# Assignment 2 – Due September 20th 2022

You have an image of Dulles Airport represented by 'polygon1.shp' and need to obtain some key information.

40 points to be awarded will be based on the code submitted in tandem with these answers. Without the code, it is not possible to establish how you obtained the answers. Providing the code ensures you actually used the methods taught in class to obtain the key answers. Adding comments to your code to explain how you carried out each step, will make your submission stronger.

Provision of the underlying code also enables the assignment to be evaluated for cheating/plagiarism. Please remember the Mason Honor code applies. All work must be your own. If you fail to work through these questions on your own, you will make it considerably harder to perform in your individual coursework project, later in the semester.

Use the polygon1.shp file to do the following:

1. Import the polygon using geopandas and print the area in square kilometers (20 points).
2. Extract and print the exterior coordinates from the shapely geometry object in the geopandas geometry column. It may help to first extract the shapely object from the geometry column. You need to provide the full underlying tuple coordinate list (20 points).
3. Write a for loop to iterate over the content of the geopandas dataframe, printing to the console "the area of my image polygon is x square kilometers". Make sure you replace x with the actual area of your polygon, in square meters. Also print the polygon bounds in the same loop (20 points).

Code submission (40 points): Make sure you either copy and paste your code at the end of your submission document for review, or upload your notebook to GitHub. If you copy and paste the code, it would help to take a screen shot of your code response of each question, so the printing part of the task can be viewed.

Hint: Pay attention to your coordinate reference system units.

Any questions on this assignment should be directed to the MyMason discussion board, followed by an email to Ed/Mark/Ulus to make them aware of the query.