University of Glasgow | School of Mathematics & Statistics

Master's Programmes in Statistics

September 2023 - September 2024

MRes in Advanced Statistics
MSc in Data Analytics
MSc in Statistics

Directors of Master's programs: Dr Ruth O'Donnell & *Dr Philip Otto*
Head of Subject: Prof Janine Illian
Head of School: Prof Nigel Mottram

Contents

1 Introduction

Statistics and Data Analytics are the Mathematical sciences that are concerned with the drawing of objective conclusions from data, and underpin research in almost every academic discipline. It is widely used in research and development throughout business, commerce and the civil service, with the result that professional Statisticians and Data Scientists are in high demand by a wide range of employers. Entry to the profession is usually through a Master's level programme.

2 General information

Contacts
All enquiries concerning your Master's degree in Statistics and Data Analytics should be directed to:

- Your academic adviser of studies
- The PGT (postgraduate taught) Directors
  - Dr Ruth O'Donnell
  - *Dr Philip Otto*

  Email: stats-pgt-director@glasgow.ac.uk
- The PGT administrators
  Karen Boyd and Shazia Rafiq
  Contact: Help desk

Student support officer
The school's student support officer is **Emilia Mack** (maths-stats-studentsupport@glasgow.ac.uk), who is here to help with any non-academic issues you might encounter over the course of your studies. Student Support Officers provide a range of practical and emotional support, including with: managing your health and wellbeing; study skills; financial issues; accessing university services (such as counselling and disability services.)

If you have a problem or question – or just need someone to talk to confidentially, you can think of your Student Support Officer as a friendly, accessible contact point within the School. Please feel free to contact Emilia directly with your enquiry, or to set up an in-person or online meeting. You can find out more about Emilia, and other Student Support Officers in the university, by visiting the network webpage at

https://www.gla.ac.uk/myglasgow/students/supportofficers/collegeofscienceandengineering/.

General information about the MRes / MSc
General information about the Statistics MRes / MSc programmes can be found on the PGT general information Moodle page at

https://moodle.gla.ac.uk/course/index.php?categoryid=4762

Information on examinations and teaching is provided on this page. From here you can also access online documentation with information about some of the generic university regulations and important policies, including information about course assessment, final examinations, general feedback on examination performance, absence policy, plagiarism policy, advising support and links to other useful resources.

Semester dates and examination periods (provisional)

Induction Events - Monday 18th September 2023 to Friday 22nd September 2023.

Semester 1 - Monday 25th September 2023 to Friday 1st December 2023.

Examination period - Monday 4th December 2023 to Friday 15th December 2023.

Semester 2 - Monday 8th January 2024 to Friday 22nd March 2024.

Examination period - Monday 22nd April 2024 to Friday 17th May 2024.

Summer Project including Dissertation - To be confirmed, but likely to be from mid-June to early September.

Resit examination period Monday 29th July 2024 to Friday 16th August 2024.

A full calendar of the university year can be found here

https://www.gla.ac.uk/myglasgow/apg/sessiondates/session2023/

Induction events
The school of Mathematics and Statistics will hold a series of virtual and on-campus induction events, which will be held throughout the week of **Monday 18th September - Friday 22nd September**. These events include welcome events for each individual programme, as well as refresher material on key topics such as linear algebra.

We will hold both on-campus and on-line welcome sessions specifically for new MSc and MRes students, and as they are the same you need only attend one. We strongly encourage you to attend the on-campus session to meet your new classmates if you can. Both events will be held on **Tuesday 19th September** at the following times and locations.

- **On-line -** 10am - 11am on Zoom at

  https://uofglasgow.zoom.us/j/84333358164?pwd=ano4aktxNUJMSmV6eG96bG5yd282UT09

  Meeting ID: - 843 3335 8164

  Passcode: - 071607

- **On-campus -** 11am - 12noon in the James Watt South building room 354. A networking social event will follow the formal induction event with light refreshments. An interactive map of campus to help in finding the room can be found at https://www.gla.ac.uk/explore/maps/.

Programme structure
Our MRes / MSc programmes have the following components.

- 120 credits of taught courses, usually taught in 10 credit blocks.
- 60 credit project including a dissertation.

These elements are split over the year as follows:

- **Semester 1 (September to December)** - taught courses totalling 60 credits.
- **Semester 2 (January to March)** - taught courses totalling 60 credits.
- **Summer (June to September)** - 60 credit project including a dissertation.

A summary of the core and optional taught courses is given in Section 5 of this handbook, and any course choices should be discussed with your advisor of studies.

Teaching and timetables
Course timetabling information for lectures, computer labs and tutorials will be posted on Moodle and Mycampus when the course begins. Each course may have slightly different requirements in terms of delivery style, so it is important that you check the timetable and course information carefully.

Academic writing skills programme
The academic writing skills programme (AWSP) is compulsory and must be completed by all MRes / MSc students in the school. More information about AWSP can be found at https://www.gla.ac.uk/myglasgow/sld/awsp/forstudents/.

3 Course Assessment

The assessment structure for each course is detailed in the course-specific information given on MyCampus, and is also available from the course lecturer. This varies from course to course so you should ensure that you read the course documentation carefully. Some courses only have end-of-course examinations, while other courses additionally (or instead of) have assessments taken during the semester such as laboratory reports, case studies, class tests, essays, and projects. The exam diets happen in December, April/May and August (resit exams if needed). Results will be published following the Examiners' Meeting in June. The university code of assessment describes the assessment procedures and can be found at

http://www.gla.ac.uk/services/senateoffice/policies/assessment/codeofassessment/guide/

Dictionaries and calculators
Only certain dictionaries and calculators are allowed in examinations, and if you take the wrong one into an exam the invigilators may deem you to be cheating which has serious consequences. Detailed guidance on which dictionaries and calculators are allowed can be found on the 'Level M Statistics: General Information' Moodle page. However in summary:

Dictionaries must:

- Be translation only dictionaries (eg Chinese-English, French-English, German-English).
- Not contain anything other than the word in English and the translation of the word into the other language. There must be no definitions (explanations about what the word means). This means some popular dictionaries such as the Advanced Learner's Dictionary, Longman Dictionary of Contemporary English, and some others, are not allowed.
- Not contain any notes or annotations of any kind. If you have borrowed a dictionary, or bought one from another student, check it very carefully, as you will be responsible for any notes or annotations found in it, even if you did not write them.

You are not allowed to bring,

- An English dictionary,
- a Thesaurus,
- a subject-related dictionary (for example, Dictionary of Statistics),
- an electronic dictionary.

Hand **calculators** with simple basic functions (log, exp, square root, etc.) may be used in examinations. No calculator which can store or display text or graphics may be used, and any student found using such will be reported to the Clerk of Senate.

Dissertation / Project
The project is a compulsory 60-credit course that is assessed by a dissertation and presentation/viva. For students who meet the progression requirements once the examination results are published (see below), work will commence in the middle of June 2024 and finish in early September 2024. Details on how the project will run will be provided in semester 2. Long periods of absence while conducting the project are not appropriate because the project is worth a third of your total degree You are expected to be in Glasgow for the duration of your project.

Reassessment
Students who achieve an overall grade of less than C3 in a course will usually be permitted one more opportunity to re-attempt the assessment. After reassessment the grade for the course will be capped at C3 when used for the calculation of the gradepoint average (GPA). Where a candidate requires a higher grade in the dissertation / project to satisfy the requirements of the MRes / MSc set out below, reassessment of the dissertation will be permitted on one occasion only, under such conditions as the Examiners of the MRes / MSc may prescribe in each particular case.

Absence, Incomplete Assessment and Good Cause Claim
All periods of illness must be reported as required by the University's Absence Policy

https://www.gla.ac.uk/myglasgow/apg/policies/studentsupport/absencepolicy/

Absence recording and good cause claiming for missed assessments or for requesting an extension for coursework can be done through Mycampus. It is very important that we have details of absences for UK visa and immigration purposes.

University regulations
The full set of university regulations can be found at

https://www.gla.ac.uk/myglasgow/apg/

4 Award Criteria

Students must meet the requirements of the Generic Regulations for Taught Masters Degrees in the College of Science & Engineering to progress to the MRes / MSc project, to be awarded an MRes / MSc, or to exit with a Postgraduate Diploma (PgDip) or Postgraduate Certificate (PgCert). At the time of writing these requirements are as follows:

For the award of a Masters (MRes / MSc) degree (pass grade, also called qualify)

1. A candidate must complete 180 credits or more including 120 credits of taught courses and a 60 credit dissertation/project.
2. A candidate will be permitted to progress to the dissertation/project, only if he or she has obtained a grade point average of 12 (equivalent to C3) or above in the taught courses with at least 75% of the credits at grade D3 or better and all credits at grade F3 or above.
3. A candidate will be eligible for the award of an MSc degree on obtaining a grade point average of 12 (equivalent to C3) or above in the taught courses, with at least 75% of these credits at grade D3 or better, and all credits at grade F3 or above, and obtaining a grade D3 or better in the dissertation/project.

For the award of a merit grade in the MRes / MSc
A candidate will be eligible for the *award of Merit* on achieving at the first attempt:

1. a grade point average of 14.5 or above in the 180 or more credits completed on the programme, and
2. a grade point average of at least 14.0 (equivalent to C1) in the taught courses, and
3. a grade of at least C1 in the dissertation/project.

Where the overall programme GPA (combining taught courses GPA and the dissertation/project grade) falls into the ranges 14.1 – 14.4 the Board of Examiners shall make the award with Merit where at least 50% of the weighted course grade profile comprises grades of B or above.

For the award of a distinction grade in the MRes / MSc
A candidate will be eligible for the *award of Distinction* on achieving at the first attempt:

1. a grade point average of 17.5 or above in the 180 or more credits completed on the programme, and
2. a grade point average of at least 17.0 (equivalent to B1) in the taught courses, and
3. a grade of at least B1 in the dissertation/project.

Where the overall programme GPA (combining taught courses GPA and the dissertation/project grade) falls into the ranges 17.1 – 17.4 the Board of Examiners shall make the award with Distinction where at least 50% of the weighted course grade profile comprises A grades.

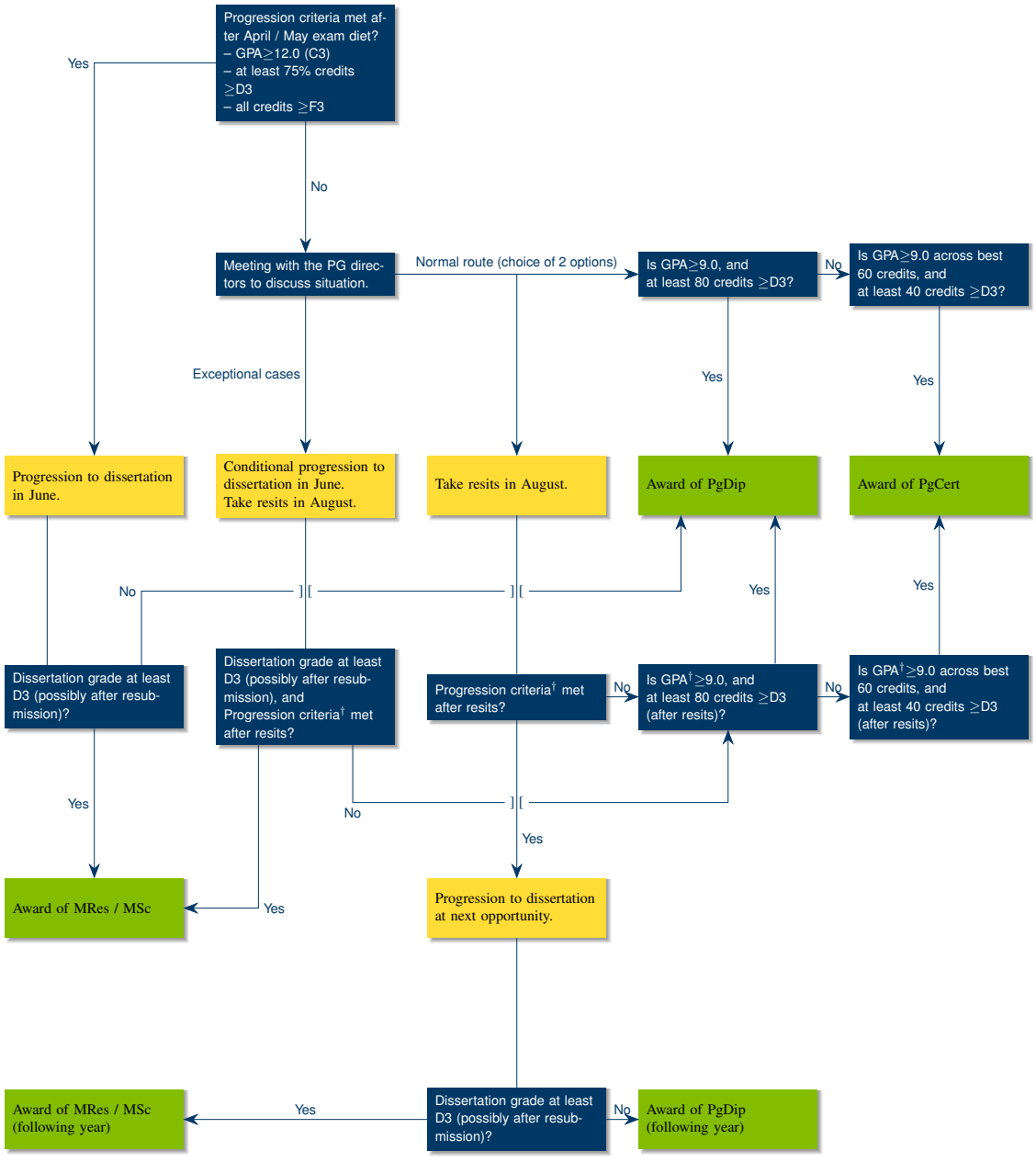
For the award of a Postgraduate Diploma (PgDip)
A candidate must complete 120 credits of taught courses with a GPA of 9.0 (equivalent to a D3), with not less than 80 of these credits at grade D3 or above.

For the award of a Postgraduate Certificate (PgCert)
A candidate must complete 60 credits of taught courses with a GPA of 9.0 (equivalent to a D3), with not less than 40 of these credits at grade D3 or above.

A candidate who has achieved at the first attempt a grade point average of 14.5 or 17.5 will be eligible for the award of Postgraduate Diploma or Postgraduate Certificate with Merit or Distinction respectively. Where a candidate has achieved at the first attempt a grade point average of between 14.1 and 14.4 or between 17.1 and 17.4 the Board of Examiners shall make the award of Postgraduate Diploma or Postgraduate Certificate with Merit or Distinction where at least 50% of the weighted course grade profile comprises grades of B or above, or A grades, respectively.

Detailed information can be found online in the generic regulations for taught masters degrees available by clicking here.

For the detailed flow chart of progression see the flowchart in Figure 1.



† For the purpose of calculating the GPA, grades obtained after resits will be capped at C3 (12).

Figure 1: Flow Chart for progression to dissertation and award of Master's degree.

5 Master's Programmes

5.1 MSc Data Analytics

Students are required to take 10 compulsory taught courses and select 1 taught course from the optional courses in semester 2.

Courses

Semester 1

Compulsory courses

- Database Theory and Application (M) (COMPSCI5076)
- Introduction to Statistical Programming in R and Python (STATS5103)
- Probability (Level M) (STATS5024)
- Regression Models (Level M) (STATS5025)
- Statistical Inference (Level M) (STATS5028)

Semester 2

Compulsory courses

- Advanced Predictive Models (STATS5098)
- Bayesian Statistics (Level M) (STATS5014)
- Big Data Analytics (Level M) (STATS5016)
- Data Analysis Skills (Level M) (STATS5085)
- Data Mining and Machine Learning (STATS5099)

Optional courses - choose 1 from

- Design of Experiments (Level M) (STATS5017)
- Environmental Statistics (Level M) (STATS5031)
- Functional Data Analysis (Level M) (STATS5056)
- Information Visualisation (M) (COMPSCI5099)
- Spatial Statistics (Level M) (STATS5012)
- Statistical Genetics (Level M) (STATS5011)

Summer period

- Statistics Project and Dissertation (STATS5029P) OR
- Statistics Project and Dissertation (with Placement) (STATS5090P) (Only for Data Lab funded students)

The choice of dissertation option is subject to the approval of the PGT directors.

5.2 MSc Statistics

Students are required to take 9 compulsory taught courses and select 2 taught courses from the optional courses in semester 2.

Courses

Semester 1

Compulsory courses

- Biostatistics (Level M) (STATS5015)
- Introduction to Statistical Programming in R and Python (STATS5103)
- Probability (Level M) (STATS5024)
- Regression Models (Level M) (STATS5025)
- Statistical Inference (Level M) (STATS5028)

Semester 2

Compulsory courses

- Bayesian Statistics (Level M) (STATS5014)
- Data Analysis Skills (Level M) (STATS5085)
- Data Mining and Machine Learning (STATS5099)
- Generalised Linear Models (Level M) (STATS5019)

Optional courses - choose 2 from

- Design of Experiments (Level M) (STATS5017)
- Environmental Statistics (Level M) (STATS5031)
- Functional Data Analysis (Level M) (STATS5056)
- Spatial Statistics (Level M) (STATS5012)
- Statistical Genetics (Level M) (STATS5011)
- Time Series (Level M) (STATS5030)

Summer period

- Statistics Project and Dissertation (STATS5029P)

Note, STATS5103 Introduction to Statistical Programming in R and Python is a 20 credit course while the rest are 10 credit courses.

5.3 MRes Advanced Statistics

Students are required to take the one compulsory taught course and then select 110 credits of optional courses from the optional course lists in semesters 1 and 2. Note, this 110 credits of optional courses corresponds to either 10 or 11 taught courses, see the note below. Note also that course choice is subject to timetabling constraints and should be discussed with your advisor of studies. We strongly recommend you take 60 credits per semester to ensure you have a balanced workload throughout the year.

Courses

Semester 1

Optional courses

- Advanced Bayesian Methods (Level M) (STATS5013)
- Biostatistics (Level M) (STATS5015)
- Flexible Regression (Level M) (STATS5052)
- Introduction to Statistical Programming in R and Python (STATS5103)
- Linear Mixed Models (Level M) (STATS5054)
- Multivariate Methods (Level M) (STATS5021)
- Principles of probability and statistics (Level M) (STATS5022)
- Stochastic Processes (Level M) (STATS5026)

Semester 2

Compulsory course

- Data Analysis Skills (Level M) (STATS5085)

Optional courses

- Advanced Predictive Models (STATS5098)
- Bayesian Statistics (Level M) (STATS5014)
- Design of Experiments (Level M) (STATS5017)
- Environmental Statistics (Level M) (STATS5031)
- Functional Data Analysis (Level M) (STATS5056)
- Spatial Statistics (Level M) (STATS5012)
- Statistical Genetics (Level M) (STATS5011)

Summer period

- Advanced Statistics Project and Dissertation (STATS5091P)

Notes

- We strongly recommend against taking Advanced Bayesian Methods unless you have already done a Bayesian statistics course in your undergraduate degree.
- STATS5103 Introduction to Statistical Programming in R and Python is a 20 credit course while the rest are 10 credit courses.

6 Understanding the grades

Marks awarded for all components of assessment are provisional, until approved by the external examiner. Assessment for our courses are typically marked on a percentage scale, and results are then converted to a primary grade and secondary band. The primary and secondary band can be mapped to an integer ("gradepoint") between 0 and 22. A more comprehensive guide to the marking system at the University of Glasgow is available at https://moodle.gla.ac.uk/pluginfile.php/7134811/mod_resource/content/1/Policy%20on%20Conver
20to%2022-point%20Scale%20Grades.pdf.