

CASA0005 Geographic Information Systems and Science assessment

Deadline: Monday 11th January 2021, 5pm. There are no opportunities to submit a second version after this deadline.

Late submission of the assessment will be subject to the [standard penalties according to the UCL regulations](#)

Weighting: This single assessment makes up 100% of the marks for the module.

Submission: PDF via Moodle. **Do not upload anything other than a PDF.**

Coversheet: You must have a coversheet at the start of your assignment (within the single PDF) that includes your:

- Assignment title
- Programme
- Department
- GitHub repository URL and any online website / instructions you have created (e.g. RPub).

There is no standard format for the cover sheet, just ensure it has all the required information. It is not included in the word count. Check all of your URLs work (e.g. in a different browser).

Assessment outline:

For the assessment of this course you will combine the cartographic and GIScience skills you have learned over the last 10 weeks to showcase your abilities as a fully rounded spatial analyst. Your task is to carry out a mini research project which answers a pertinent or topical geo-spatial question/hypothesis/issue in a logical, scientific and reproducible manner. A pertinent or topical question is relevant to: (a) a contemporary debate, (b) a current environmental, political, social economic or equality issues or (c) a widely recognised problem. For example, in 2020/21, such topics in the UK may include (although certainly not exclusively limited to) the Climate Crisis, COVID-19, Fake News, the US elections, Brexit, Black-Lives-Matter, the Obesity Crisis, inequalities and bio-diversity loss, but other topics may well be relevant for other parts of the world (see FAQs below for further guidance). Your project can be located anywhere on Earth and at any spatial scale (e.g. local, national, international) but must involve analysis of some appropriate spatial data (raster, vector or both). You must not directly reuse the data we provided in the practical sessions (see FAQs below for further guidance). You will submit only one document that should not exceed 3000 words excluding references. The **reference list should be provided on a new page** within your PDF document.

Assessment task:

You are required to construct a spatial problem (research question or hypothesis) founded upon relevant and pertinent literature (e.g. academic and policy). You must test your research question or hypothesis with appropriate and reproducible geographic data analysis. The output results should be critically reflected upon in relation to academic literature and relevant policies, clearly demonstrating how your spatial analysis provides new insights, supports (or contradicts) policy decisions, enhances existing work or shows geographic trends.

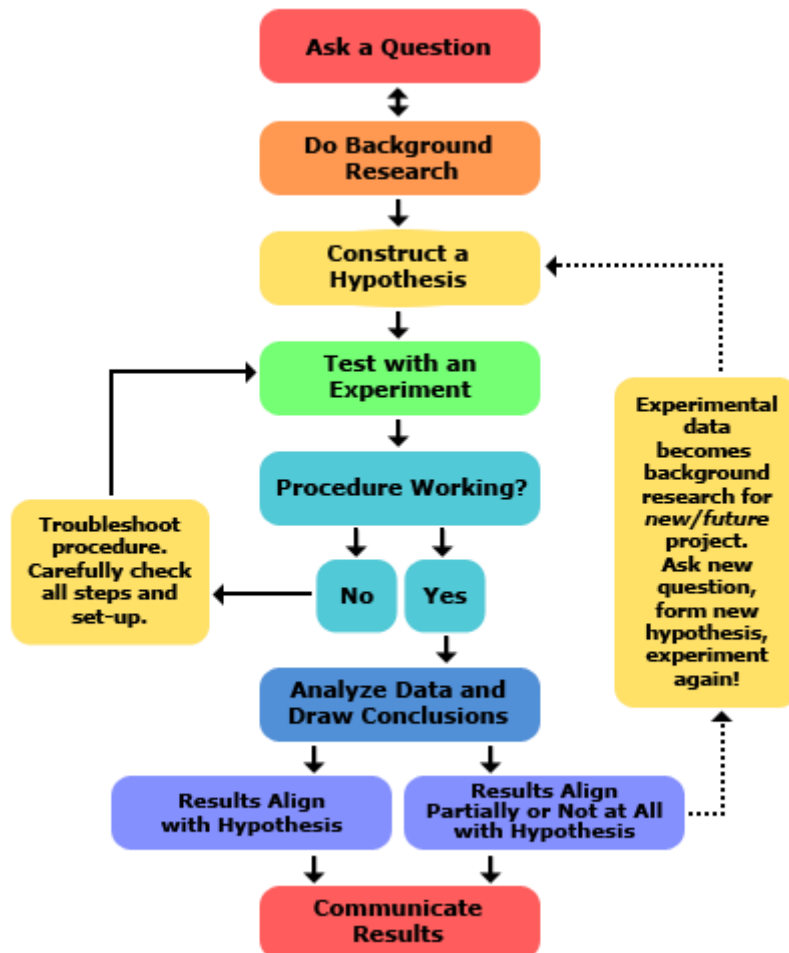
Within the report we expect to the follow sections:

- Introduction
- Research question (or hypothesis)

- Literature review
- Methodology
- Results (including descriptive statistics and further analysis)
- Discussion (including specific recommendations)
- Conclusion

Visualisation of the assessment

The graphic below provides a visual representation of division of the assessment.



Expected timeline

Week	Activity
1	Undertake wider data exploration and reading to find a topic you might be interested in progressing with. Start with a data search first to avoid proposing a research area then forcing potentially unsuitable data to fit it.
2	Assess the validity of your topic in terms of data suitability, then sketch out an introduction and literature review including academic and policy documents (or any reputable source).
3	
4	Based on your knowledge of available data and literature compose a research question or hypothesis. Review your introduction and literature review to ensure you are guiding the reader to understanding the importance of the project.
5	Create a draft of the methodology / initial ideas that can be expanded on as we move to more advanced analysis in the second part of the course.
6	Learn and practice analysis from the course and identify appropriate techniques (from wider research) that might be applicable/relevant to your data. Conduct an extensive methodological review – this could include analysis from within academic literature and/or government departments (or any reputable source).
7	
8	
9	
10 to deadline	Undertake your analysis, then write up your discussion and conclusion (that includes recommendations)
Before submission	Check that your assignment follows the standard model of scientific investigation. You may need to update your introduction and literature review based on the analysis you undertook to ensure a seamless narrative throughout.

Frequently Asked Questions

What is a pertinent or topical geo-spatial question/hypothesis/issue

A pertinent or topical geo spatial question has some relation to current global or local issues as implied within the assessment outline. We don't want to analysis with tenuous significance such as: fear of crime in London (London is, globally, one of the safer cities in the world), the best location for a new supermarket in city x, where to open a new school in neighbourhood y. A way to possibly check if your topic is pertinent would be to search for news items on it. However, use this with caution as not all topics will be covered within the media and they may subject to polarised reporting.

How do you suggest I start

1. Think about topics you might be interested in or relationships you might want to explore, using the practical material as a guide
2. Find datasets (at least two) at a suitable spatial resolution and list their attributes
3. Map out how you could use taught methods (or other methods you have found) to explore the relationship

What's the biggest issue you see with assignments

Assignments will always vary and students come to this module with different prior experience. However, we often see good or even great analysis that lacks a narrative. Throughout the assignment try and tell us why this is important and what potential implications it might have. We will cover more on this in one of the lectures within the module.

Is my analysis enough to pass

That's difficult to directly answer as there is range of criteria used to mark your work. However, you must do some actual analysis on your data using geospatial methods (e.g. those taught within the module). Simply displaying point data and doing basic spatial operations (e.g. buffers, data selections and spatial intersections) is usually not enough to pass.

Can we discuss our ideas

Yes, there will be an opportunity to submit a very short proposal and time within workshops to discuss ideas with the module staff. Please make use of these sessions.

What criteria will you make our work on

We will follow the mark scheme for this course available on Moodle.

Can I use multiple datasets

Yes, you can use as many as you like as long as they are appropriate for the research question/hypothesis.

Can I do my analysis using a range of different software

Yes. You may wish to run your analysis in R and produce a map in QGIS or vice versa with an interactive map. But make sure your analysis remains **reproducible** as per the mark scheme for the course.

What must be included in the report and do I submit as a single document

We recommend that you follow the format of a traditional scientific detailed above. Yes, you will submit the document as a **single** PDF.

What do you mean by ‘You must not reuse the data we provided in the practical sessions’

Any data we have used in the practical session must not appear in your final assessment. However, if you wanted to use data collected from the same source but of a different study area that would be acceptable. For example, Landsat data over Paris or Airbnb data from Berlin are fine.

So where do I get the data from

Checkout the assignment resources pages for help. You can use any of this data listed on this page as long as we haven’t directly used it within the practical sessions. This list is just for guidance and you are **not** restricted to it. Go and explore!

Can I use methods not covered in the course and can I use another piece of software (e.g. Python)

Yes and no. Make sure you select only appropriate methods for your proposed analysis and as the course focuses on R and QGIS the analysis must be completed within them.

Can I just use methods covered in the course

Yes, you can and if you have provided a decent write up it is likely you will pass. However, we **strongly** encourage you to explore other methods.

How should I display my results

However you deem appropriate for your data and analysis. A reader should be able to understand any figure you have produced using only the figure and the caption. Check out the practical on making maps for cartography advice and guidance.

Can I use interactive maps

Yes, but only where appropriate for your data and analysis. You can recreate any of the online mapping tools we demonstrated and link this into the PDF document you submit. For example, you could display a static map in your submitted work that is hyperlinked to an RPub, RMarkdown site or Shiny.

How can I show my code or QGIS tool within the assignment

If you want to provide reproducible code for your analysis then follow the relevant practical within the practical book. You can then provide a hyperlink to the url/repository within your PDF report. If you have made a QGIS model you should still be able to upload it to GitHub, GoogleDrive, Dropbox or OneDrive and provide a hyperlink. However, make sure that whatever you choose to do, it is **reproducible** with **appropriate documentation**

Does my code / associated Readme file / documentation / online site count towards the word limit

No, but any documentation with the code should **only succinctly** describe what the code does and provide **no** interpretation of analysis, results, methods, discussion or the conclusion. You can make an online document / website that explains what each part of the code does, as we did in the practical sessions, but **absolutely no** interpretation of results.

What is included in the word count

The maximum length for the whole document is 3,000 words. This count includes **everything** above the reference list. The reference list should be the last section provided on a separate page.

Do I need to use references

Yes, we are expecting your project to use a variety of **credible** sources (e.g. academic literature and policy documents) following the Harvard referencing system.

What's a credible reference

Something that is unbiased and can be supported with evidence. Generally, this would include academic journals, reviews and books alongside evidenced based policy documents. It would exclude online sources such as Wikipedia.

Can I use flowcharts

Yes, and we strongly encourage them, but make sure they are relevant and fit for purpose.

Can I use private data

Private data would entail something that is not publicly accessible or open. For example, if you work for a company and they have given you access to a private dataset that they have complied. You can use private data, but there are no extra marks for doing so. That said if you aren't able to publish the data in a repository (because it's private) you won't lose any marks in terms of reproducibility, but we'd recommend making up a mock dataset so we can see your code/toolbox/analysis actually works. This data wouldn't need to show the same result as your original private dataset, most likely it shouldn't as it could risk identifying the original data. Please make sure you fully acknowledge the source of any private data, as with all data. If this applies to you and you wish to use private data throughout your MSc make sure other module coordinators also agree.

Can I scrape data from the web

Yes as long as you follow the terms and conditions from where you sourced the data and clearly state this along with how you have adhered to them in your final report and also any repository / reproducible material. Comments in your code should just say where the data is from, adherence should be in the report and any reproducibility online document you create (e.g. RPubS / similar). You probably won't be able to store the original data in a personal online repository so it might be useful to have a random mock dataset (probably a smaller dataset) to show it runs.