

Module Specification

Module Summary Information

1	Module Title	Data Visualisation
2	Module Credits	20
3	Module Level	5
4	Module Code	CMP5352

5	Module Overview
<p>The aim of this module is to identify, apply and design data visualisations. The module provides you with the fundamental principles and practice-based activities needed to design data visualisations for different contexts and different types of data. More advanced visualisation concepts and tools for analysing multi-dimensional data and large data sets will also be examined and appraised. You will learn how to employ visualisation as a tool that can help users understand large and/or complex data sets. Finally, upon completing the module, you 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.</p>	

6	Indicative Content
<p>This module applies a variety of data analysis methodologies to real situations and communicate the results using available visualisation tools. Gather relevant information from the data. Make informed decisions on the most suitable methods to analyse a specific dataset. Interpret results and communicate their findings using the appropriate visualisation technique. Also, it provides a hands-on introduction to ggplot2 visualisation tool and explains the graphics grammar on which ggplot2 is based.</p>	

7	Module Learning Outcomes
On successful completion of the module, students will be able to:	
1	Effectively communicate the Key concepts in data visualisation, including approaches, software tools and application contexts.
2	Implement appropriate data visualisation techniques to solve data analytical problems.
3	Interpret and effectively communicate patterns and knowledge discovered as a result of applying data visualisation techniques to data sets and analytical problems.
4	Professionally report the evaluation of data visualization methods based on quantitative and qualitative metrics.

8	Module Assessment
Learning Outcome	
	Coursework Exam In-Person
1-4	X

9 Breakdown Learning and Teaching Activities	
Learning Activities	Hours
Scheduled Learning (SL) includes lectures, practical classes and workshops, peer group learning, Graduate+, as specified in timetable	48 Lecture/Tutorial Topics (not necessarily delivered in the sequence below and some topics might need more than one tutorial): 1. Introduction: Data visualisation 2. Grammar of graphics 3. Plot layers 4. Displaying distributions 5. Scales, axes and legends 6. Positioning 7. Plot themes 8. Manipulating data 9. Reducing duplications 10. Dashboards 11. Mashups 12. Creating maps and geolocation visualisations Lecture/Core Content Delivery: 12 hours Practical Topics (not necessarily delivered in the sequence below and some topics might need more than one lab session): 1. Developing visualisation solutions using ggplot2 2. Exploring other visualisation tools 3. Assessment support Laboratory/Practical Demonstration/Workshop: 24 hours
Directed Learning (DL) includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning, as directed on VLE	72 – Independent Study
Private Study (PS) includes preparation for exams	80
Total Study Hours:	200