GG2510 Mapping and Monitoring the Environment
Assignment 1

The objectives of this assignment are:

- to be aware of the wide range of freely available data and software that is accessible online and used for monitoring and mapping purposes;
- to become familiar with the different ways of downloading this data;
- to practice topographic map analysis;
- to practice satellite image analysis;
- to become familiar with the concept of scale;
- to improve your critical understanding of maps;
- to design and produce maps;
- to familiarise yourself with Google Earth.

THE ASSIGNMENT MUST BE DONE INDIVIDUALLY AND ANY FORM OF GROUP WORK WILL BE CONSIDERED AS PLAGIARISM. AS YOU KNOW, OUR UNIVERSITY TAKES PLAGIARISM VERY SERIOUSLY.

A. Complete the following tasks

1. Access the digital topographic map (via EDINA, Digimap; this requires a registration which might take up to 2 working days; if Edina does not work on your browser, use a different browser such as Firefox, Chrome, etc.) of the hospital/house where you were born. If you were not born in the UK, please select any different geographical target within the UK, such as the house you live in at the moment or a nice place you have recently visited.
2. Using the 'drawing tools' tab, place a marker to indicate your chosen location and add two text labels specifying (i) the coordinate system, and (ii) the geodetic datum, of the map.
3. Generate a file for printing (it will create a pdf of the map, no need to actually print it) of the map of this area in A4-format at the nominal 1:20,000 scale, adding a proper title and the national grid. Make sure your selected location is roughly positioned at the centre of the map.
4. In the title, specify the exact (to the nearest 10 m) coordinates of your selected location, in the complete OS format (2 letters and eight digits).
5. Insert the map at its full A4 size into a Word Document, and explain how you would calculate the *real* numerical scale of your map as if it was printed and why it might be different to the 1:20,000 scale you set in point 3 above.

B.

Find a choropleth thematic map (from a book, a newspaper, a scientific journal, the web, etc.), ideally of a theme of interest to you, and copy and paste it into your Word Document.

1. Add a figure caption underneath the map, stating what the map shows and where it was sourced from.

2. Describe the theme of the map (for example: "...my map shows biodiversity across the Amazon Basin. This is split into four classes...") and how this varies across the represented region (for example: "...biodiversity is highest in the northern sector of the Amazon Basin, while moving from East to West we can notice that...") (max 300 words).
3. Critically evaluate the design of your map considering all map elements described during the relevant lecture (What is missing? Why? Was it important? What is present? Why? What could have been improved?) (max 300 words).

C.

Look at the provided (on MyAberdeen) 1850s map of Aberdeen. Compare Aberdeen as it was in 1850s with how it looks now, using Google Earth imagery. How has the physical/urban landscape changed over the past 150 years? (max 400 words).

D.

Launch Google Earth (either downloaded to your own device or using the university's VDI).

1. On the Google Earth search tab type "Clachnaben, Banchory". Google Earth will take to a specific site near Banchory. The actual Clachnaben is a hill top nearby. Write down the Google Earth coordinates of the searched Clachnaben in decimal degrees of latitude and longitude (e.g. 37.84°N; 22.42°W).
2. Now search and locate Clachnaben on the OS Maps that you can access via EDINA. Look at the National Grid coordinates of Clachnaben from EDINA and convert them into in decimal degrees of latitude and longitude (you could use various online converter tools, for example https://www.ordnancesurvey.co.uk/gps/transformation/). Write down these (converted) decimal degrees coordinates of Clachnaben from EDINA.
3. As you can notice, Google Earth location is not correct (a good lesson about always double-checking web info!). What is the distance between the wrong Google Earth Clachnaben location and the correct (OS Map) Clachnaben location in metres?

E.

Using the functions demonstrated to you in the Google Earth practical, search for an area that has undergone a significant change through the past few years/decades. You will need to identify two images of the same area, each showing a different situation. For example, for a retreating glacier you can select a historical image from a time when the glacier was much more advanced than today, then the present-day situation with the glacier retreated by 100s of m. The change can be either anthropogenic (man-made) or natural, but you must be able to observe the change in high resolution using the historical imagery function in Google Earth. You are not permitted to use a retreating glacier. Instead, try to explore a topic or geographic region of interest to you.

1. Insert on one page the two selected images of the area you have identified to have changed, without any mapping or annotation on them. You can save screenshots in Google Earth by going to File > Save > Save image.
2. Now use the two images in Google Earth to map your phenomenon as it evolved. Use the annotation tools in Google Earth (polygon, placemark, etc.) to map/highlight the area/feature(s), in order to demonstrate how they evolved through time. For example, you will map the glacier front from the oldest image, then map the front on the more recent image.
3. Insert this annotated image into your answers document and below write a suitable and concise (< 250 words) description of this change and add any references (e.g. journal article or news magazine/web article) you might have found in relation to the changes, if applicable.

SUBMISSION INSTRUCTIONS:

Upload your complete answers document to the Turnitin link on MyAberdeen under assessment, first assignment by 12 noon Monday the 1st of March.