ADVANCING YOUR PRACTICAL AND TECHNICAL SKILLS

- Geographic Information Systems (GIS) allow the acquisition, storage, analysis and visualisation of location-based data. GIS are increasingly applied in research and practice across a wide range of disciplines and sectors (e.g. planning, demographics, health, social and environmental sciences) and, as such, GIS skills are valuable, transferable and highly sought after.

- The BSc in Social Sciences programme provides a unique opportunity for you to develop your GIS skills through a structured elective.

- The core first year module ‘Mapping a Sustainable World’ will introduce you to basic mapping concepts and increase your spatial awareness by working with geographic data and simple online mapping interfaces. You will develop these skills further in the second year ‘Introduction to GIS for the Social Sciences’ module, which uses open source GIS software to collect, manage and interpret geographic data.

- The module ‘Projects in GIS’ is offered as an elective in third year. It provides the opportunity to apply the skills acquired during stages 1 and 2 into a real-life project of your choice. In this way, you will learn to create and manage a GIS project from start to finish.

- There are additional options offered at postgraduate level within the School of Geography to bring your GIS skills to industry standards, including a MSc on Applied Geospatial Analysis.

GEOGRAPHY
Shaping the future

Increase your employability through a STRUCTURED GIS ELECTIVE and enhance your geographical competencies and technical skills

Managing spatial data and producing maps

Undertaking spatial analysis to reveal new insights

Data science: Understanding spatial data and spatial patterns
<table>
<thead>
<tr>
<th>Module</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>MSc/MA</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG10140</td>
<td>Mapping a Sustainable World</td>
<td>GEOG20220</td>
<td>GEOG30880</td>
<td>GEOG40820 Introduction to ArcGIS</td>
</tr>
<tr>
<td>GEOG20220</td>
<td>Introduction to GIS for the Social Sciences</td>
<td>Projects in GIS</td>
<td>GEOG40870 Advanced GIS</td>
<td></td>
</tr>
<tr>
<td>GEOG30880</td>
<td>Projects in GIS</td>
<td>GEOG40850 GIS for Environmental Investigations (online)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Learning Objectives**

- Increasing spatial awareness;
- Understanding spatial principles (including coordinate reference systems);
- Understanding spatial relationships;
- Collecting and visualising spatial data.

**Stage 2**

- Understanding of theory and principles in spatial analysis (including introduction to raster/vector data);
- Data management and cleaning;
- Data visualisation and basic analysis;
- Increased understanding of data and interpretation.

**Stage 3**

- Theoretical and practical knowledge of GIS applications;
- Spatial analysis with both raster and vector data;
- Spatial awareness for data interpretation.

**MSc/MA**

- Advanced theoretical and practical knowledge of GIS applications, spatial data sources and data management issues;
- Ability to demonstrate the application of GIS tools to support environmental and socio-economic assessments and research;
- Spatial awareness for data interpretation.

**Software Package**

- ArcGIS Online
- QGIS
- QGIS, ArcGIS Online
- ArcGIS

**Technical Skills**

- Using apps to gather spatial data;
- Managing spatial data (data cleaning, etc.);
- Producing simple maps.

- Downloading data from online sources;
- Managing spatial data (file types and formats, reference system consistency, etc.);
- Basic spatial analysis tools (e.g. buffers, clips, point in polygon, etc.);
- Producing map layouts.

- Searching for and downloading data from online sources;
- Working competence of GIS software (open source and online) including task flows for data analysis of real world problems.
- Managing a GIS project.

**Career Opportunities**

- Education, training, research...cartography, database management, spatial analysis, planning, project management

**Public sector:** Governmental departments and local authorities; State and semi-state agencies (e.g. Central Statistics Office, Environmental Protection Agency, Ordnance Survey Ireland)

**Private sector:** Industry (Esri Ireland, Google, Compass); Environmental and planning consultancies; Engineering companies.

**Further education and research:** PhD; Research institutions (AIRO, ESRI); NGOs (Pobal, An Taisce).