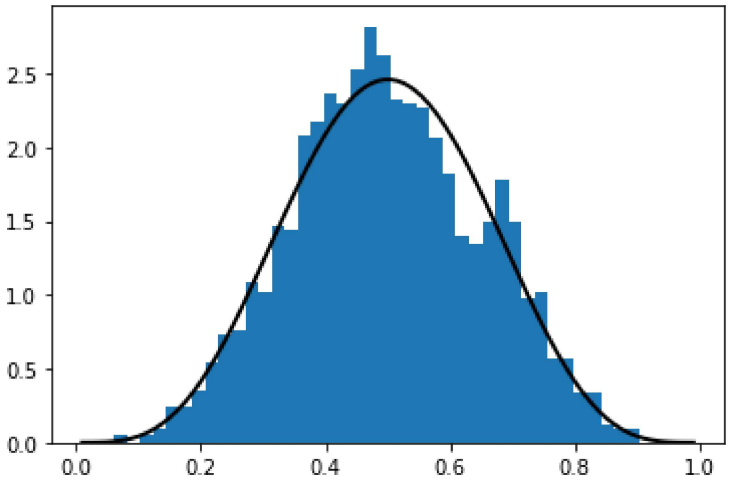
In [7]:
```
# Python 科学生态基础，Numpy，SciPy以及matplotlib的使用以及交互
# 使用其绘制一个直方图
import numpy as np
from scipy.stats import beta
from matplotlib.pyplot import hist, plot, show

obs = beta.rvs(5, 5, size=2000)  # 2000 observations
print(type(obs))
hist(obs, bins=40, density=True)
grid = np.linspace(0.01, 0.99, 100)
plot(grid, beta.pdf(grid, 5, 5), 'k-', linewidth=2)
show()
```

```
<class 'numpy.ndarray'>
```

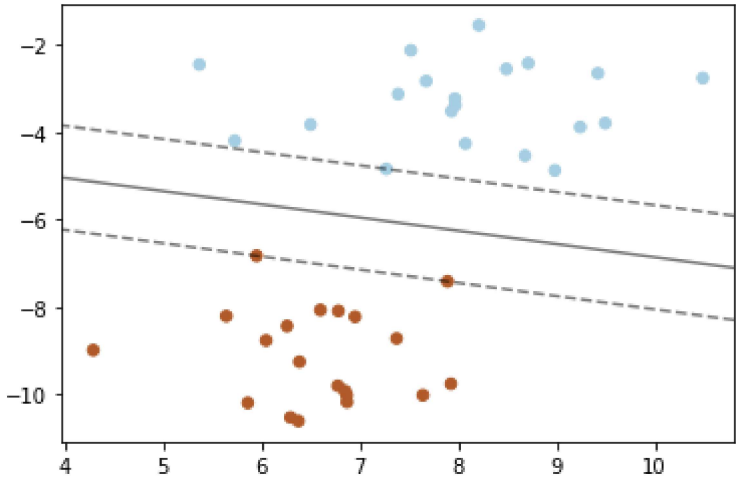



In [17]:
```
# 在Python科学生态基础上构建的专有技术库，以Numpy的array data为主要数据结构
# 更高层的领域特定项目和应用特定项目需针对特定科学领域
# 且主要展示numpy数据结构在各个科学库之间的传递，体现其在Python
# 科学生态中的地位
import numpy as np
import matplotlib.pyplot as plt
from sklearn import svm
from sklearn.datasets import make_blobs

# 生成数据
x, y = make_blobs(n_samples=40, centers=2, random_state=6)
plt.scatter(x[:,0],x[:,1],c=y,s=30,cmap=plt.cm.Paired)

#选择kernel
clf=svm.SVC(kernel='linear', C=1000)
# 训练
clf.fit(x,y)
#plot hyperplane
ax=plt.gca()
xlim=ax.get_xlim()
ylim=ax.get_ylim()
xx=np.linspace(xlim[0],xlim[1],30)
yy=np.linspace(ylim[0],ylim[1],30)
XX,YY=np.meshgrid(xx,yy)
xy = np.vstack([XX.ravel(),YY.ravel()]).T #vstack垂直方向
Z=clf.decision_function(xy).reshape(XX.shape)
ax.contour(XX,YY,Z, colors='k',levels=[-1,0,1],alpha=0.5,linestyles=['--','-','--'])
```

Out[17]: <matplotlib.contour.QuadContourSet at 0x7f1b44913ad0>




In [ ]: