Université de Thiès/ UFR: SES & SET ¶

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Master 1 SDA

Membres du Groupe

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Question 1 : Simulation des lois

Entrée [4]:

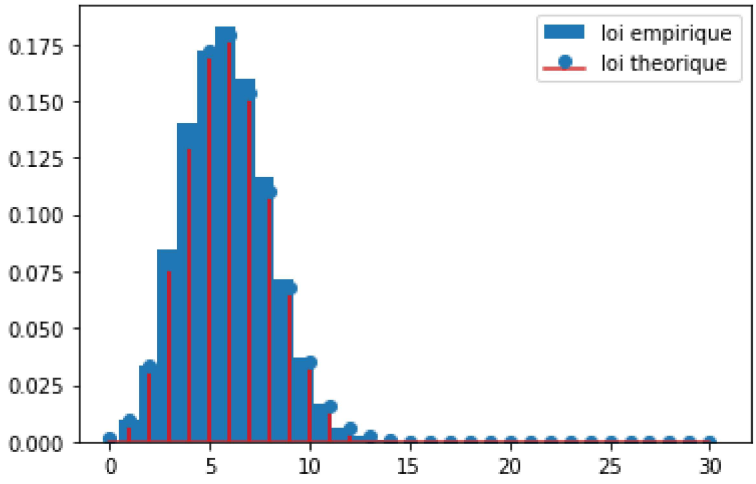
```
import numpy as np
import scipy.stats as sps
import matplotlib.pyplot as plt
```

Loi Binomiale

Entrée [6]:

```
import numpy as np
import scipy.stats as sps
import matplotlib.pyplot as plt
n, p, N = 30, 0.2, 10000
B = np.random.binomial(n, p, N)
f = sps.binom.pmf(np.arange(n+1), n, p)
plt.hist(B,bins=n+1,normed=1,range=(0.5,n+.5),label="loi empirique")
plt.stem(np.arange(n+1),f,"r",label="loi theorique")
plt.legend()
plt.show()
```

```
C:\Users\LENOVO\Anaconda3\lib\site-packages\ipykernel_launcher.py:7: Matplot
libDeprecationWarning:
The 'normed' kwarg was deprecated in Matplotlib 2.1 and will be removed in
3.1. Use 'density' instead.
  import sys
C:\Users\LENOVO\Anaconda3\lib\site-packages\ipykernel_launcher.py:8: UserWar
ning: In Matplotlib 3.3 individual lines on a stem plot will be added as a L
ineCollection instead of individual lines. This significantly improves the p
erformance of a stem plot. To remove this warning and switch to the new beha
viour, set the "use_line_collection" keyword argument to True.
```

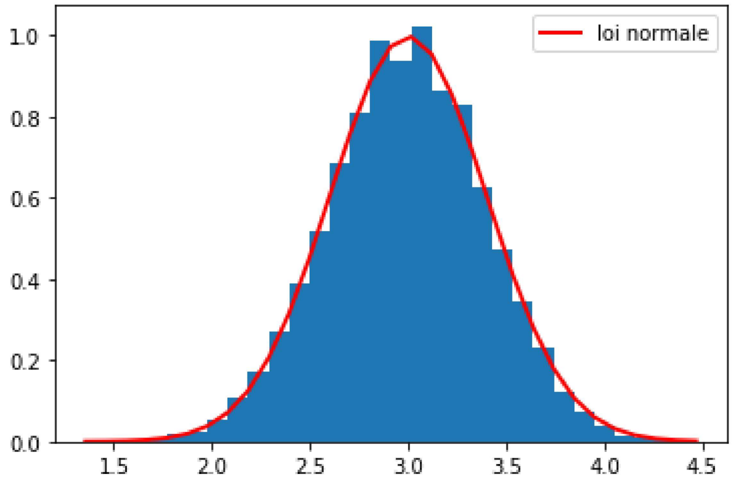


Loi Normale

Entrée [4]:

```
import numpy as np
import matplotlib.pyplot as plt
mu, sigma = 3, .4
s = np.random.normal(mu, sigma, 10000)
count, bins, ignored = plt.hist(s, 30, normed=True)
plt.plot(bins, 1/(sigma * np.sqrt(2 * np.pi)) *np.exp( - (bins - mu)**2 / (2 * sigma**2)),
         linewidth=2, color='r', label ="loi normale")
plt.legend()
plt.show()
```

```
C:\Users\LENOVO\Anaconda3\lib\site-packages\ipykernel_launcher.py:5: Matplot
libDeprecationWarning:
The 'normed' kwarg was deprecated in Matplotlib 2.1 and will be removed in
3.1. Use 'density' instead.
  """
```

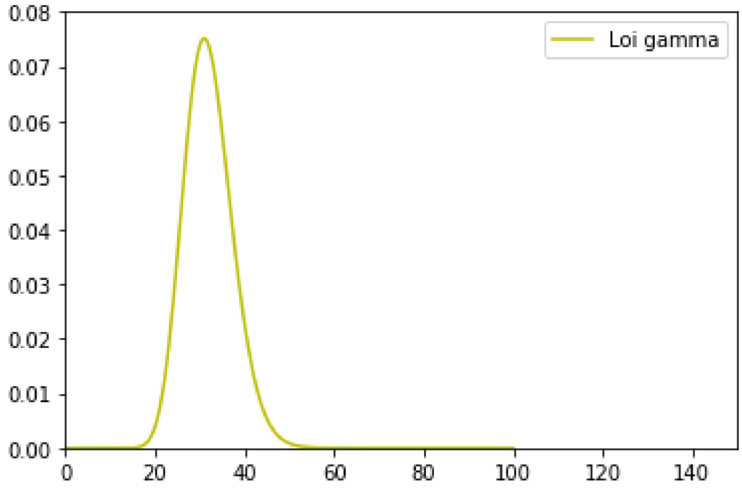


Loi Gamma

Entrée [8]:

```
import scipy.stats as stats
from matplotlib import pyplot as plt
x = np.linspace (0, 100,200)
y1 = stats.gamma.pdf(x, a=29, loc=3)
plt.plot(x, y1, "y-", label=("Loi gamma"))


plt.ylim([0,0.08])
plt.xlim([0,150])
plt.legend()
plt.show()
```


Loi gamma