

# MSC GEOGRAPHIC DATA SCIENCE

## Geographic Data Science Laboratory Department of Geography and Planning

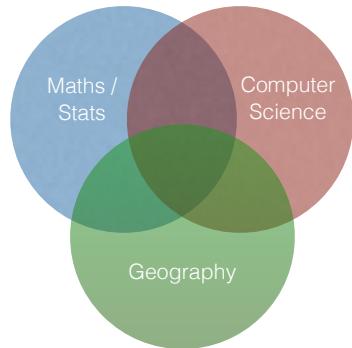
### Geographic Data Science

Human activities are increasingly associated with the generation of large volumes of data. Geolocated attributes are assembled through a variety of mechanisms including: transactional data collated by retailers, administrative data assembled to help with the efficient running of public services, data shadows created from social media use, or an increased prevalence of smart-

Many grand human challenges concern problems of a geographical nature; be this how we can mitigate the human impact of climate change; ensure global food and water security; design energy systems that are resilient within the context of future population dynamics; or, how spatial inequities in health and wellbeing could be eradicated? The growing volume of big data about the form, function and dynamics of human activities and their contexts are providing new opportunities to advance these debates.

[www.geographicdatascience.com](http://www.geographicdatascience.com)

To support this, the degree seeks to help students develop a wide range of skills including critical analysis, written and oral presentation, team working and use of a range of information technologies and software tools.



card linked transport networks. Further ambient data are collected through sensor networks, recording numerous attributes such as traffic volume, pedestrian flow or air quality.

### About the programme

This programme aims to develop a high level understanding of quantitative and computational geographical methods.

These will include skills in GIS software, the R programming language and Python. In particular, emphasis will be placed on developing skills in the visualisation, modelling and statistical analysis of spatial data using web-based and traditional techniques, and how these may be used in a number of application areas.



For further details about the MSc Geographic Data Science, please get in touch with:

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## Benefits of this programme

The degree benefits from staff within the Geographic Data Science Laboratory and Centre for Spatial Demographic Research. We are a large and world leading group in the area of computational and quantitative geographical information science.

## Consumer Data Research Centre

As part of a £6m investment by the ESRC, the University of Liverpool houses a node of the Consumer Data Research Centre (<http://cdrc.ac.uk>), providing secure data facilities with access to a range of consumer and retail big data.



Consumer  
Data  
Research  
Centre

## Programme Structure

Students take a total of 120 credits of taught modules and a 60 credit dissertation research project. For full time students the taught component can be either 60 credits in each of the two 12-week semesters (60:60) or weighted as a 75:45 split in either semester 1 or 2. Assessment may be continuous or by examinations completed at the end of each semester in January and May.

## Core Modules

Semester 1
ENVS416 Theorising Human Geography (15 credits)
ENVS441 Data Collection Strategies and Techniques (15 credits)
ENVS563 Geographic Data Science (15 credits)*
Semester 2
ENVS456 Web Mapping and Analysis (15 credits)
ENVS450 Data Analysis Strategies (15 credits)
ENVS453 Spatial Analysis (15 credits)
Summer
ENVS492 Dissertation (60 credits)

\* Any student who already has core GIS training can take one optional module in place of ENVS563

## Optional Modules

Semester 1
ENVS432 Theory Power and Ethics (15 credits)
COMP518 Database and Information Systems (15 credits)
COMP519 Web Programming (15 credits)
Semester 2
ENVS418 Population & Health Analysis and Projection (15 credits)
ENVS462 Survival and Event History Analysis (15 credits)
ENVS557 Understanding Social Exclusion (15 credits)

ENVS418 is a pre-requisite for ENVS462; Part-time students must take SOCI501 and ENVS563 (if required) in year one and ENVS492 in year two. Other modules may be taken in either year provided the total credits per year (excluding ENVS492) do not exceed 75

## Entry Requirements

The entry requirements for MSc degrees at the University of Liverpool for overseas and international (OSI) students are a final degree grade equivalent to a UK 2:1 classification, in Geography, an environmental science, management or planning discipline. Previous relevant industry experience is very welcome. The course is taught in English and competency equivalent to IELTS 6.5 (no band lower than 6). Pre-sessional English courses are available at the University of Liverpool.