

# IM955-15 Spatial Data: Mapping & Power

**26/27**

**Department**

Centre for Interdisciplinary Methodologies

**Level**

Taught Postgraduate Level

**Module leader**

Timothy Monteath

**Credit value**

15

**Module duration**

10 weeks

**Assessment**

100% coursework

**Study location**

University of Warwick main campus, Coventry

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## Description

### Introductory description

In the era of big data, spatial data has come into its own. Building on the ready availability of GPS systems and advances in GIS most data now captured has an inherent spatial element. This is furthermore reflected in data visualisation practice, which routinely makes use of geographic elements to 'map out' the data at hand. However, while spatial data may now be abundant, the use of this data is often divorced from a conceptual understanding of the space. This module offers a practice-based introduction to the history of cartography and mapping, theories of space and power, and a hands-on approach to working with spatial data. It will challenge students to develop a critical approach to spatial data – how it is collected, mapped and used to understand the social – as the theoretical way we understand space cannot be separated from how we seek to represent it. It would see students learning to work with spatial data, to gain confidence in visualising this data and, through doing so, engage with critical research on space and power.

### Module aims

The overarching aim of this module is to introduce students to key geographical concepts of space, the history of cartography and mapping, and critical understandings of power through a practice-based approach where students will make their own maps

The module is designed to contextualise practice-based engagement with contemporary spatial data by introducing students to theories of space, power and the history of cartography and mapping by drawing on scholarship from across the social sciences.

The module furthermore, will see students put these ideas, concepts and understandings 'to work' through working directly with spatial data on contemporary social issues, such as migration, humanitarian crisis and climate change.

Through practice-based engagement, this module is designed to enable students to rapidly develop their skills in working with spatial data and creating maps while refining their work through regular and detailed 'feed-forward' feedback in class.

The aim, then, is to enable students to develop a set of critical skills that enables them to critically evaluate spatial data and maps, and understand how to produce their own maps and appreciate the potential, limitations and power of cartography.

## **Outline syllabus**

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

Lecture themes:

### **Part I. Introduction to Spatial Data and Mapping**

#### **Week 1 – Introduction**

The online lecture for this week would introduce the software used on this course R, QGIS and Inkscape. It would provide instructions on installing the software and how to produce a simple map. Including an introduction to the course, walking the students through the structure, learning outcomes and the groupwork assessment that start in week 4. A mapping task the get students to start thinking about and critically evaluating how they understand and interpret maps. A 'lab' style session to ensure all the students have installed the software correctly and are able to use it.

#### **Week 2 – A Brief History of Cartography and Thematic Mapping**

The online lecture for this week would be shared with week 3, for 2 hours of content, which would walk students through how to make a map. The in-person class will include: an introductory lecture on this history of cartography and power, 'ice breaker' groupwork and introducing the weeks 'homework task', example resources and a Q&A.

#### **Week 3 – An Introduction GIS and Critical Cartography**

The in-person class for this week will include a lecture introducing contemporary GIS research and its intersection with critical data studies. Groupwork setting up the formative assignment.

### **Part II. Groupwork and Map-making**

The structure of the classes from weeks 4 – 10 will all follow the same format, with the lecture topics and group tasks changing each week. Pre-recorded lectures will continue online, they will blend introducing a new form of spatial data, the readings for the week, and a practical how element using the software. In person classes, will be divided between giving students detailed

feedback on the map each group has produced since the previous weeks class and setting the task for the following week. The first half of which is about verbal feedback on each map in front of all of the class to serve a double purpose; to give students instant and regular feedback on their work, feeding forward and allowing their skills to progress rapidly; and to use the classroom to further peer learning as students see the range of ways in which other groups tackled the same task and the feedback that alternative approaches received.

The emphasis on group work in this course would allow maps to be produced each week while maintaining a reasonable workload and give students the experience of producing data visualisations with a quick turnaround as part of a team – as they may need to do in many settings outside academia. The groupwork task would be divided into discreet tasks for each student each such as: gathering and cleaning the data; producing a map; producing a complementary data visualisation, and; putting together A4 page with the final text. Each role will rotate weekly, requiring students to try their hand at each stage develop the range of skills needed to create their own maps.

#### Week 4 - Seeing like a state

The lecture and task this week will revolve around census data. The readings and online lecture will blend how to use administrative data with readings on census as apparatus of the power of the state. For the task, students will have to produce a map using data from a census that is suitable for an audience of policy makers. In combination they will ask students to evaluate how, why and to what end, do states collect data about their citizens.

#### Week 5 – Citizen and Participatory Mapping

The lecture and task this week will revolve around basemaps. In digital mapping, a basemap is the contextual or underlying reference data on which other data is overlaid. Understanding how to work with, and effectively deploy basemap features, is a crucial part of spatial data visualisation. To engage with power, the lecture and readings will focus on the citizen and how participatory mapping initiatives and their power to challenge. For the task, students will need to use basemap data to produce a map around of the local area featuring highlighting locations that are important to them.

#### Week 6 – Reading Week

#### Week 7 – People, flows and borders

The lecture this and task this week will focus on cross-national spatial data. The readings and online lecture will blend critical readings on borders and migration with how international movement can be visualised. For the task, students will need to choose a dataset from the that features more than one country about migration or asylum from the perspective of an activist/NGO organisation.

#### Week 8 – Investigative Aesthetics

The lecture and task this week will focus on temporality in spatial data. The readings and online lecture for this week will focus on the use of spatial data as investigative as a tool by critical and activist researchers. For the task, students will need to choose a dataset suitable for this task, their map must have a temporal component that shows the development of an event that would be suitable to accompany an investigative journalism.

## Week 9 - The map is not the territory: alternative and counter mapping

The lecture and task for this week will focus on how spatial data is represented. The readings and online lecture will focus on map projections and how they shape our perceptions of spatial data. Using geographically detailed global data, students will need to produce a map that uses a 'non-standard' projection of the earth, and using any additional dataset of their choice tells a story about climate change.

## Part III. Conclusion

## Week 10

The week will be used to wrap up the course and review the material that has been covered in the previous weeks. The online lectures will bring together the materials and readings to consider cartography and spatial data as a productive site for interdisciplinary research. The in-person class will be split into two parts; feedback on week 9's task and a lecture bringing together the threads and themes from the previous weeks – focusing on power and how the theoretical way we understand space cannot be separated from how we seek to represent it.

## Learning outcomes

By the end of the module, students should be able to:

- Demonstrate the ability to both work with and analyse spatial data and cartographic/thematic maps;
- Demonstrate the ability to plan, develop and produce their own maps;
- Create maps and work with spatial data in either R or QGIS
- Demonstrate an understanding of critical theories of space and power
- Evaluate what makes maps 'effective' for different tasks, audiences and datasets.
- Evaluate the different approaches that can be taken to mapping tasks and explaining the reasoning behind the approach they would take.
- Demonstrate the ability to work as part of a group to divide and share tasks, tackle problems creatively, and constructively critique and develop both their own and peers work
- Demonstrate an understanding of the history of cartography and mapping

## Indicative reading list

[Reading lists can be found in Talis](#)

## Interdisciplinary

The module will draw on concepts from across the social sciences, including geography, sociology, political theory as well as design research.

## Subject specific skills

- Ability to critically discuss and evaluate thematic and cartographic maps
- Ability to create and produce their own maps using a variety of data sources

- Ability to apply theories and concepts of space and power to the production of their own maps
- Ability to describe structural inequalities and power imbalances in the production of spatial data and maps
- Understanding of the history of cartography and mapping application of this knowledge to inform contemporary mapping and spatial data
- Knowledge of state-of-the-art technologies and research in the fields of GIS, mapping and cartography

## Transferable skills

- Thinking critically, creatively and independently about data
- Evaluate data and data visualisations through conceptual understandings of space and power
- Make maps which could be used in a wide variety of research and professional settings
- Demonstrate communications skills, in presentations, writing and in group work settings
- Participate in class discussions and collaborative group work

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## Study

### Study time

| Type              | Required                    |
|-------------------|-----------------------------|
| Lectures          | 9 sessions of 1 hour (6%)   |
| Practical classes | 9 sessions of 2 hours (12%) |
| Private study     | 33 hours (22%)              |
| Assessment        | 90 hours (60%)              |
| Total             | 150 hours                   |

### Private study description

Private study is primarily focused on the readings and independent engagement with the literature. The development of mapping and technical skills is grouped under the hours of the group work and individual assessment.

### Costs

No further costs have been identified for this module.

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## Assessment

You do not need to pass all assessment components to pass the module.

## Assessment group A1

| Assessment component                                                                                                                                                                                                                                                                                                                                                                                               | Weighting | Study time | Eligible for self-certification |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------|---------------------------------|
| Group work – 5 maps                                                                                                                                                                                                                                                                                                                                                                                                | 70%       | 70 hours   | Yes (extension)                 |
| Each groupwork map task is divided into discrete tasks that would follow a student each 1) gathering and cleaning the data 2) producing a map 3) producing a complementary data visualisation, and 4) putting together A4 page with the final text (350 word limit). Each role will rotate weekly, requiring students to try their hand at each stage develop the range of skills needed to create their own maps. |           |            |                                 |
| Students will submit all 5 maps individually.                                                                                                                                                                                                                                                                                                                                                                      |           |            |                                 |

Reassessment component is the same

Assessment component

|                                                                                                                                                           |     |          |                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------|-----------------|
| 1000 word self critique                                                                                                                                   | 30% | 20 hours | Yes (extension) |
| 1000 word self critique, based on their experience of the group work drawing on readings and literature to discuss and critically examine their own work. |     |          |                 |

Reassessment component is the same

## Feedback on assessment

In class weekly informal oral feedback. Formal written feedback on assignment being marked.

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## Availability

## Courses

This module is Optional for:

- Year 2 of TIMS-L990 Postgraduate Big Data and Digital Futures
- TIMA-L995 Postgraduate Taught Data Visualisation
  - Year 1 of L995 Data Visualisation

- Year 2 of L995 Data Visualisation
- TIMA-L99A Postgraduate Taught Digital Media and Culture
  - Year 1 of L99A Digital Media and Culture
  - Year 2 of L99A Digital Media and Culture

This module is Option list A for:

- Year 1 of TIMS-L990 Postgraduate Big Data and Digital Futures