From the map above, we can see that school density is highest in Manhattan (the top of the map), and lower in Brooklyn, the Bronx, Queens, and Staten Island.

Now that we've plotted the school locations, we can begin to display meaningful information on the maps, such as the percentage of English language learners by area.

We can shade each point in the scatterplot by passing the keyword argument c into the scatter() method. This argument accepts a variable containing a sequence of numbers, assigns different colors to those numbers, and then shades the points on the plot associated with those numbers accordingly.

The method will convert the sequence of numbers we pass into the c keyword argument to values ranging from 0 to 1. It will then map these values onto a colormap. Matplotlib has quite a few default [colormaps](http://matplotlib.org/users/colormaps.html" \t "_blank). In our case, we'll use the summer colormap, which results in green points for low numbers, and yellow points for high numbers.

For example, let's say we plotted ell\_percent by school. If we pass in the keyword argument c=combined["ell\_percent"], then the method would shade a school with a high ell\_percentyellow, and a school with a low ell\_percent green. We can specify the colormap we want to use by passing the cmap keyword argument to the scatter() method.

Instructions

* Set up the map using the code snippet that creates a map, then draws rivers, coastlines, and boundaries.
* Call the [scatter()](http://matplotlib.org/basemap/api/basemap_api.html#mpl_toolkits.basemap.Basemap.scatter) method on m, and pass in longitudes and latitudes as arguments.
  + Make sure to pass in longitudes and latitudes in the correct order.
  + Pass in the keyword argument s=20 to increase the size of the points in the scatterplot.
  + Pass in the keyword argument zorder=2 to plot the points on top of the rest of the map. Otherwise the method will draw the points underneath the land.
  + Pass in the keyword argument latlon=True to indicate that we're passing in latitude and longitude coordinates, rather than axis coordinates.
  + Pass in the keyword argument c with the value combined["ell\_percent"] to plot the ell\_percent.
  + Pass in the keyword argument cmap="summer" to get the right color scheme.
* Show the plot using the [show()](http://matplotlib.org/api/pyplot_api.html#matplotlib.pyplot.show) method.

Answer :

import pandas as pd

import matplotlib.pyplot as plt

from mpl\_toolkits.basemap import Basemap

m = Basemap(

projection='merc',

llcrnrlat=40.496044,

urcrnrlat=40.915256,

llcrnrlon=-74.255735,

urcrnrlon=-73.700272,

resolution='i'

)

m.drawmapboundary(fill\_color='#85A6D9')

m.drawcoastlines(color='#6D5F47', linewidth=.4)

m.drawrivers(color='#6D5F47', linewidth=.4)

longitudes = combined["lon"].tolist()

latitudes = combined["lat"].tolist()

m.scatter(longitudes, latitudes, s = 20, zorder = 2, latlon = True, c = combined["ell\_percent"], cmap = "summer")

plt.show()

