

# Mathematics Finals Examination Board Procedures (2021-22)

This document describes how the Mathematics Finals Examination Board implements the university's degree classification conventions.

## Specific changes for the year 2021-22

All exams this year returned to in person exams for the first time since 2018/19. The information for students is available from this [webpage](#). Below is a summary of the changes.

1. The mathematics exams took place at a fixed time, either starting at 9:30am or at 2pm with the majority of MA3xx and MA4xx exams being 3 hours in duration.
2. Most exams consisted either of 4 compulsory questions (with question 1 worth 40%) or 1 compulsory question worth 40% and then 3 optional questions out of 4, each worth 20%, and the best 3 out of 4 taken if all 4 attempted.

Overall, this year's marks distribution, as last year, seem to be in line with pre-Covid-19 distribution.

## Benchmark

In previous years there was a benchmark calculation, in order to help mitigate the Covid-19 and lockdown disruptions to usual university procedures in the 2019/20 exam season. This means that, besides the usual year marks, students graduating this year from the 4 year degrees (G103, G106, G101) will also carry forward a benchmark result from their second year. If you are interested in the actual rules for computing the benchmark, you can click on [this link](#).

The most important information is that this current, and last, years count in full. Thus, each student will have two "final" Overall averages: one computed with all the actual marks, and one computed using last year's benchmark, in place of the year 2019-20 Term 3 marks. The classification will be based on the higher of the two marks.

There are a small number of 3rd year BSc students who will also have a benchmark calculation either because of a temporary withdrawal since 2019/2020 or because of subsequent resit sessions. These will be presented to the board separately when appropriate to avoid confusion.

## Regulations

1. **The University's regulations** governing the award of BSc and MMath degrees can be found in the University Calendar, Regulation 8.3, with options available in the case of examinations missed for medical reasons described in Regulation 12. See [here](#).
2. **The University's undergraduate degree classification conventions** can be found [here](#).

Throughout this document, these conventions will be referred to as UDCC13.

The Department of Mathematics is part of the Faculty of Science and therefore, Articles 2(e) and 2(f) of Section II of UDCC13 apply. These are summarised in 4 below.

3. **Degree Class Borders.** [UDCC13, II.1]. The degree class awarded is provisionally determined (see 7 below) by consideration of the overall percentage credit (see 6 below) achieved by the candidate. This provisional classification will correspond to percentages as agreed by the Senate:

First Class Honours: 70% and above

Upper Second Class Honours: 60-69.9%

Lower Second Class Honours: 50-59.9%

Third Class Honours: 40-49.9%

Pass Degree (not Honours): 35-39.9%

Fail: 0-34.9%

There is no Pass degree on the MMath; see 10 below.

4. **Minimum credits in Final Year.** [UDCC13, II.2(b)]. In respect of students in the Faculty of Science who joined Warwick from Autumn 2013 or later, the following shall apply:

- (a) for an Integrated Master's degree, a candidate must pass (at the 40% module pass mark) in the final three years contributing to the degree classification, whole modules equating to at least 258 credits in total, including at least 90 credits taken in the final year. Note that for students who commenced their studies in 2021/22 or after, level 7 modules (e.g. MA4xx modules) will have a pass mark of 50% regardless of the year in which a student takes it.
- (b) For an Honours degree (whether of three or four years' duration), a candidate must pass (at the 40% module pass mark) in the final two years contributing to the degree classification, whole modules equating to at least 168 credits in total, including at least 80 credits taken in the final year.
- (c) For a Pass degree (whether of three or four years' duration), a candidate must pass (at the 40% module pass mark) in the final two years contributing to the degree classification, whole modules equating to at least 150 credits in total, including at least 50 credits taken in the final year.

5. **Calculation of overall year mark.** [UDCC13, I.3].

In respect of students in the Faculty of Science who joined Warwick from Autumn 2013 or later, the following shall apply for each year of study:

*With the normal load for a year's study being 120 CATS (or such larger figure as is specified by course regulations) and the maximum permitted load being 150 CATS then, for each year of study, a candidate's mean mark is the arithmetic mean of the subset of whole modules, weighted according to their credit weighting, which satisfies the course regulations and results in the highest mark.*

I.e. The overall end of year mark in year  $n$ ,  $S_n$ , will be calculated as follows. Let  $M$  denote any subset of the modules taken in year  $n$ . If the score in module  $m$  in  $M$  is  $p(m)\%$  and module  $m$  is worth  $c(m)$  CATS, let

$$L(M) := \sum_{m \in M} c(m),$$
$$X(M) := \sum_{m \in M} c(m)p(m).$$

Then  $S_n$  is the maximum of  $X(M)/L(M)$  taken over all subsets of modules fulfilling regulations.

6. **Course regulations**

A candidate's **overall percentage credit**  $C$  is usually determined by

$$C = (10S_1 + 30S_2 + 60S_3)/100$$

for the BSc (Mathematics) degree, and

$$C = (10S_1 + 20S_2 + 30S_3 + 40S_4)/100$$

for the MMath degree, and

$$C = (10S_1 + 20S_2 + 20S_3 + 50S_4)/100$$

for the MMath with Study in Europe degree. Marks  $S_n$  and  $C$  are normally presented to the Board rounded to one decimal place. Joint degree courses with Philosophy, Economics and Business Studies are considered by other Finals Boards which may use different conventions and weightings.

**For students who started their course in 2019/20** the first year does not count towards their final classification and the other years are reweighted to take this into account. Thus, for 2021/22 most of the 3rd year BSc students will instead have their overall classification calculated as:

$$C = (30S_2 + 70S_3)/100$$

As with the benchmark calculations, a small number of third year BSc students who were absent for exams in 2019/20 will retain the usual calculation and these will be highlighted when appropriate during the Exam Board.

7. **Classification** takes place in two stages. *Provisional classification* (this section) is automatic. *Final classification* (next section) takes place only after detailed consideration of borderline candidates.

*Provisional classification* is based on the class borders in 3 above together with the requirement that: a candidate must achieve marks in that provisional class or higher in whole List A, List C or List D modules, equating to at least 48 CATS in total, taken in the final two years. This is to fulfil II.3 of UDCC13. Furthermore, suppose that a candidate's cumulative credit is  $C$ , that the class borderline under consideration is  $B$  and that  $C < B$ .

- (a) (Rounding) If  $C \geq B - 0.5$  then the candidate is provisionally placed in the higher class.
- (b) (Effect of final year — BSc) Candidates for a BSc are provisionally placed in the higher class if they satisfy all of the following conditions
  - i.  $C \geq B - 2$ ,
  - ii.  $S_3 \geq B$ ,
  - iii. EITHER  $B = 70$  and the marks in the best 45 CATS from List A Year 3 or Year 4 modules taken in the final year are at least 70  
OR  $B \leq 60$ , and the marks in the best 30 CATS from List A Year 3 or Year 4 modules taken in the final year are at least B.
- (c) (Effect of final two years — MMath) Final year candidates for the MMath whose cumulative credit  $C \geq B - 2$ , whose final year  $S_4 \geq B$ , and who have scored marks of  $B$  or above in at least 60 CATS worth of modules from List C or List D (including Project MA4K8 or MA4K9) or 45 CATS worth of modules from List C or List D (not including Project MA4K8 or MA4K9), in either third or fourth year, are provisionally placed in the higher class.

8. [UDCC13, III.1] The Board of Examiners will determine the final classification of candidates. It may use its academic judgement to award a degree class that is different from that determined under the preceding section, but it must minute its reasons for doing so.

9. The provisional classification of a candidate by the procedure in 7 may change if the candidate is considered borderline. **Borderline cases** shall include, but are not limited to, cases where  $B - 2 \leq C \leq B$ . In particular, candidates provisionally placed in the higher class by virtue of (a), (b) or (c) in 7 are borderline cases. In considering borderline cases for final classification the following factors may be taken into consideration.

- (a) The profile of marks in the three years, or performance in a subset of exams showing ability above the standard required for the class.
- (b) The relative performance in Mathematics (List A for BSc) and Non-Mathematics modules.

(c) *Factors considered by the examination board*

To be awarded a first class BSc degree it is normally necessary to obtain good quality marks on a number of third (or higher) year Mathematics modules. This is normally interpreted to mean that at least 45 CATS of List A Year 3 modules, or List C or D Year 4 modules, should be above 70%. Similarly, for the award of MMath with First Class Honours, at least 60 CATS worth of modules from List C or List D (including Project MA4K8 or MA4K9) or 45 CATS worth of modules from List C or List D (not including Project MA4K8 or MA4K9), should normally be above 70%.

10. Final year candidates for the MMath scoring below the Honours standard (on the basis of the degree class borders in 3 above or the Minimum Credits in Final Year in 4 above) cannot be awarded an MMath Pass Degree. Instead they are considered for the award of a BSc degree with or without honours.
11. [UDCC13, I.5] Candidates for the BSc not awarded honours are considered for the award of a Pass Degree. For such candidates, an alternative cumulative credit  $D$  is calculated by replacing  $S_2$  and  $S_3$  in the formula for  $C$  in 6 above by  $X_2/L_2$  and  $X_3/L_3$  respectively. A pass degree is normally awarded when the maximum of  $C$  and  $D$  exceeds 35%. Note that  $X_n/L_n > S_n$  (which is necessary for  $D$  to be greater than  $C$ ) if and only if  $L_n < N$  i.e., this only benefits students who take less than the normal load, which is what we encourage for the Pass degree.
12. Candidates with documented evidence of ill-health, psychological problems or other matters seriously disrupting their studies are considered by a mitigating panel prior to the meeting of the Finals Examination Board. The Board will then consider those cases where the panel recommends a different classification from that recommended by the Board without taking the mitigating circumstances into account.
13. Vivas are not held.
14. MMath students in their third year of study with  $S_3$  less than 55% or whose score in their best 90 CATS of MA3 and MA4 modules is less than 55%, will normally be considered for the award of a BSc (classified according to the procedures described above) and not permitted to proceed to the 4<sup>th</sup> year.
15. For 2021/22 the following non-MA coded modules have been deemed to have a high mathematical content and to be included in either List A for BSc finalists or List C for MMath finalists:

(a) List A for 3rd year BSc students:

- ST339 Mathematical Finance (15 CATS)
- ST411 Dynamic Stochastic Control (15 CATS)
- ST318 Probability Theory (15 CATS)
- CS301 Complexity of Algorithms (15 CATS)
- CS409 Algorithmic Game Theory (15 CATS)
- PX366 Statistical Physics (7.5 CATS)
- PX384 Electrodynamics (7.5 CATS)
- PX390 Scientific Programming (7.5 CATS)
- PX392 Plasma Electrodynamics (7.5 CATS)
- PX420 Solar Magnetohydrodynamics (7.5 CATS)
- PX425 High Performance Computing in Physics (7.5 CATS)
- PX436 General Relativity (7.5 CATS)
- PX408 Relativistic Quantum Mechanics (7.5 CATS)
- PX430 Gauge Theories for Particle Physics (7.5 CATS)

- ES3C8 Systems Modelling and Control (15 CATS)

(b) List C for 3rd/4th year MMath students:

- PX408 Relativistic Quantum Mechanics (7.5 CATS)
- PX425 High Performance Computing in Physics (7.5 CATS)
- PX430 Gauge Theories for Particle Physics (7.5 CATS)
- PX436 General Relativity (7.5 CATS)
- ST411 Dynamic Stochastic Control (15 CATS)

16. **Right to Remedy Failure.** Currently, the students we are considering do not have the “right to remedy failure”, i.e. be optionally given the opportunity to resit any failed module in September for the opportunity to be awarded a capped pass mark. A new University policy means that students who commenced their course in 2021/22 or later will have this right, and so will begin to affect our finalists in the 2023/24 academic year.

Damiano Testa, David Wood, June 2022