

Tutorial 10 homework

In this homework, you'll make a figure containing a scatter plot with marginal histograms similar to what we made earlier. Now, however, we have a few more tools at our disposal so we can probably make a better figure.

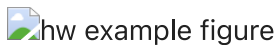
Here is some code to make a simulated data consisting of the scores on two tests (A and B) taken by 100 people.

```
In [3]: import numpy as np

my_rng = np.random.default_rng(seed = 42)
test_a = my_rng.normal(100, 15, (100,1))
test_b = test_a + my_rng.normal(0, 10, test_a.shape)
```

Let's make a figure featuring a scatter plot of the scores against one another, along with two supporting panels showing the histograms of the two test scores.

An example figure would look something like this:



But your goal isn't to make a figure that looks exactly like this; your goal is to make a figure that looks better than this!

```
In [95]: import matplotlib.pyplot as plt
```

```
In [112... gs_kw = dict(width_ratios=[1.8, 1],
              height_ratios=[1, 2],
              wspace=0.1, hspace=0.15)

fig, axd = plt.subplot_mosaic([['hist_a', 'off'],
                               ['scatterplot', 'hist_b']],
                             gridspec_kw = gs_kw,
                             figsize = (5.5, 5),
                             layout = 'constrained')

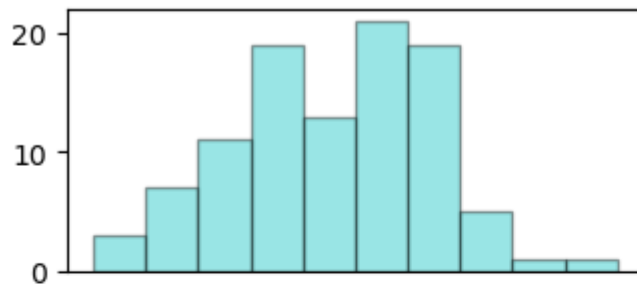
axd['scatterplot'].scatter(test_a, test_b, color = 'pink');
axd['scatterplot'].set_ylabel('Test B score', fontsize = 15)

axd['hist_b'].hist(test_b, color = 'c', edgecolor = 'black', alpha = 0.4, or
axd['hist_b'].set_yticks([])

axd['hist_a'].hist(test_a, color = 'c', edgecolor = 'black', alpha = 0.4);
axd['hist_a'].set_xticks([])

axd['off'].axis('off')
fig.text(0.27, 0.6, 'Test A score', fontsize = 15)
fig.suptitle('Test A vs. Test B', fontsize = 15);
```

Test A vs. Test B



Test A score

