

The Matplotlib User's Guide

John Hunter

December 11, 2004

2.10 Spectral analysis	36
2.11 Axes properties	38
2.12 Legends and tables	38
2.13 Navigation	38
2.13.1 Classic toolbar	38
2.13.2 toolbar2	39
2.14 Event handling	39

Chapter 1

Introduction


```
dt = 0.01
t = arange(0,10,dt)
nse = randn(len(t))
r = exp(-t/0.05)

cnse = conv(nse, r) dt
chsq.0= cnse

dt = 0.01;
t = [0:dt:10];
nse = randn(size(t));
r = exp(-t/0.05);

cnse = conv(nse, r) dt;
```


IDE	GUI	Backends and Options
idle	Tkinter	Works best with TkAgg if idle is launched with -n
pycrust	WX	Works best with WX/WXAgg
Scintilla and SciTE	GTK	

```
/home/jdhunter/python/projects/matplotlib/examples  
>>> run simple_plot.py  
>>> title('a new title', color='r')
```

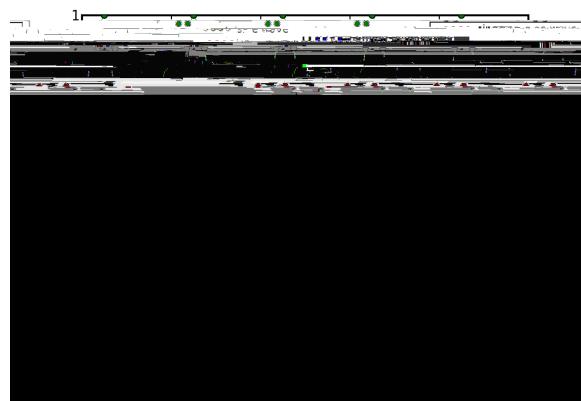



Figure 2.4:

```
>>> lines = plot(t, s1)
>>> set(lines, markersize=15, marker='d', \
...      markerfacecolor='g', markeredgecolor='r')
```



```
title(
```

2.4.2 Loading and saving binary data

ASCII is bloated and slow for working with large arrays, and so binary data should be used if performance

or use set for the same purpose

```
>>> set(fig, facecolor='#233.26f.e)-5e)-23(r)-3211. #e5.00fme)-bpese
```

```
ylabel('Undamped')
```

Likewise, to create two columns and one row of axes, you would use subplot(121) to create the left and subplot(122) to create the right axes. If the total number of axes exceeds single digits, use concatenated separated arguments to subplot. For example, the lower right panel of a 3 x 4 grid of axes is created with subplot(3, 4, 12). matplotlib uses matlab style indexing in creating figures and axes, so subplot(3, 4, 12) is the first subplot, not subplot(3, 4, 0).

2.5.3 axes


```
# instance
```

2.6. TEXT

- `mlab.wi ndow_none` - no windowing
- `mlab.wi ndow_hannin g`

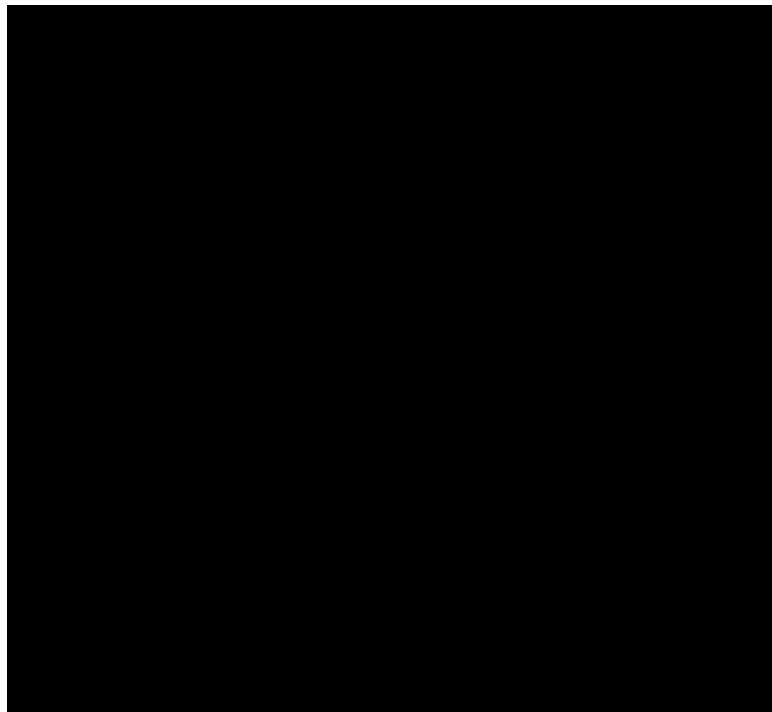


Figure 2.15:


```
family = ['serif', 'sans-serif', 'cursive', 'fantasy',
```

Chapter 4

Collections

Chapter 5

Tick locators and formatters

The `matplotlib.lib.ticker`

5.4. EXAMPLE 2: DATE TICKING


```
# but we'll override the default with our custom locators and  
# formatters  
ax.xaxis.set_major_
```


Listing 6.1: Fill the area between two curves; see Figure 6.1

```
from pylab import
x1 = arange(0, 2, 0.01)
y1 = sin(2 pi x1)
y2 = sin(4 pi x1) + 2
# reverse x and y2 so the polygon fills
```

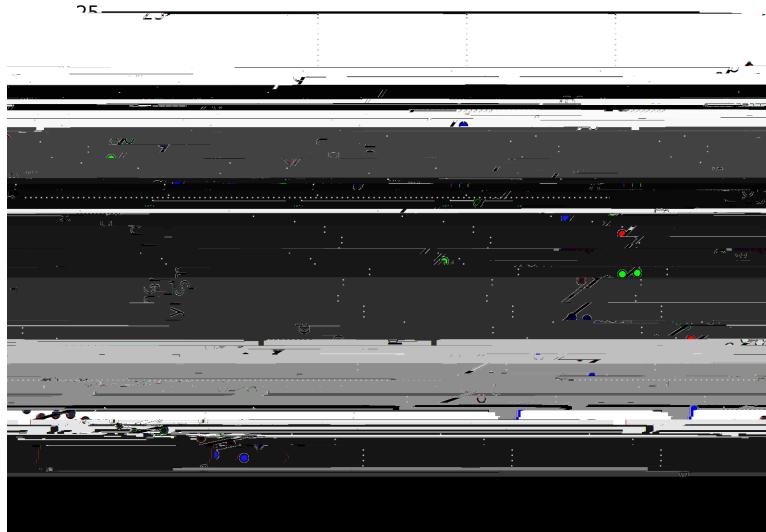



Figure 6.3: Estimating a best fit cubic for some random data; see Listing 6.3

```
x = arange(0.0, 2.0, 0.05)
```



```
im1 = imshow(Z1, cmap=cm.gray,
             interpolation='nearest', extent=extent)

# prevents the axes from clearing on next command
hold(True)

Z2 = func3(X, Y)
im2 =
```

6.4.4 Defining your own colormap

Per9y G9eenfield has provided a nice f9amework withmatplotlib's colors. Li nearSegmentedCol ormap

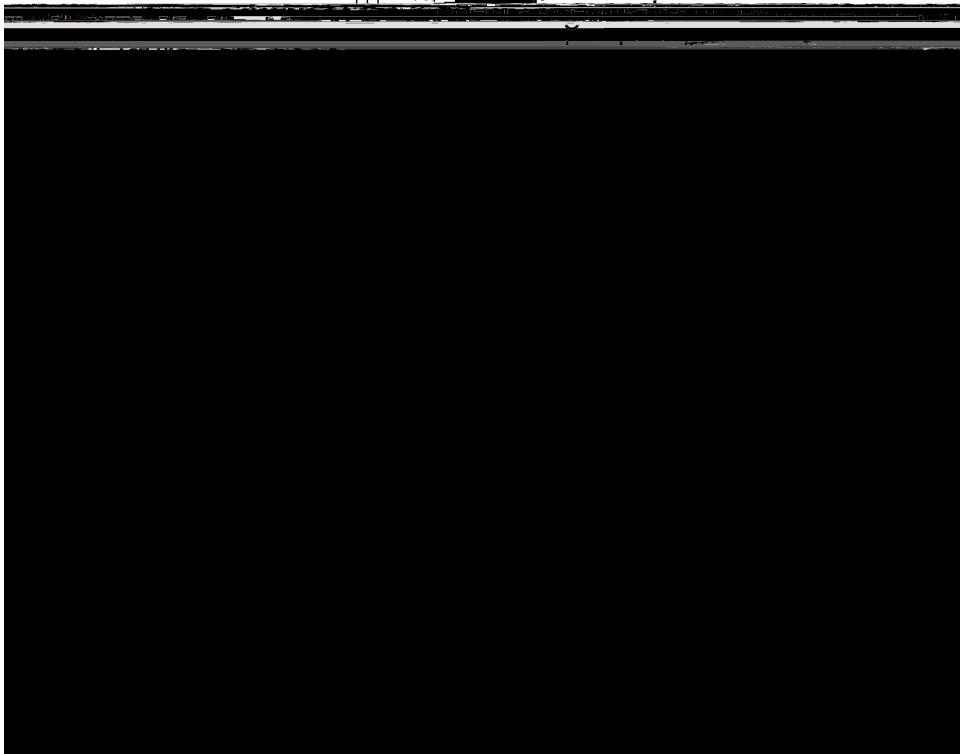


Figure 7.2: The inheritance diagram for The FigureCanvas hierarchy. The FigureCanvas is a backend
ediei-11T89(a)-008GUIrwe\$om(e)-008ofrtheave(c-27(k)28(ndi)1(s)-008we)-1inbpothrnrnvedra(n)1(d)400(a(n29(tigrain)1nd)]TJ

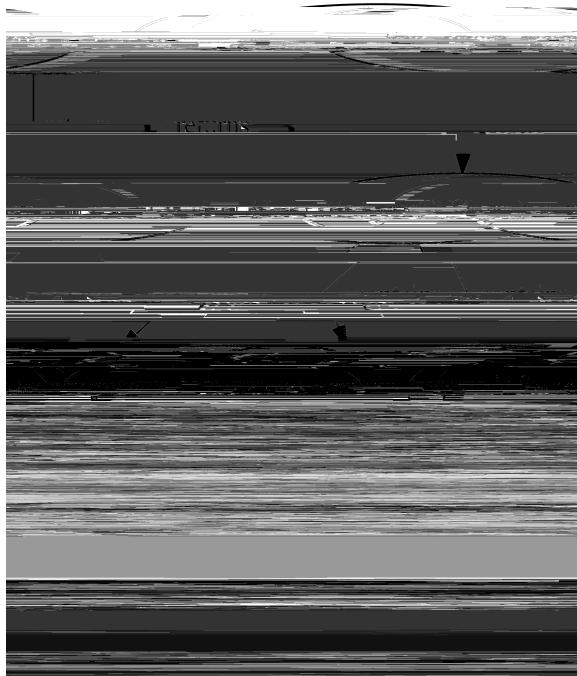


Figure 7.5: The pylab interface function new_

```
manager.window.show()  
if gtk.main_level() == 0 and
```


Appendix A

A sample .matplotlibrc

```
####
```

```
lines.markeredgecolor : 'black'  
lines.markersize : 6 # markersize,
```

```
font.stretch      : normal  
font.size        : medium  
font.serif       : New Century Schoolbook, Century Schoolbook L, Utopia, ITC
```

```
### SAVING FIGURES
# the
```


Appendix C

matplotlib source code license

All of the matplotlib src code is distributed under the Python Software Foundation (PSF) license, which permits commercial and noncommercial free use and redistribution as long as the conditions below are met. The VERSION string below is replaced by the current matplotlib version number with each release.

LICENSE AGREEMENT FOR MATPLOTLIB(of)-4nwi th eacB(of)-4nnnreac23. 91Td[(
matpl otl ib i n sourc eacB(of)-4documentati on.eac23. 91Td[(2. (of)-4Subject)-fs Agreement, JDleacB(of)-4hereby
majDtest-faceacB(of)-4I nrheru eacB(of)-4nnanti onvefeacB(of)-4nncense Agreement, eacB(of)-4nn2002-2004fofe

THE POSSIBILITY THEREOF.

6. This License Agreement will automatically terminate upon a material breach of its terms and conditions.

7. Nothing in this License Agreement shall be deemed to create any relationship of agency, partnership, or joint venture between JDH and Licensee. This License Agreement does not grant permission to use JDH trademarks or trade name in a trademark sense to endorse or promote products or services of Licensee, or any third party.

