



The  
University  
Of  
Sheffield.

## Programme Specification

A statement of the knowledge, understanding and skills that underpin a taught programme of study leading to an award from The University of Sheffield

### Programme Details

1. Programme title	Psychological Research Methods with Data Science
2. Programme code	PSYT45
3. QAA FHEQ level	7
4. Faculty	Science
5. Department	Psychology
6. Other departments providing credit bearing modules for the programme	Not applicable
7. Accrediting Professional or Statutory Body	Not applicable
8. Date of production/revision	September 2019

Awards	Type of award	Duration
9. Final award	MSc	1 academic year (Sep-Aug) for Full-time, 2 academic years for Part-time
10. Intermediate awards	PG Diploma	Fall back award only
	PG Certificate	Fall back award only

### Programme Codes

11. JACS code(s) <i>Select between one and three codes from the <a href="#">HESA website</a>.</i>	C831		
12. HECoS code(s) <i>Select between one and three codes from the <a href="#">HECoS vocabulary</a>.</i>	100959		

### Programme Delivery

13. Mode of study	Full-time – 1 year Part-time – 2 years
14. Mode of delivery	Face to face (on Campus)

### 15. Background to the programme and subject area

The aim of the programme is to provide comprehensive training in a variety of psychological research methods, advanced statistical methods, and data science. This will include training that relates specifically to research in psychology, general research skills and key personal development and transferable professional skills.

The programme balances breadth and depth. Students are provided with a foundation in a wide range of methodological and professional research related skills and, at the same time, are allowed to focus on both methods and topics of interest to them so they can develop specific expertise. During their literature review and project (comprising 50% of programme credit), students work closely with supervisors who are international leaders in their field. The Department has strengths in theoretical and applied aspects of clinical, social, health, cognitive and developmental psychology and neuroscience. Expert supervision is offered on diverse topics including modelling attitude formation, processing health-risk information, infant development, the application of electroencephalography to social development and analysis of family and environmental risk factors for psychopathology in national datasets. There is substantial potential for advanced statistics and data analysis and visualization techniques to be used in research projects in any of these areas.

## 16. Programme aims

MSc Psychological Research Methods with Data Science aims to:	
<b>A1</b>	To provide expertise specific to research in psychology (e.g., an understanding of different methods of data collection and analysis in psychological research, practical experience conducting a piece of psychological research).
<b>A2</b>	To provide general research skills (e.g., bibliographic and computing skills, awareness of ethical and legal issues in research) personal development and transferable professional skills (e.g., communication and dissemination skills, professional development).
<b>A3</b>	To provide training specific to the application of data science techniques in the context of psychological research.
<b>A4</b>	To provide training specific to the application of psychological research to problems in data science.

## 17. Programme learning outcomes

<b>Knowledge and understanding</b>		
On successful completion of the programme, students will be able to demonstrate knowledge and understanding of:		
		<b>Links to Aim(s)</b>
<b>K1</b>	Basic principles of research design and strategy, including an understanding of how to formulate researchable problems and an appreciation of alternative approaches to research.	A1
<b>K2</b>	How to apply a range of psychological research methods and tools with a high competency.	A2,A3
<b>K3</b>	How to manage research (including managing data), and how to conduct and disseminate research in a way that is consistent with professional practice.	A3
<b>K4</b>	Current advanced statistical methods.	A3
<b>K5</b>	Data Science principles and techniques including data visualization.	A3,A4
<b>Skills and other attributes</b>		
On successful completion of the programme, students will be able to:		
<b>S1</b>	Conduct empirical psychological studies using appropriate methods of data collection and analyses.	A1
<b>S2</b>	Manage and synthesise bodies of psychological literature in a systematic and replicable fashion.	A1,A2
<b>S3</b>	Apply current techniques for importing, analysing, and visualising datasets, and produce and interpret data visualisation graphics.	A3
<b>S4</b>	Construct reports of data analysis and visualisation using current software tools, including the use of python notebooks, and github repositories to manage and annotate processes.	A3
<b>S5</b>	Prepare data for advanced statistical analysis and interpret the output drawing the conclusions with confidence.	A3
<b>S6</b>	Communicate ideas and arguments effectively, where applicable backed up by empirical evidence, both orally and in writing.	A3,A4

## 18. Learning and teaching methods

A variety of assessment methods are used throughout the modules. In addition, the research project will be assessed on the basis of a dissertation. The remainder of the course will be assessed using a combination of course-work exercises undertaken concurrently with particular sessions and/or a summary assessment (e.g. in the form of an extended essay or short dissertation) at the conclusion of the modules. The assessment for each module is outlined below:

'Multivariate statistics for psychology (1) and (2)' - the assessment will be on the basis of a coursework assignment where students interpret and report a set of presented statistical analyses. The assessment addresses outcomes K1-4, S1-3, and S7.

'Research methods in psychology' - assessed on the basis of a written assignment in which students identify recent research papers that report studies using methods demonstrated in practical sessions and critically evaluate the efficacy of those methods compared to available alternatives. For K1-3, S1-3, S6-9 and S12.

'Systematically Reviewing Psychological Research' – the assessment involves writing a literature review on a topic of the student's choice. For K1-2, S5, and S8-10.

'Data analysis and visualization' - assessment is a coursework consisting of code for importing, analysing and visualising a dataset, submitted as a Jupyter notebook via github. This is like a written piece of coursework, except that it combines explanatory text, computer code and the output of that code (including data visualisation graphics). The combination of these into a Notebook and submission via github constitutes a practical element which aligns with the module teaching objectives. K5 - S1, S6-S7.

'Research project in psychology with data science' – assessment will be on the basis of a dissertation that reports a study that involves the application of techniques in data science. The project will address all the learning outcomes, in particular K1-4, S2-5 and S6-13.

## 19. Assessment and feedback methods

The primary teaching methods, except for the research project which is individually supervised, are seminars and workshops. These methods maximise staff-student interaction and active participation by students in discussions, individual presentations and team-working on practical problems. They also provide a supportive context in which immediate feedback can be offered to, and discussed with, students on aspects of their performance. Additionally students have the opportunity for reflective practice and critical examination of issues through discussion, and to enhance their transferable skills such as use of IT, communication and presentation skills, and the ability to work effectively in groups.

The frequency of project supervision meetings varies according to students' needs, with a recommendation that students meet with their supervisor for an individual meeting approximately once every two weeks. Frequent email contact between meetings is also encouraged. Assignment milestones will be agreed and all students will have planned their project by the start of the Easter vacation.

## 20. Programme structure and student development

For full-time students the programme follows a two-semester structure, with most modules being delivered in semester 1 or 2, but with some delivered over the two semesters. The research project commences in semester 1 and is submitted in August. Part-time students spread their taught modules and research project over 2 years, with the taught component more heavily weighted in the first year and the research project more heavily weighted in the second.

Each student must take the following core modules (totalling 180 credits):

- Systematically Reviewing Psychological Research (30 credits)
- Research Methods in Psychology (30 credits)

- Intermediate Multivariate Statistics for Psychology (15 credits)
- Advanced Statistical Methods for Psychologists (15 credits)
- Current Issues in Psychological Research (15 credits)
- Data Analysis and Visualization (15 credits)
- Research Project in Psychology with Data Science (60 credits)

In Year 1 part-time students will take 90 credits:

- Systematically Reviewing Psychological Research (30 credits)
- Research Methods in Psychology (30 credits)
- Intermediate Multivariate Statistics for Psychology (15 credits)
- Advanced Statistical Methods for Psychologists (15 credits)

In Year 2 part-time students will take 90 credits:

- Current Issues in Psychological Research (15 credits)
- Data Analysis and Visualization (15 credits)
- Research Project in Psychology with Data Science (60 credits)

A candidate who has been awarded one hundred and twenty credits in respect of units listed above and who does not complete the requirements for the Degree of MSc shall be eligible for the award of the Postgraduate Diploma in Psychological Research Methods with Data Science.

A candidate who has been awarded sixty credits in respect of units listed above and who does not complete the requirements for the Degree of MSc shall be eligible for the award of the Postgraduate Certificate in Psychological Research Methods with Data Science.

The course is structured to provide students with tutor-led research methods training in the earlier stages. As the course develops students have more independence to choose their own topics as they prepare assessments and conduct their empirical projects. Support remains from research supervisors throughout the course.

Evaluating the progress of individual students towards completion of module assessments is achieved through interactive seminars and individual meetings with supervisors. For 50% of the course (literature review and research project) the student will meet regularly with their supervisor to set goals and monitor progress. In addition, students will meet on a 1 to 1 basis with the MO of the Systematically Reviewing Psychological Research module to discuss a plan of their review.

Detailed information about the structure of programmes, regulations concerning assessment and progression and descriptions of individual modules are published in the University Calendar available online at <http://www.sheffield.ac.uk/calendar/>.

## **21. Criteria for admission to the programme**

Detailed information regarding admission to the programme is available at <https://www.sheffield.ac.uk/psychology/prospectivepg/masters/data-science>

## 22. Reference points

The learning outcomes have been developed to reflect the following points of reference:

Subject Benchmark Statements

<http://www.qaa.ac.uk/AssuringStandardsAndQuality/subject-guidance/Pages/Subject-benchmark-statements.aspx>

Framework for Higher Education Qualifications (2008)

<http://www.qaa.ac.uk/Publications/InformationAndGuidance/Pages/The-framework-for-higher-education-qualifications-in-England-Wales-and-Northern-Ireland.aspx>

University Strategic Plan

<http://www.sheffield.ac.uk/strategicplan>

Learning and Teaching Strategy (2016-21)

<https://www.sheffield.ac.uk/staff/learning-teaching/our-approach/strategy2016-21>

## 23. Additional information

This specification represents a concise statement about the main features of the programme and should be considered alongside other sources of information provided by the teaching department(s) and the University. In addition to programme specific information, further information about studying at The University of Sheffield can be accessed via our Student Services web site at <http://www.shef.ac.uk/ssid>.