

# AssignmentTemplate

August 20, 2018

## 1 Template assignment

Your submission should look a bit like this

```
In [1]: %pylab inline
```

Populating the interactive namespace from numpy and matplotlib

```
In [8]: import pandas as pd
import lmfit
```

```
In [4]: def modelFunction(PD, T1, TI):
        your_model_function_goes_here

        def errorFunction(signal, target_signal):
            your_error_function_goes_here

        def costFunction(params, t, target_signal):
            your_cost_function_goes_here
```

```
In [3]: Load the sample signal from your data file
```

```
time = ...
sample_signal = ...
```

```
In [7]: fitParams = lmfit.Parameters()
fitParams.add('PD', min=0, max=10, value=5)
fitParams.add('T1', min=0, max=10, value=5)

result = lmfit.minimize(costFunction, fitParams, args=(time, sample_signal))

PD = result.params['PD'].value
T1 = result.params['T1'].value
print('PD = %.4f'%PD)
print('T1 = %.4f'%T1)
```

```
PD = ?.????  
T1 = ?.????
```

```
In [6]: fitted_signal = modelFunction(PD, T1, time)  
  
plot(time, sample_signal, 'g-', label='True')  
plot(time, fitted_signal, 'r-', label='Fitted')  
  
xlabel('Time')  
legend()
```

```
Out[6]: <matplotlib.legend.Legend at 0x7fba13eb50b8>
```

