

## Lab1: Introduction to QGIS & Mapping Italy

**Lab Objective:** Produce a simple map of Italy illustrating the spatial distribution of one or more variables using the provided data on:

- Italy Country Outline
- Regioni
- Province
- Comuni
- Fiumi
- Laghi
- Olives
- Parks\_Natural\_Areas
- Vinyards

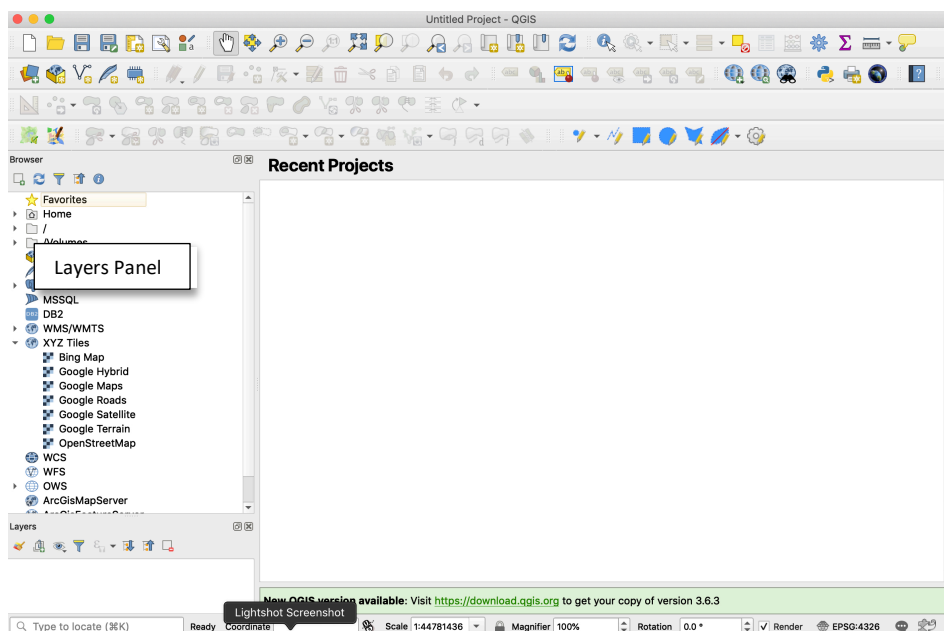
**Lab Outcomes:** Upon completion of this Lab the student will be able to:

1. Open QGIS GIS software and describe the various components of the GUI.
2. Add spatial data layers to a map project.
3. Illustrate and Discuss how QGIS uses the layer order to display spatial information in the **Map Display**.
4. Demonstrate how to modify the Order, Color, and Transparency of data layers
5. Illustrate and Discuss how changes in the Order, Color, and Transparency of data layers are presented in the **Map Display**.
6. Define a simple spatial question or theme that can be presented in a map using the provided lab data.
7. Take a screen capture of the thematic map.

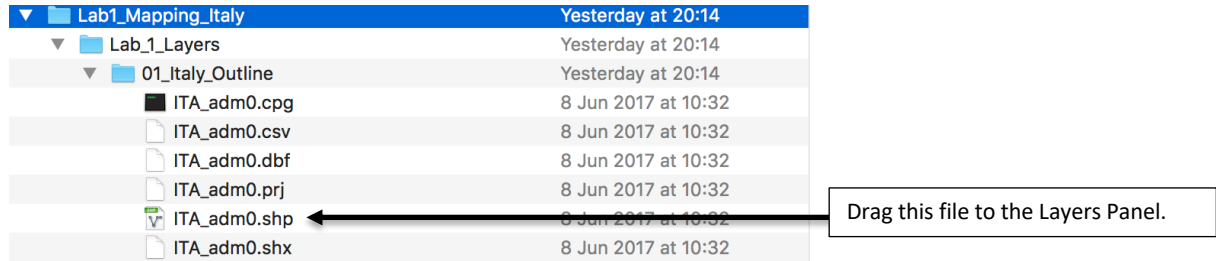
### Instructions:

Open QGIS 3.x by double clicking the Icon.

It should look something like this:



There are several ways to Add Vector Layers to your project. The easiest is to drag a .shp file from the “ENV102\_Labs” folder to the **Layers Panel**. Note that you can only add the files with the .shp extension. All the other files are required support files but cannot be added to a map layer. E.g. ITA\_adm0.shp can be added to QGIS but ITA\_adm0.dbf cannot.

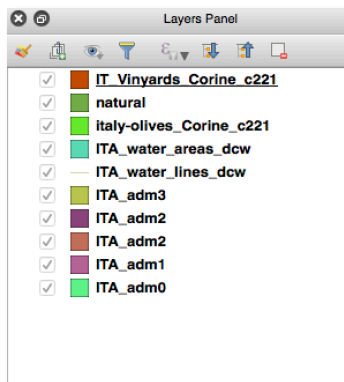


Start with Italy Country Outline by dragging the “ITA\_adm0.shp” in the 01 Italy Outline folder to your **Layers Panel** in QGIS. This will display an outline of Italy in the **Map Display** area.

Congratulations, you just created your first GIS Map!

Now go through the rest of the files in the Lab 1 Layers Folder and add the .shp file to the **Layers Panel** for each data type.

After you have added all of the data to the **Layers Panel** it should look something like this.



Now **SAVE** your Project to the ENV102 Labs folder on your desktop.

**Name your Project using the following format so I can identify who made each map.** Lab1 Outline Yourlastname.

After saving the project check the ENV102 Labs folder on your desktop, you should see a file named: Lab1 Outline Yourlastname.qgs. If it is not there you probably saved it to another location. Find where you saved it and move it into the correct folder, or resave it to the right place.

The Map in the **Map Display** is probably a bit of the: “OMG! What have I done! type map?”

Do not despair we will fix it.

This is where you get to be creative.

You can turn layers on and off by checking the box in front of each layer. Experiment turning off and on the various layers and see what happens. Notice what happens to the map in the **Map Display** as you turn off and on the layers at the top and bottom of the list.

You can also change the order in which the layers are displayed. Remember the top layers are displayed on top of the lower layers in the **Map Display**. So experiment with dragging the layers into a different order in the **Layers Panel**.

The top layers in the **Layers Panel** cover up the layers beneath them.

Ok, so I can only display one layer at a time?

No that would not be very useful, so QGIS allows you to change the color and transparency of each layer so that the layers beneath it are also visible. Cool huh! It is easy once you get the hang of it. I will illustrate this process during class.

Now make a map!

Pick a topic that you would like to display on your map, say where olives and/or vines are grown in Italy. Where the towns, rivers, natural areas, etc. are found in Italy. It is up to you what you include on your map. You are only limited by the data you have available.

You do not need to show all of Italy in your map. You may want to focus on only a small part of the country, maybe a single region or province. Experiment! That is what makes GIS so much fun!

We are just getting started there is a lot more that we will do with QGIS as we add different data and analyze the spatial patterns that emerge.

To print out a copy of your map you may want to add some additional information. Remember "The Map Essentials!" To output/print a map you will need to use the **Map Composer Tool**. There is an excellent tutorial on how to use this tool at the link below.

You **DO NOT** need to output your map using the Map Composer tool for Lab 1. Simply take a screen shot of your QGIS desktop.

For more information on Map Composer checkout the tutorial below.

Map Composer Tutorial

[http://www.qgistutorials.com/en/docs/3/making\\_a\\_map.html](http://www.qgistutorials.com/en/docs/3/making_a_map.html)