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# Intro to Quantitative Literacy

QL 1.1

# Course Learning Outcomes

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By the end of this course, you should be able to...

1. Develop capacities of quantitative reasoning to interpret, analyze, apply, and explain data (information) presented in mathematical forms.
2. Recognize and evaluate assumptions in estimation, modeling, and data analysis.
3. Calculate mathematical problems and communicate quantitative evidence in support of an argument.
4. Apply quantitative reasoning skills using data analysis, probability, and statistics through examples related to current world debates, inquiries, and problems.
5. Gain and act with confidence to work through problems using quantitative reasoning.

# Course Learning Outcomes

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By the end of this course, you should be able to...

1. Spot and sidestep bullshit
2. Fine-tune your BS detector
3. Argue against anti-vaxxers with powerful mathematical tools
4. So many other things!

# Learning Outcomes

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By the end of today, you should be able to...

1. Install Anaconda and Jupyter Notebook for use in this class
2. Familiarize yourself with Jupyter Notebook and how to use it
3. Manipulate some data using Python and Pandas' functions

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# Intro to QL


# Discovering Data (7 mins)

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Download and explore this Titanic dataset:

make.sc/ql-titanic

Variables description

1. Review the dataset on your own and get familiar with it.
2. In groups of 3, discuss what type of information we can obtain from this dataset. Come up with 3-5 questions. Share them in the jam board.

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# Installing DS tools:

- Anaconda
  - Jupyter notebook
  - Pandas

# Install Anaconda

20 Mins

Please follow this tutorial to install Anaconda on your computer:

1. **Installing Anaconda on Mac OS X**
2. Now you should be able to run

   **> mkdir ~/ql**

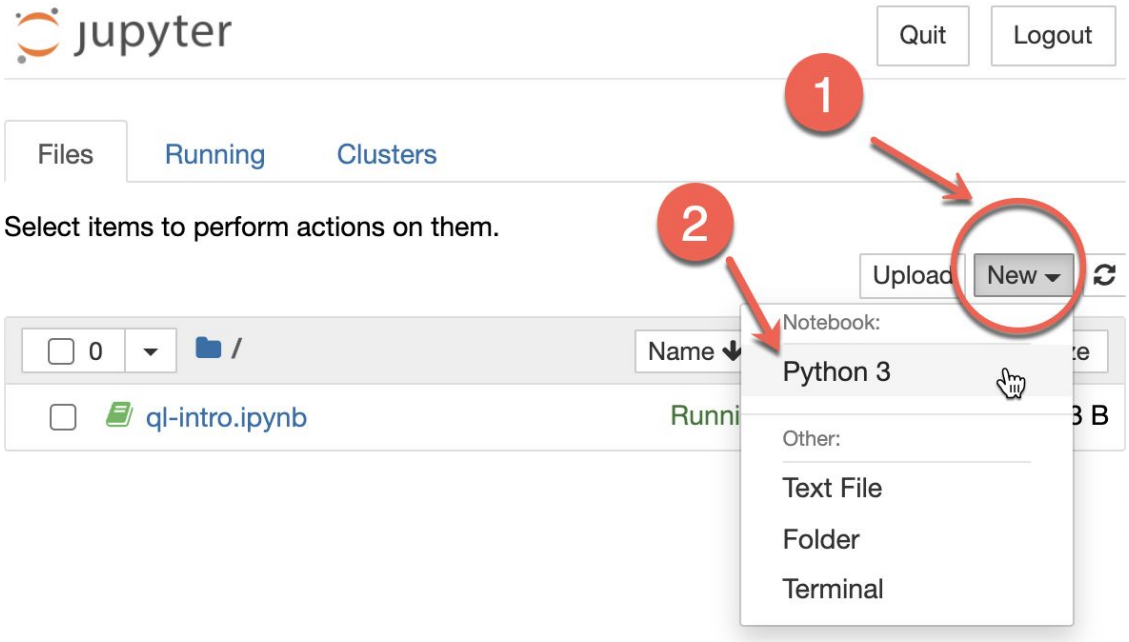
   **> cd ~/ql**

   **> jupyter notebook**

# Setup

Once you navigate to localhost:8888, you would see something similar to this.

Create a new python 3 notebook:



# Teacher Demo (10 mins)

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1. Run some python code in a jupyter notebook.
2. Explain toolbar items.
3. Flow of execution is not always from top to bottom!
4. Add markdown.
5. Tell them important key shortcuts:
    a. To run the current cell ➜ control + return
    b. To add a new cell below ➜ press b
    c. To delete the selected cell ➜ press d

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# Exploring Jupyter Notebook

# Adding Python Code

5 mins

1. Write down a `sum` function in your new Jupyter Notebook:

```
def sum_f(a,b):
  return a + b
print(sum_f(2,3))
```

Now, run the code and see your output

2. Create a new cell above your code cell that you just wrote.
3. Write a description of your function in markdown text in this new cell (e.g. *Returns the sum of two numbers a and b.*)


# Adding an image (2 mins)

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Add an image into your notebook. You need to link it just like you would in HTML:

```
<img src="my-image">
```

or

**![bla-bla](my-image)**

**Note: Don't forget to set it as markdown. Otherwise, you get an error!**

# 10 mins break

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# Use some Data!

# 10 mins

# Titanic - Average Passenger Age

**# Starter code:**

```
import pandas as pd

# read in the CSV
df = pd.read_csv('path/to/titanic.csv')
# create a list of Age values,
# not including N/A values
ls_age = df['Age'].dropna()
```

**What was the average age of passengers on the Titanic?**

We'll use Pandas to help us read in the titanic CSV, then we'll create a list of ages. From there, you will need to find the average value of those ages.

# 10 mins

# Titanic - Gender Percentage

**# Starter code:**

```
import pandas as pd

# read in the CSV
df = pd.read_csv('path/to/titanic.csv')
# create a list of gender values
ls_gender = df['Sex']
```

**What percentage of passengers on the Titanic were female?**

*Note: assume the values in the list are either the strings ‘male’ or ‘female’.*

# Further studies

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1. Intro to Jupyter notebook
2. 10 mins to Pandas
3.

# The End

# References


1. https://fanart.tv/fanart/movies/597/movieposter/titanic-540df993e8052.jpg
2. https://fanart.tv/movie/597/titanic/
3. https://www.kaggle.com/rebordao/sinking-of-the-titanic-from-data-to-insights
4.