

The deadline for this exercise sheet is **Tuesday, 18.06.2018, 10:00.**

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DISCLAIMER: These are all just suggestions and not necessarily a complete or the best approach to a solution. It just offers hints, general approaches and ideas.

These are also a lot of pages of one-liners.

Crossed Out - Functions

For each of the mathematical functions, create one Python function. The broadcasting of numpy will handle the multiplication with a scalar as well as the power function. This means you kind of just have to write down the math formula in Python and it should work with very little adjustments.

Markers all around - `np.normal`

Next to the center and the standard deviation, you can pass a shape parameter to `np.normal`, which will give you then back a filled ndarray in that shape.

Markers all around - histogram, bins and width

The histogram function `np.hist` takes the parameters `bins`, which can be an integer, which then represents how many bins to use, and `rwidth`, which scales the width of each bar of the histogram with 1 being the full width.

Who is that plot?!

You can use the output from `get_x_y` directly as input to `np.scatter`, and well you should. The function accepts the `s` parameter, which scales the markers of the plot.

Wavy Waves - Reading the plot

From the plot you can read the height and the width of the sine waves. They are called the amplitude and the period, respectively. Using this you can infer the data, that you need to plot those waves.

Wavy Waves - The sine function

When you got the amplitude and the period of the sine waves you can use them in the sine formula like $Amplitude * \sin(period * x)$. The `np.sin` function can apply sine to a whole array.