

Codes du TP 14

```
#Commande plt.bar
```

```
x=np.array([2,4,5,6,7,8,9,10,11,12,13,15,19])  
y=np.array([1,3,2,3,3,4,4,1,2,3,3,3,1])  
plt.bar(x,y)
```

```
#Comparaison fréquence et loi pour chaque v.a. usuelle
```

```
def frequencebern(p,nb):  
    S=np.zeros(2)  
    for k in range(nb):  
        i=rd.binomial(1,p)  
        S[i]=S[i]+1  
    return S/nb
```

```
x=np.arange(0,2)  
y=frequencebern(1/3,1000)  
plt.bar(x,y)
```

```
def frequencebin(n,p,nb):  
    S=np.zeros(n+1)  
    for k in range(nb):  
        i=rd.binomial(n,p)  
        S[i]=S[i]+1  
    return S/nb
```

```
x=np.arange(11)  
y=frequencebin(10,1/3,100000)  
plt.bar(x,y)
```

```
def frequencegeo(p,nb):  
    S=np.zeros(30)  
    for k in range(nb):  
        i=rd.geometric(p)  
        S[i-1]=S[i-1]+1  
    return S/nb
```

```
x=np.arange(0,30)  
y=frequencegeo(1/4,1000)  
plt.bar(x,y)
```

```
def frequencepoi(l,nb):
```

```
    S=np.zeros(10)
```

```
    for k in range(nb):
```

```
        i=rd.poisson(l)
```

```
        S[i]=S[i]+1
```

```
    return S/nb
```

```
x=np.arange(0,10)
```

```
y=frequencepoi(0.8,1000)
```

```
plt.bar(x,y)
```

```
def frequenceuni(n,m,nb):
```

```
    S=np.zeros(m-n+1)
```

```
    for k in range(nb):
```

```
        i=rd.randint(n,m+1)
```

```
        S[i-n]=S[i-n]+1
```

```
    return S/nb
```

```
x=np.arange(10,21,1)
```

```
y=frequenceuni(10,20,1000)
```

```
plt.bar(x,y)
```

```
#Comparaison loi binomiale et Poisson
```

```
U1=np.arange(0,10)
```

```
Upoi=frequencepoi(1,10000)
```

```
plt.bar(U1,Upoi)
```

```
U2=np.arange(21)
```

```
Ubin=frequencebin(20,1/20,100000)
```

```
plt.bar(U2,Ubin)
```