<table>
<thead>
<tr>
<th>Module Code</th>
<th>CS7DS4</th>
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</thead>
<tbody>
<tr>
<td>Module Name</td>
<td>Data Visualisation</td>
</tr>
<tr>
<td>ECTS weighting</td>
<td>5</td>
</tr>
<tr>
<td>Term</td>
<td>Hilary Term</td>
</tr>
<tr>
<td>Contact Hours</td>
<td>2 lecture hours per week</td>
</tr>
<tr>
<td>Module Personnel</td>
<td>Assistant Professor John Dingliana</td>
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</tbody>
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**Learning Outcomes**

Students who complete this module should be able to:

- DS4LO1 Discuss the concepts behind the design and construction of data visualisations;
- DS4LO2 Discuss how human perception and cognition impact on this design;
- DS4LO3 Describe the different types of visualisation and their uses;
- DS4LO4 Discuss the infrastructure, both hardware and software, for visualisations and make informed decisions about the best hardware and software for specific visualisation tasks;
- DS4LO5 Choose and implement the visualisation techniques best suited to analyse data for a given question.

**Module Learning Aims**

This module aims to equip the student with the knowledge and tools to visualise data in ways that give insight and understanding. The module looks at all of the elements, beginning with a study of how we perceive and understand visual scenes, that inform principles of good visualisation design, through to the hardware and software that allow these visualisations to be implemented. The student who completes the module should be able to decide on the best visualisation for the data and research question at hand, and then implement in the best way possible.

**Module Content**

Specific topics addressed in this module include:

- Fundamentals of a good data visualisation;
- How humans perceive and understand visual information
- Principles of visual design;
- Two-dimensional and three-dimensional graph types and data animations;
- Types of information visualization
- Focus and context visualization
- Spatial data visualization
- Interactive Visualization
- Specialist visualisation libraries (e.g. D3, Highcharts, mapping systems)
- Hardware and high-performance techniques for computationally intensive visualisations;

**Assessment Details**

Coursework: 100%.

Coursework will consist of shorter assignments during the first half of the semester and a final individual project that integrates all the elements of the module.

**Recommended Reading List**