



University
of Glasgow | School of Mathematics
& Statistics

Master's Programmes in Statistics

September 2022 - September 2023

MRes in Advanced Statistics

MSc in Data Analytics

MSc in Statistics

Directors of Master's programs: Prof Duncan Lee & Dr Ruth O'Donnell & Dr Xiaochen Yang
Head of Subject: Prof Janine Illian
Head of School: Prof Ian Strachan

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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
 - Prof Duncan Lee - From September 2022 until December 2022.
 - Dr Ruth O'Donnell - From September 2022 until September 2023.
 - Dr Xiaochen Yang - From January 2023 until September 2023.

Email: stats-pgt-director@glasgow.ac.uk

- The PGT administrators
Karen Boyd and Syrah Sarwar
Contact: [Help desk](#)

Student support officer

The school's student support officer is **Mara Dougall** (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 Mara directly with your enquiry, or to set up an in-person or online meeting. You can find out more about Mara, 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=4233>

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

Induction Events - Monday 19th September 2022 to Friday 23rd September 2022.

Semester 1 - Monday 26th September 2022 to Friday 2nd December 2022.

Examination period - Monday 5th December 2022 to Friday 16th December 2022.

Semester 2 - Monday 9th January 2023 to Friday 24th March 2023.

Examination period - Monday 24th April 2023 to Friday 19th May 2023.

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

Resit examination period - Monday 31st July 2023 to Friday 18th August 2023.

A full calendar of the university year can be found here

https://www.gla.ac.uk/media/Media_831218_smxx.pdf

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 19th September - Friday 23rd September**. These events include welcome events for each individual programme, as well as refresher material on key topics such as linear algebra. Further details can be found at

<https://moodle.gla.ac.uk/course/view.php?id=29526>

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 **Thursday 22nd September** at the following times and locations.

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

<https://uofglasgow.zoom.us/j/89940340111?pwd=OUJLQnRabUF4eDdFSG1LcXQ2QVN5dz09>

Meeting ID: - 899 4034 0111

Passcode: - 196837

- **On-campus** - 11am - 12noon in the James Watt South building room 375. 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/leads/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/>

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 2023 and finish in early September 2023. 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.

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 grade point 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

<http://www.gla.ac.uk/services/senateoffice/policies/studentssupport/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/senateoffice/policies/uniregs/regulations2022-23/>

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.

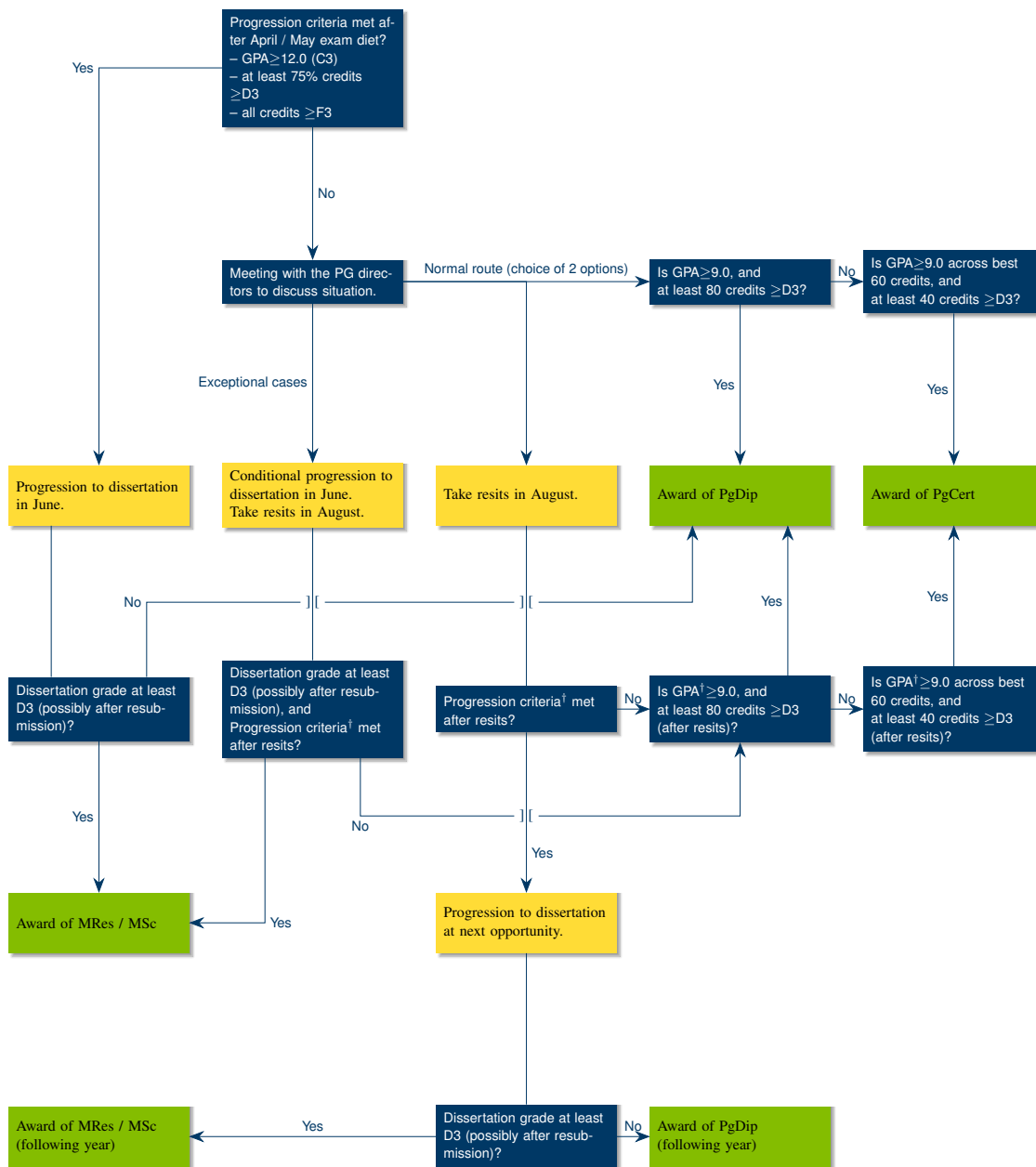
For the award of a Postgraduate Certificate (PgCert)

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, see

<https://www.gla.ac.uk/myglasgow/senateoffice/policies/regulationsandguidelines/genericpgt/>.



† 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.

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

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	Semester 2
<p><i>Compulsory courses</i></p> <ul style="list-style-type: none"> • 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) 	<p><i>Compulsory courses</i></p> <ul style="list-style-type: none"> • 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) <p><i>Optional courses - choose 1 from</i></p> <ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • Statistics Project and Dissertation (STATS5029P) OR • Statistics Project and Dissertation (with Placement) (STATS5090P) (Only for Data Lab funded students) <p>The choice of dissertation option is subject to the approval of the PGT directors.</p>	

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	Semester 2
<p><i>Compulsory courses</i></p> <ul style="list-style-type: none"> • 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) 	<p><i>Compulsory courses</i></p> <ul style="list-style-type: none"> • Bayesian Statistics (Level M) (STATS5014) • Data Analysis Skills (Level M) (STATS5085) • Data Mining and Machine Learning (STATS5099) • Generalised Linear Models (Level M) (STATS5019) <p><i>Optional courses - choose 2 from</i></p> <ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • 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 1 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	Semester 2
<p><i>Optional courses</i></p> <ul style="list-style-type: none"> • 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) 	<p><i>Compulsory course</i></p> <ul style="list-style-type: none"> • Data Analysis Skills (Level M) (STATS5085) <p><i>Optional courses</i></p> <ul style="list-style-type: none"> • 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)
<p>Summer period</p> <ul style="list-style-type: none"> • 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 ("grade point") between 0 and 22. The table below indicates how this works for a piece of assessment totalling 60 marks. Pieces of assessment not marked out of 60 are linearly scaled to a mark out of 60 and then converted to the 22-point scale.

Table 1: Mapping between marks and grade points, with verbal descriptions of attainment levels for each grade.

Grade	Band	Grade point	Mark x	Gloss	Primary verbal descriptors for attainment of Intended Learning Outcomes
A	1	22	$53.5 \leq x \leq 60$	Excellent	Exemplary range and depth of attainment of intended learning outcomes, secured by discriminating command of a comprehensive range of relevant materials and analyses, and by deployment of considered judgement relating to key issues, concepts and procedures
	2	21	$50.5 \leq x < 53.5$		
	3	20	$47.5 \leq x < 50.5$		
	4	19	$44.5 \leq x < 47.5$		
	5	18	$41.5 \leq x < 44.5$		
B	1	17	$39.5 \leq x < 41.5$	Very Good	Conclusive attainment of virtually all intended learning to reveal appreciable outcomes, clearly grounded on a close familiarity with a wide range of supporting evidence, constructively utilised depth of understanding
	2	16	$37.5 \leq x < 39.5$		
	3	15	$35.5 \leq x < 37.5$		
C	1	14	$33.5 \leq x < 35.5$	Good	Clear attainment of most of the intended learning outcomes, some more securely grasped than others, resting on a circumscribed range of evidence and displaying a variable depth of understanding
	2	13	$31.5 \leq x < 33.5$		
	3	12	$29.5 \leq x < 31.5$		
D	1	11	$27.5 \leq x < 29.5$	Satisfactory	Acceptable attainment of intended learning outcomes, displaying a qualified familiarity with a minimally sufficient range of relevant materials, and a grasp of the analytical issues and concepts which is generally reasonable, albeit insecure
	2	10	$25.5 \leq x < 27.5$		
	3	9	$23.5 \leq x < 25.5$		
E	1	8	$21.5 \leq x < 23.5$	Weak	Attainment deficient in respect of specific intended learning outcomes, with mixed evidence as to the depth of knowledge and weak deployment of arguments or deficient manipulations
	2	7	$19.5 \leq x < 21.5$		
	3	6	$17.5 \leq x < 19.5$		
F	1	5	$15.5 \leq x < 17.5$	Poor	Attainment of intended learning outcomes appreciably deficient in critical respects, lacking secure basis in relevant factual and analytical dimensions
	2	4	$13.5 \leq x < 15.5$		
	3	3	$11.5 \leq x < 13.5$		
G	1	2	$5.5 \leq x < 11.5$	Very Poor	Attainment of intended learning outcomes markedly deficient in respect of nearly all intended learning outcomes, with irrelevant use of materials and incomplete and flawed explanation
	2	1	$0.5 \leq x < 5.5$		
H		0	$0 \leq x < 0.5$		No convincing evidence of attainment of intended learning outcomes, such treatment of the subject as is in evidence being directionless and fragmentary
CR				Credit Refused	Failure to comply, in the absence of good cause, with the published requirements of the course or programme

A more comprehensive guide to the marking system at the University of Glasgow is available at

http://www.gla.ac.uk/media/media_106264_en.pdf.

Some courses incorporate continuous assessment as either part or all of the assessment (e.g. Data Analysis Skills and Introduction to Statistical Programming are purely coursework-based modules with no final examinations). These pieces of work may be marked directly on to the 22-point grade point scale or marked out of some total which is then linearly scaled to a mark out of 60 and then converted to the 22-point scale using the standard mapping (Table 1).