Statistics and Least square fit

FOSSEE

1 Statistics

Dictionary

```
In []: d = {"Hitchhiker's guide" : 42,
 ....:       "Terminator" : "I'll be back"} #Creation
In []: d["Hitchhiker's guide"] # Accessing a value with key
In []: "Hitchhiker's guide" in d #Checking for a key
In []: d.keys() # Obtaining List of Keys
In []: d.values() # Obtaining List of Values
```

Iterating through List indices

```
In []: names = ["Guido","Alex", "Tim"]
In []: for i, name in enumerate(names):
  ...:     print i, name
```

Computing Mean value of 'g'

```
In []: G = []
In []: for line in open('pendulum.txt'):
  ....:     points = line.split()
  ....:     l = float(points[0])
  ....:     t = float(points[1])
  ....:     g = 4 * pi * pi * l / t * t
  ....:     G.append(g)
```

sum() and len() functions

```
total = 0
for g in G:
  total += g
mean_g = total / len(g)

mean_g = sum(G) / len(G)
mean_g = mean(G)
```

Ternary Operator

```
In []: score = int(score_str) if score_str != 'AA' else 0
```

Drawing Pie Charts

```
In []: pie(science.values(), labels=science.keys())
```

Arrays

```
In []: a = array([1, 2, 3]) #Creating
In []: b = array([4, 5, 6])
In []: a + b #Sum; Element-wise
```

Numpy statistical operations

```
In []: mean(math_scores)
In []: median(math_scores)
In []: std(math_scores)
```