Harper Adams University Assignment Brief

# 2025/26 Assignment Brief (Online submission only)

**Module Name (Module Code):** Data Visualisation **(SQ4012)**

**Module Tutor**: Kanthu Joseph Mhango

**Assignment Title**: e-portfolio

**Assignment Type**: Individual Assignment

**Time Guide**: ~ 50 hours

**Word/Page Limit**: not applicable

**File Type**:Word doc with GitHub link (GitHub to contain various required file types e.g., ipynb, .xlsx, .md, etc.)

**File Size Limit**: 50 MB

**Module Outcomes Assessed:**

1. Apply the basic concepts of data visualisation.
2. Create a variety of visualisations, demonstrating the ability to represent data in a visually compelling manner.
3. Analyse and refine plots to enhance the clarity and aesthetic appeal of data presentations.
4. Synthesise knowledge of data visualisation techniques to produce reproducible reports and presentations.
5. Evaluate the effectiveness of data visualisations, developing a critical eye for data representation and aesthetics.

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| **Submission Deadline: 15.00 on 2026-01-29 (Thursday, 29th January)**  Please ensure that your student number is included at the beginning of your submission title when uploading your work |

Artificial Intelligence (AI) Guidance

AI usage is permitted in-line with our [University Guidance](https://cdn.harper-adams.ac.uk/document/ki/key-info-page/Working-Well-With-AI.docx).

AI use **must** be acknowledged alongside your reference list.

Resources to support the appropriate use of AI can be found on [The Learning Hub](https://hub.harper-adams.ac.uk/course/view.php?id=5993). The university encourages ethical, responsible use of AI.

As you use AI, remember that it has limitations and your writing and ideas will often be better.

You remain responsible for ensuring your work is original, meets the expected standards of academic integrity, and that AI is used only as a supportive tool.

Assignment Submission Declaration

In submitting this assignment:

I/we declare that the work is my/our own work and that it meets the standards of academic integrity expected at all times as set out in university academic integrity policy. I/we also confirm that this work conforms to the stated Artificial Intelligence guidance for this assignment brief and has not previously been submitted for assessment for an academic award, unless otherwise indicated.

Task Outline

## This assignment requires you to produce a record that demonstrates your newfound data visualisation skills. You will demonstrate this via the production of an e-portfolio designed around the following tasks:

## Task 1 – Planning a Graphic (The SPEC)

**Task**: Write a structured plan for producing a graphic.  
***Requirement***:  
- Show that you can write a SPEC (Specification) of an intended graphic in such a way that it could be reproduced in any grammar-of-graphics-based software.  
- Cover what makes a good graphic plan, breaking down data, aesthetics, geometries, scales, coordinates, and guides.  
- Explain why separating specification from execution improves reproducibility.  
  
***Output***: A clear write-up (with an example SPEC) that demonstrates your ability to abstract a visualisation into its design principles.

## Task 2 – Explaining the Grammar of Graphics

***Task***: Write a detailed discussion of the Grammar of Graphics.  
***Requirement***:  
- Define and discuss the key concepts:  
 • Aesthetics (colour, size, shape, etc.)  
 • Scales and transformations (linear, log, etc.)  
 • Geometries and statistical elements  
 • Coordinates (Cartesian, polar, etc.)  
 • Guides and facets  
  
***Output***: A well-structured essay explaining how these components combine to allow users to construct arbitrarily complex graphics.

## Task 3 – A Complex Graphic in Practice

***Task***: Produce and document a complex ggplot2 graphic.  
***Requirement***:  
- Use a ggplot2 dataset to create a chart with multiple aesthetics and facets.  
- Provide variations of the same information (e.g. Cartesian vs Polar coordinates, boxplot vs contour map).  
- Annotate the chart and write up each element, explaining how it embodies principles of the Grammar of Graphics.  
- Discuss how visual perception differs depending on the encoding chosen and the variants.  
  
***Output***: At least one complex chart, its variants, plus explanatory commentary.

## Task 4 – Animation with gganimate

***Task***: Create a dynamic graphic that reveals change over time.  
***Requirement***:  
- Use {gganimate} to reproduce and extend the Gapminder-style animations.  
- Incorporate a personal twist by highlighting a key global event (e.g. COVID-19, World Wars, end of colonisation in Africa, early HIV epidemic).  
- Reflect on how animation adds interpretive value and how it changes the audience’s perception of patterns.  
  
***Output***: An animated visualisation (GIF/MP4 embedded in the Quarto site) with a short reflective write-up.

## Task 5 – Compiled Quarto Portfolio

***Task***: Assemble all stages into a single Quarto website.  
***Requirement***:  
- Present your work as a coherent learning resource that could be used by others to understand data visualisation in R.  
- Each stage should be clearly navigable within the site, with code, figures, and reflective commentary.  
- Ensure the site demonstrates reproducibility, professionalism, and clarity.  
  
***Output***: The final Quarto site (published on GitHub Pages) is the submitted assignment.

Presentation Requirements

**Submission Checklist**

* **Github pages e-portfolio** containing all deliverables from the task outline
* A docx document uploaded to Turnitin containing the github repository link

Marking Criteria

**The work will be judged against the extent to which it fulfils the following criteria:**

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| Criteria | Weighting % |
| e-portfolio | 100 |

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| --- | --- |
| **Mark range** | **Criteria** |
| 90-100 | Outstanding and error free overall, flawless, perfectly correct report and analysis, clear text and reproducible, commented code, transparent methods, assumptions and motivation, perfect adherence to formatting and instructions. Evidence of synthesis and perception of complex concepts or ideas. |
| 80-89 | Outstanding otherwise, but some small imperfections possible. Evidence of synthesis and perception of complex concepts or ideas. |
| 70-79 | Excellent and clear overall. Some small errors possible. Clear, correct and reproducible throughout. |
| 60-69 | Very good to excellent throughout. All major concepts clear and correct and reproducible. Some errors or imperfections possible, or otherwise areas that can be improved in rigour, accuracy or justification. |
| 50-59 | Good to very good throughout and complete. There are some obvious errors or omissions that do not severely undermine the clarity. |
| 40-49 | Work that may be good in parts but with obvious major flaws that impede understand or may be lacking important detail. The work may lack depth or have obvious omissions. |
| 30-39 | Poor work that may have some evidence of good potential, but lacks adherence to academic conventions, structure, adherence to guidelines, reproducibility, or relevance |
| 0-29 | Poor, incomplete work that may lack adherence to academic conventions, structure, adherence to guidelines, reproducibility, or relevance |

Wordcount / Presentation Duration

Any part of your assignment that goes over the word count, page limit, or presentation time will not be marked. This is to make sure all students are assessed fairly and equally. It also helps you develop important skills in clear and focused communication.

Assignment Submission Recommendations

* Always try to upload your work at least **24 hours** before the stated deadline
* Check that the uploaded digital copy is the correct version of the file – It is your responsibility to upload the correct file.
* Incorrect files can be replaced without penalty before the deadline. After the deadline, replacing an uploaded file will incur a late penalty
* Retain a digital back-up of the assignment
* Retain copies of AI-generated materials.

Assignment Return

Your feedback will be returned through GradeMark. To view feedback, please return to the drop-in box on your module. Instructions on how to access feedback through GradeMark can be found under the “Student Information” tab on the front page of The Learning Hub. As well as the grade/mark, you should also receive feedback (which may be typed or spoken) on your assignment. If the written feedback provided is unclear you are advised to contact the module leader/module tutor to provide clarification.

Your marked assignment should be returned by the date stated on the brief. If this will not be possible, the module leader/module tutor will advise students of the expected return date. **If you do not receive your mark and feedback by this date**, please ask your Course Tutor to contact the relevant Head of Department to advise them of this delay.

Penalties

Work submitted after the published deadline will be subject to a mark penalty unless there are approved, documented, mitigating circumstances. The penalties for late or non-submission can be viewed [here](https://hub.harper-adams.ac.uk/course/section.php?id=291310):

Timeline and Approval

Date of assignment launch to students: 2025-09-29

Feedback and grades will be returned by: 2026-03-01

Assignment brief moderated by (print name): Ed Harris