

Institute of Astronomy  
University of Cambridge

Natural Sciences Tripos  
Part III/MASt Astrophysics  
**Criteria for Marking**  
**2023-24**

## **Contents**

Classification.....	3
Classification of Part III .....	3
Classification of the MAST.....	5
Appendix I .....	6

# Classification

## Classification of Part III

The Part III Mathematics and Physics examination papers are marked by Assessors (who are normally the course lecturers) appointed by the relevant department and these marks are relayed to the Part III Astrophysics Examiners who consider them in conjunction with the marks obtained on the project.

The Institute of Astronomy Teaching Committee recommends that the degree class be allocated according to the following criteria.

### First Class Marks

A candidate placed in the first class will be able to demonstrate a full command and a secure understanding of the examinable material. Scripts will contain substantially correct solutions to most of the quantitative parts of a question, showing a good grasp of mathematical skills. For questions of an essay nature, first class marks will be awarded for work which is excellent, both in range and in depth of knowledge and in the argument and analysis that it brings to bear.

A project gaining first class marks will demonstrate an excellent understanding of the methods and results obtained and an ability to argue for the significance of these results in terms of their wider scientific context. Reports awarded first class marks should demonstrate excellent organisation and clarity of thought; an Oral Presentation awarded first class marks should likewise demonstrate outstanding organisation and clarity and the response to questions should exhibit a commanding grasp of the subject matter and wider context.

### Upper Second Class Marks, II.1

A candidate placed in the upper second class will be able to demonstrate a good command and some understanding of the examinable material. Scripts will contain solutions to most of the quantitative parts of a question, thereby demonstrating the basic skills involved. For the essay and questions of an essay nature, II.1 marks will be awarded for work that demonstrates knowledge, but which does not provide as impressive a display of understanding, argument and analysis as those in the first class.

A project gaining an upper second class should demonstrate a good understanding of the methods and results obtained and an ability to synthesise these results in their wider scientific context in a well organised report. Oral presentations in this category should be well organised and attractive. The response to questions should demonstrate that the student has understood the subject material, but would not demonstrate the same critical flair as candidates awarded a first class in this category.

### Lower Second Class Marks, II.2

A candidate placed in the lower second class will be able to demonstrate some command of the examinable material but with limited understanding. Candidates should demonstrate the ability to make

good attempts at the straightforward parts of questions but limited ability to tackle any of the more challenging topics. Answers to questions of a mathematical nature will show an indication of what is required but fail to proceed sufficiently far into the later parts to demonstrate the skills involved.

A project gaining a lower second class would demonstrate a sound understanding of the methods and results obtained but would not exhibit the same originality of approach or grasp of the connection to the wider field as projects awarded higher class marks. Reports in this category are expected to be reasonably well organised, to clearly set out the work undertaken and to contain appropriate references. Oral presentations in this category will make clear what the student has accomplished but the response to questions may indicate that the understanding is relatively shallow.

### **Third Class Marks**

A candidate placed in the third class will be able to demonstrate some knowledge but have a poor command of the skills expected and very limited understanding of the examinable material.

A project gaining a third class mark would demonstrate relatively poor progress with pursuing the research topic and/or evidence of incomplete understanding of the methods or results obtained. A report gaining a third-class mark may be poorly structured and unable to fully justify and explain the results obtained. Likewise, an oral presentation in this category may be incoherent, with the response to questions indicating a poor grasp of the material.

### **Fail**

A fail mark will be given when a candidate demonstrates little or no knowledge of the material and little or no ability to begin to tackle questions of a mathematical nature.

A project would be awarded a fail mark in the case that the student had failed to achieve any of the significant objectives of the research topic and had failed to provide a reasoned account of why this was the case. A report in this category would provide little evidence of engagement with, or understanding of, the research topic or its relation to the wider field. Likewise, an oral awarded a fail mark would fail to communicate the results and relevance of the project work and the answers to questions would reveal a lack of understanding.

## **Classification of the MAST**

As a result of the examination, each candidate is placed in one of the following categories, Distinction, Merit, Pass, Fail or 'Other'. 'Other' may include, for example, candidates who were ill for part of the examination.

### **Distinction**

Candidates will have demonstrated mastery over a considerable range of material. Their performance will have been such as would be expected of someone starting PhD research at a leading Astrophysics, or Mathematics department.

### **Merit**

Candidates will have performed at first class level. In the words of the criteria used for a first class in our undergraduate examinations they 'will have demonstrated a good command and secure understanding of examinable material. They will have presented standard arguments accurately and showed skill in applying their knowledge.'

### **Pass**

Candidates will have performed at upper second-class level. They will have demonstrated the ability to absorb and understand difficult material but there may remain gaps in their understanding, and they may not always be able to apply their knowledge successfully.

### **Fail**

Candidates will have performed at a lower second-class level or below.

# Appendix I

## Part III Examination Assessment

Each Part III Mathematics paper is marked by an assessor who is usually the lecturer. Assessors give a quality mark alpha+, alpha, alpha-, beta+, ..., gamma- to the whole paper. Individual questions are not assigned quality marks so there is no extra weight given to answers to more complete questions though assessors can, and often do, assign more marks to problem solving parts of questions than to book work. Paper quality marks alpha+ to beta+ are given to papers of first-class standard (alpha+ to alpha- are of distinction standard and beta+ is of merit standard for the MAST) and beta and beta- are of II.1 standard (pass for the MAST). The project is assigned a similar quality mark by the Part III Astrophysics examiners. Physics papers are assigned a quality mark appropriate to the numerical mark assigned by the physics examiners. Quality marks are averaged linearly, weighted by number of units, including six units for the project and the best combination of eleven, twelve or thirteen units from the exam papers to obtain a final quality mark on which the examiners base their assessment for the class list.

Christopher Tout

Chair, Institute of Astronomy Teaching Committee

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