of insufficient duration. This does have a consequent effect on the perceived standards of UK degrees and on progression to research qualifications....

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