Graphing with matplotlib (part 1)

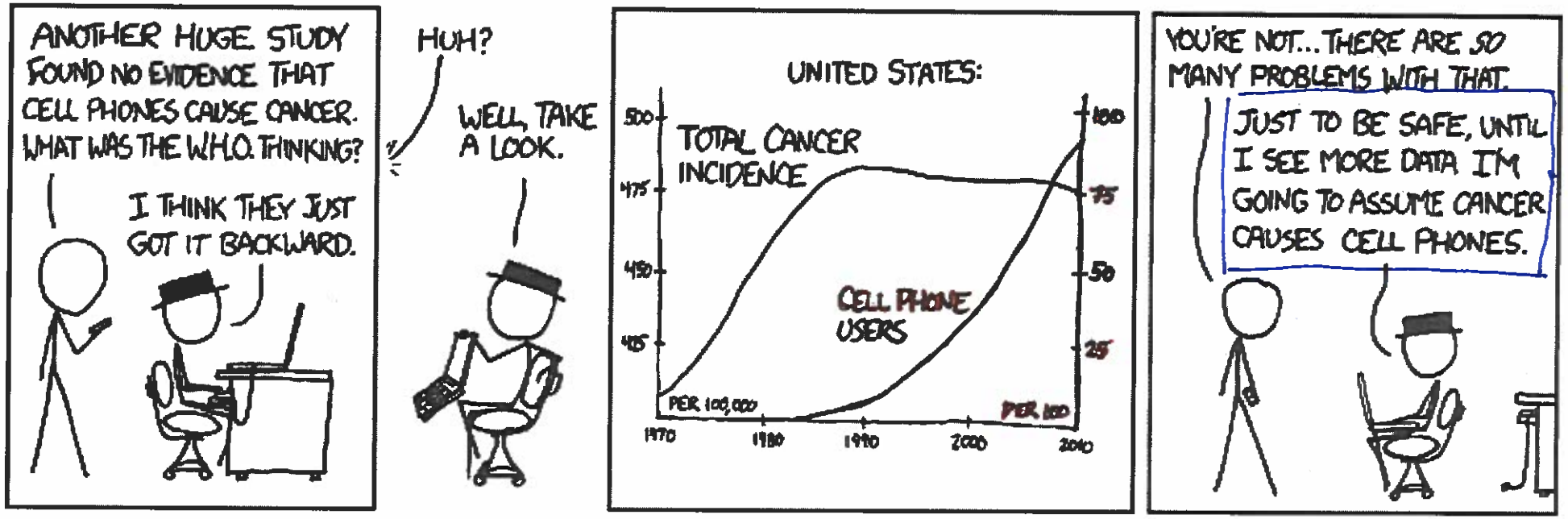
Logistics

29 lecture 17 projects **Quiz 15**	**30** **HW 7**	**31** **lab 10 - data viz projects**	**1**	**2** lecture 18 graphing **Quiz 16**
5 lecture 19 graphing **Quiz 17**	**6** **BTU Lab Open-Hack night 6pm ATLAS 113**	**7** **lab 11 - graphing**	**8** **CP 1**	**9** lecture 20 data viz **Quiz 18**

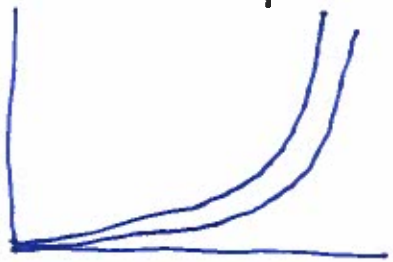
TAM info session 10am ATLAS 208

To-dos: Quiz 17, Data visualization project

Correlation vs. Causation



https://xkcd.com/925/

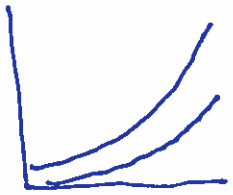


correlated: smoking + alcoholism

causation: smoking + lung cancer

Correlation vs. Causation

- correlation: statistical measure of the size + direction of a relationship between 2 variables.



positive

negative

- causation:

when one event/trend is the result of another one

matplotlib

```
%matplotlib inline
```

#makes your graphs appear in your notebook

```
import matplotlib.pyplot as plt
```

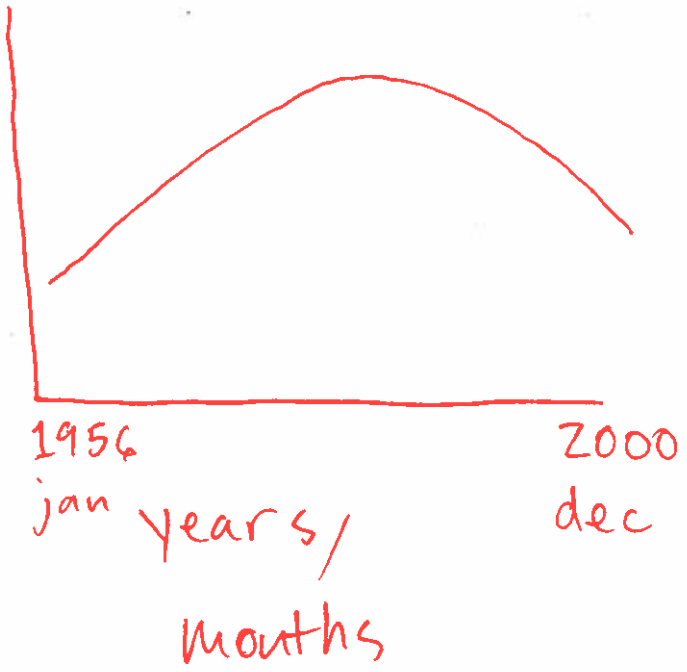
giving the module a nickname

```
# call functions as plt.function(parameters)

# none of the ones you need deal with return values


# 1) graph your data
plt.plot([1,2,3],[10,8,6])
# 2) show your graph
plt.show()
```

see notebook for code examples and explanations of optional parameters

Graphs

Line (timeseries)	Scatter

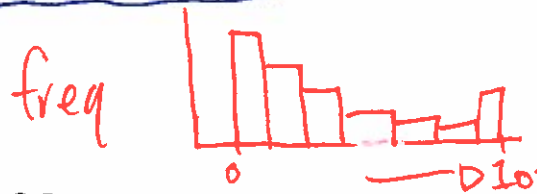


Graphs

Histogram

counting frequency

["CSCI", "ENGR", "CSCI", "ENGR", "ENGR" . . .]



# of bars = bins

Bar

like the line graph