Astro-Session-6

October 16, 2018

In [ ]:
```
import numpy as np
import matplotlib.pyplot as plt
% matplotlib inline

x = np.arange(0, 5, 0.1)
y = np.sin(x)

plt.plot(x,y)
plt.xlabel('x')
plt.ylabel('sin(x)')
plt.show()
plt.savefig('sinx.png',bbox_inches="tight",dpi=600)
```

In [ ]:
```
import numpy as np
import matplotlib.pyplot as plt
% matplotlib inline

x = np.linspace(0, 2*np.pi, 100)
print(x[-1], 2*np.pi)

y = np.sin(x)
z = np.cos(x)
w = np.sin(4*x)
v = np.cos(4*x)
```

In [ ]:
```
f, axarr = plt.subplots(1, 2)

axarr[0].plot(x,y)
axarr[0].set_xlabel('x')
axarr[0].set_ylabel('sin(x)')
axarr[0].set_title(r'$\sin(x)$')

axarr[1].plot(x, z)
axarr[1].set_xlabel('x')
axarr[1].set_ylabel('cos(x)')
axarr[1].set_title(r'$\cos(x)$')
```

In [ ]:
```
f, axarr = plt.subplots(1, 2)
```

```
        axarr[0].plot(x,y)
        axarr[0].set_xlabel('x')
        axarr[0].set_ylabel('sin(x)')
        axarr[0].set_title(r'$\sin(x)$')

        axarr[1].plot(x, z)
        axarr[1].set_xlabel('x')
        axarr[1].set_ylabel('cos(x)')
        axarr[1].set_title(r'$\cos(x)$')

        f.subplots_adjust(wspace=0.4)
```

In [ ]:
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f, axarr = plt.subplots(1, 2)

        axarr[0].plot(x,y)
        axarr[0].set_xlabel('x')
        axarr[0].set_ylabel('sin(x)')
        axarr[0].set_title(r'$\sin(x)$')

        axarr[1].plot(x, z)
        axarr[1].set_xlabel('x')
        axarr[1].set_ylabel('cos(x)')
        axarr[1].set_title(r'$\cos(x)$')

        f.subplots_adjust(wspace=0.4)

        axarr[0].set_aspect('equal')
        axarr[1].set_aspect(np.pi)
```

In [ ]:
```
import numpy as np
        import matplotlib.pyplot as plt
        % matplotlib inline


        fig = plt.figure()

        plt.plot(x, y, label=r'$y = \sin(x)$')
        plt.plot(x, z, label=r'$y = \cos(x)$')
        plt.plot(x, w, label=r'$y = \sin(4*x)$')
        plt.plot(x, v, label=r'$y = \cos(4*x)$')

        plt.xlabel(r'$x$')
        plt.ylabel(r'$y(x)$')
        plt.xlim(0, 2*np.pi)
        plt.ylim(-1.2, 1.2)
        plt.legend(loc=1, framealpha=0.95)

        plt.gca().set_aspect(np.pi/1.2)
```

In [ ]:
```
import numpy as np
import matplotlib.pyplot as plt
% matplotlib inline

np.random.seed(119)

npoints = 50

x = np.linspace(0,10.,npoints)

m = 2.0
b = 1.0
sigma = 2.0

y = m*x + b + np.random.normal(scale=sigma,size=npoints)

f = plt.figure()
plt.errorbar(x,y,sigma,fmt='o')
plt.xlabel('x')
plt.ylabel('y')
```

In [ ]:
```
m_fit, b_fit = np.poly1d(np.polyfit(x, y, 1, w=1./y_err))
print(m_fit, b_fit)

y_fit = m_fit * x + b_fit
```

In [ ]: