

Scaling Policy

1. Definition of Scaling

- 1.1 Scaling is the process of applying an arithmetic adjustment to the marks obtained during the marking process, so that the marks which result after scaling is applied more accurately reflect student learning and achievement against the assessment component or module learning outcomes.
- 1.2 Scaling takes place at the end of the moderation process but before marks are finalized. Scaling is usually undertaken over the marks of all students on a module, and scaling is normally applied to the marks of a single assessment component.

2. Guiding Philosophy

- 2.1 Scaling should only be undertaken in exceptional circumstances. The decision to scale will be undertaken by the relevant Board of Examiners within the School which owns the module. However, where the module is taken by a large number of students from another School(s) or Faculty, the other School(s) or Faculty must also be consulted.
- 2.2 When scaling is undertaken, the reasons and mechanism for each instance of scaling must be documented in the minutes of the Board of Examiners that confirms it, along with proposed actions to address the issues arising in the process of assessment that led to scaling being undertaken. Students affected by scaling must be informed of the scaling that has taken place, along with a general description of the reasons for scaling.

3. Basic Principles and Expectations

Expectation A:	Scaling is a criterion-referenced process, rather than a norm-referenced process. By this, we mean that scaling should not be undertaken merely to obtain a desired mean mark for the marks of all students for an assessment component or for a module overall. Rather, scaling must be undertaken with clear sight of the learning outcomes of the piece of assessment in mind.
Expectation B:	Scaling should only be undertaken in exceptional circumstances. Here, exceptional may take either of two meanings. The first is that scaling is only undertaken rarely. An indicative (but not exhaustive) list of triggers for the initiation of a discussion about scaling is given below in Section 3. However, the satisfaction of a trigger does not require that scaling be undertaken.

- 3.1 The second is that there may be programme-specific structural issues, related for instance to the nature of the discipline or to the requirements of Professional, Statutory and Regulatory Bodies, that lead to scaling or related processes (see 2 below) being undertaken on a regular basis. This is the case for programmes in the Faculty of Medicine. For such programmes, a general description of the scaling or related process will be included in the relevant student documentation.

Expectation C:	Every School that undertakes scaling should include the following standard paragraph, or a variation approved by the relevant School Programmes Committee, in relevant student documentation.
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- 3.2 Occasionally, systematic issues arise in marking; for example, there may be differences noted among markers that require adjustment to bring them in line with one another, the level of difficulty of different exam questions, or anomalous variations in performance between different groups of students taking the same module. Each module is subject to a moderation process designed to identify any such issues, and further review by the relevant external examiner. Where potential issues are identified, the module lead will review the evidence and

recommend appropriate action such as re-marking using the same or a different marking scheme, re-weighting components or sub-components, or scaling the assessment component or module marks. Any adjustments to marks will be made according to the principles and practices identified in the University's double-blind marking and moderation and scaling policy/policies, which include discussion with the external examiner and approval by the responsible Board of Examiners to confirm that the resulting marks conform to University and national standards. As determining appropriate standards is a matter of academic judgment, these decisions are not subject to academic appeal. Where marks are adjusted, affected students will be notified of both the rationale and the process applied.

Expectation D:	Scaling will be undertaken at the level of individual assessment components, as the purpose of scaling is to mitigate the effects of errors and other issues affecting individual assessment components. Scaling at the level of the module mark as a whole may be undertaken only when the assessment component that triggered the discussion about scaling is worth 70% or more of the whole module mark.
Expectation E:	The marks of students on modules with small numbers of students (where here small is defined to be 15 or less) are naturally subject to significant fluctuations. Hence, a decision to scale the marks associated to such a module must therefore be based on an extremely robust identification of an error in the assessment process that cannot be reasonably addressed by other means, such as re-marking or the discounting of an assessment component.
Expectation F:	Scaling must be a transparent process. Where scaling has been undertaken, the School which has carried out the scaling must notify the students concerned with the rationale for the scaling and an explanation of the process. This notification can be made via email, Blackboard or other appropriate means.

3.3 We close this section with two descriptions of issues closely related to scaling.

Issue 1: In very rare and extreme circumstances, the raw marks for an assessment component or for a module may be viewed by the relevant Board of Examiners as containing no reliable information about the cohort of students being considered. In such cases, scaling cannot be used. In such circumstances, the Board of Examiners shall assume the role of its Special Consideration Board to set aside all or some aspect of the assessment for that module (as per paragraph 6.2.7 of the Regulations Governing Special Consideration). Under such circumstances, a review of process will be expected to be undertaken, to ensure that the same failures of process do not recur.

Issue 2: There is a process related to scaling, which is applied differentially to different sub-cohorts of students within a single module. One example of this is that there may be that an assessment component is marked by multiple markers and that the marks distributions for the different markers are significantly out of line with one another. A second example may occur where students on a module are taught by different lecturers in different locations (such as modules taught both at UoS and at USMC). (This is not an exhaustive list of examples.)

3.4 In such situations, the module marks for the different sub-cohorts may be adjusted to bring the marks profiles associated to the different markers into line with one another. Where this process is regularly applied to the marks within a module, as part of standard practice or as required by the structure of the module, note of this should be made either in the module profile or in the relevant student documentation.

3.5 While such adjustments relating to sub-cohorts of students within a single module should be reported to Boards of Examiners, there is no requirement that such adjustments be made known to students.

4. Triggers for Scaling

4.1 The following is an indicative (not exhaustive) list of triggers for scaling to be considered. The occurrence of a trigger on this list does not require that scaling be undertaken.

- 4.1.1 An anomalous distribution of marks (for example, unusual patterns or numbers of high or low marks) at either module level or the level of an assessment component;
 - 4.1.2 A range of marks that is significantly out of line with one to be expected from past performance on the assessment component or module in question;
 - 4.1.3 The range of marks is significantly out of line with the marks achieved by the same students on other modules at the same level;
 - 4.1.4 Reasoned evidence of a problem with the relevant assessment component for which the special consideration process is not appropriate;
 - 4.1.5 Where there has been an exam invigilator incident report and a Special Consideration Board has made a recommendation to the School to consider whether scaling would be appropriate.
- 4.2 It is important to review the marks over all relevant modules before making the decision to scale the marks of any individual assessment component or module.
- 4.3 It may be that the response to one of these triggers is to subject the module to enhanced moderation, which may in turn lead to remarking or some other marks adjustment rather than scaling, as per the policy on [Double-Blind Marking and Moderation](#).

5. Timing of Scaling

- 5.1 Scaling shall be undertaken before marks are finalised but after moderation, and scaling will be undertaken by the Board of Examiners of the School owning the module. Where the module is taken by a large number of students from another School(s) or Faculty, the other School(s) or Faculty must also be consulted.
- 5.2 While a discussion of whether or not scaling will be undertaken will often occur before pre-Boards meet, recommendations to scale and a discussion of the rationale for scaling will be made by pre-Boards. Should time permit, scaling recommendations will be discussed with external examiners before Boards of Examiners meet.
- 5.3 Scaling decisions must be confirmed by the relevant Boards of Examiners. The minutes of the Board of Examiners must include a written explanation of the reasons for scaling and the mechanisms used to undertake scaling, with reference to the relevant School mechanism for scaling, along with a preliminary plan of action to mitigate the need for scaling in future instances of the relevant modules.

6. Mechanisms for Scaling

- 6.1 Any mechanism for scaling developed by a School must satisfy the following criteria:
 - 6.1.1 any scaling mechanism used should be criterion referenced and not norm referenced;
 - 6.1.2 the rank order of students after scaling must be the same as the rank order of students before scaling;
 - 6.1.3 any scaling mechanism must encompass the full range of raw marks from 0 to 100.
- 6.2 Examples of acceptable scaling practice include:
 - 6.2.1 the University standard scaling mechanism (as described below);
 - 6.2.2 add a fixed number (for instance 3) of marks to all marks on a particular assessment component, as long as no scaled marks are then greater than 100;
 - 6.2.3 subtract a fixed number (for instance 5) of marks from all marks on a particular assessment component, as long as no scaling marks are then less than 0;

6.2.4 multiply all marks on a particular assessment component by a particular factor (for example 0.96).

6.3 Examples of unacceptable scaling practice include:

6.3.1 add 4 marks to all failed marks on an assessment component and leave all pass marks unadjusted, as this may violate criterion 1) above;

6.3.2 add 10 marks to all marks on an assessment component, without checking whether this leads to a mark greater than 100, as this violates criterion 2) above.

6.4 In Appendix 1, we describe a proposed standard University mechanism for scaling, with a worked example given in Appendix 2.

7. Reporting Mechanisms

7.1 All scaling decisions must be discussed with external examiners and reported to Boards of Examiners. School Programmes Committees have oversight of all scaling decisions (including the module code to track serial scaling in specific modules, the rationale, what scaling was undertaken and actions to be taken to avoid scaling (where feasible) in future).

7.2 Where scaling has been undertaken, the School which has carried out the scaling must notify the students concerned with the rationale for the scaling and an explanation of the process.

Document Information	
Author	Quality Standards and Accreditation Team
Owner (committee)	Academic Quality and Standards Committee
Approved Date	February 2016
Last Revision	February 2016, August 2018, May 2022 (logo update)
Type of Document	Policy

APPENDIX 1: Proposed Standard University Scaling Mechanism

The scaling process begins with a set of raw marks (which are the marks before scaling is undertaken) and ends with scaled marks (which are the marks after scaling is undertaken). In the standard University mechanism, the raw marks at grade boundaries and at other specified cut marks can be adjusted and all other adjustments then follow by calculation.

The mechanism described below is for undergraduate modules. There will be a similar mechanism for postgraduate taught modules, with the Qualifying Mark set at 35 and the Pass Mark set at 50. For modules with a Qualifying Mark and /or Pass Mark differing from the University standard marks, appropriate modifications will need to be made to the process below.

The relevant target marks are 10, 20, 30, 40, 50, 60, 70, 80, and 90. We choose raw marks and adjust them to the relevant scaled marks on this list. We note that it is not necessary to adjust all of these; rather it may be necessary or appropriate to adjust only a subset. The marks at 0 and 100 are fixed. As an example, it may be necessary to adjust only the pass/fail borderline of 40 and the First/Upper Second borderline of 70; an example of this process is given in Appendix 2.

We note that the borderline of 25 between a compensatable fail and a non-compensatable fail is also important. However, we feel that it is not necessary to include this borderline, as adjusting the marks of 20 and 30 is sufficient.

Based on a discussion of achievement of learning outcomes, the specific issues affecting the assessment component or module assessment overall, and any other relevant factors, the decision is taken that

- The raw mark of P (which may or may not be different from 10) is adjusted to the scaled mark of 10;
- The raw mark of Q (which may or may not be different from 20) is adjusted to the scaled mark of 20;
- The raw mark of R (which may or may not be different from 30) is adjusted to the scaled mark of 30;
- The raw mark of S (which may or may not be different from 40) is adjusted to the scaled mark of 40, as the appropriate lowest mark for a pass is determined to be S;
- The raw mark of T (which may or may not be different from 50) is adjusted to the scaled mark of 50, as the appropriate mark for the border between Third class performance and Lower Second class performance is determined to be T;
- The raw mark of V (which may or may not be different from 60) is adjusted to the scaled mark of 60, as the appropriate mark for the border between Lower Second class performance and Upper Second class performance is determined to be V;
- The raw mark of W (which may or may not be different from 70) is adjusted to the scaled mark of 70, as the appropriate mark for the border between Upper Second class performance and First class performance is determined to be W;
- The raw mark of X (which may or may not be different from 80) is adjusted to the scaled mark of 80;
- The raw mark of Y (which may or may not be different from 90) is adjusted to the scaled mark of 90.

As noted, not all of the scaled mark borderlines will be different from the raw mark borderlines. The scaling mechanism then interpolates linearly between the scaled borderline marks to produce the scaled marks from the raw marks.

APPENDIX 2: Worked Example of Scaling Mechanism as Described in Appendix 1

Consider the following profile of marks for a module for which the assessment is 100% final examination. During the moderation process, the decision was made that the examination was flawed, that applying the special consideration process was not appropriate, and that scaling would be undertaken.

After further discussion and a consideration of the learning outcomes for the module against the issues identified with the examination, the decision was made;

- to adjust the unscaled mark of 15 to the scaled mark of 20;
- to adjust the unscaled mark of 30 to the scaled pass/fail borderline mark of 40; and
- to adjust the unscaled mark of 60 to the First/Upper Class borderline mark of 70.

The other marks are then adjusted using linear interpolation. This results in the following scaled marks (rounded to the nearest whole number).

With this scaling, we see that overall:

- The raw mark of 7.5 corresponds to the scaled mark of 10;
- The raw mark of 15 corresponds to the scaled mark of 20 (as was set initially);
- The raw mark of 22.5 corresponds to the scaled mark of 30;
- The raw mark of 30 corresponds to the scaled mark of 40 (as was set initially);
- The raw mark of 40 corresponds to the scaled mark of 50;
- The raw mark of 50 corresponds to the scaled mark of 60;
- The raw mark of 60 corresponds to the scaled mark of 70 (as was set initially);
- The raw mark of 73.33 corresponds to the scaled mark of 80; and
- The raw mark of 86.67 corresponds to the scaled mark of 90.

RAW	11	18	21	23	24	33	35	36	45	57	59	61	67	70	74
SCALED	15	24	28	31	32	43	45	46	55	67	69	71	75	78	81

A pictorial representation of this scaling process is given below. In this figure, the vertical axis corresponds to the scaled mark and the horizontal axis corresponds to the raw mark.

