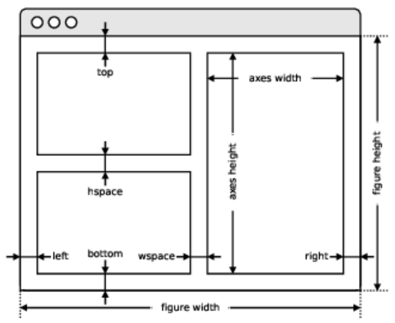
Axes adjustments

API

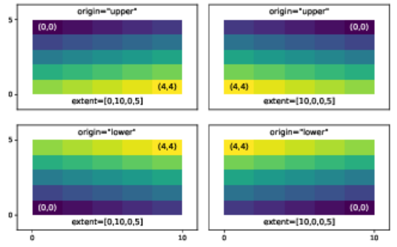
plt.subplots_adjust(...)



Extent & origin

API

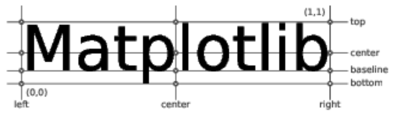
ax.imshow(extent=..., origin=...)



Text alignments

API

ax.text(..., ha=... , va=..., ...)



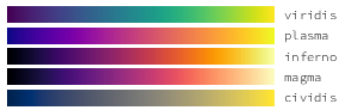
Text parameters

API

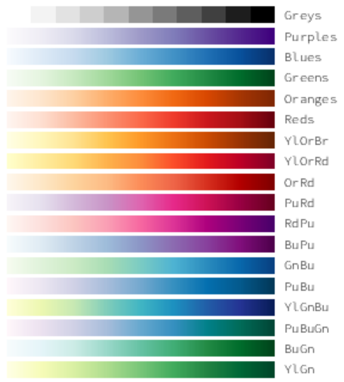
ax.text(..., family=..., size=..., weight=...)
ax.text(..., fontproperties=...)

The quick brown fox	xx-large (1.73)
The quick brown fox	x-large (1.44)
The quick brown fox	large (1.20)
The quick brown fox	medium (1.00)
The quick brown fox	small (0.83)
The quick brown fox	x-small (0.69)
The quick brown fox	xx-small (0.58)
The quick brown fox jumps over the lazy dog	black (900)
The quick brown fox jumps over the lazy dog	bold (700)
The quick brown fox jumps over the lazy dog	semibold (600)
The quick brown fox jumps over the lazy dog	normal (400)
The quick brown fox jumps over the lazy dog	ultralight (100)
`The quick brown fox jumps over the lazy dog`	monospace
The quick brown fox jumps over the lazy dog	serif
The quick brown fox jumps over the lazy dog	sans
The quick brown fox jumps over the lazy dog	cursive
The quick brown fox jumps over the lazy dog	italic
The quick brown fox jumps over the lazy dog	normal
THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG	small-caps

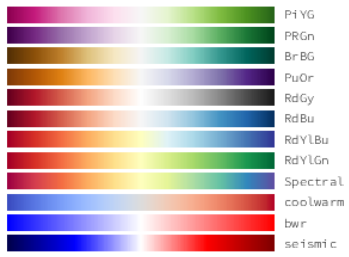
Uniform colormaps



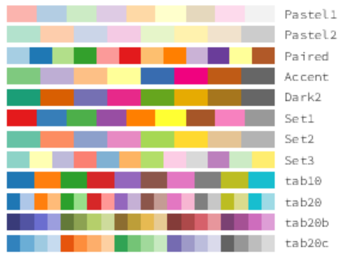
Sequential colormaps



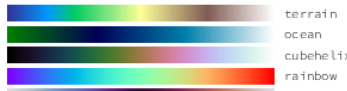
Diverging colormaps



Qualitative colormaps



Miscellaneous colormaps



Color names

API

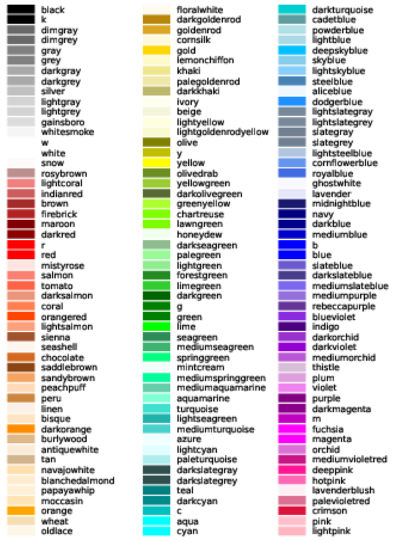
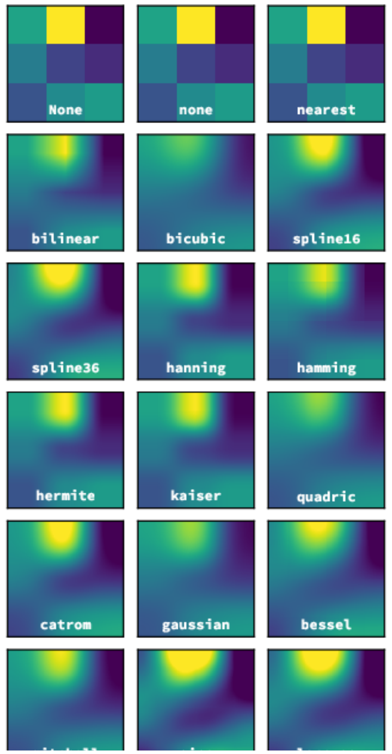
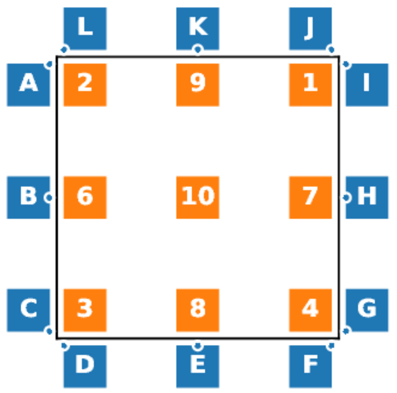


Image interpolation

API



Legend placement



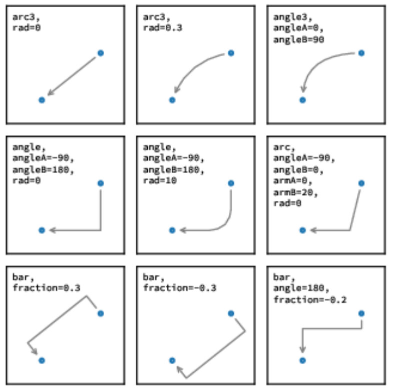
ax.legend(loc="string", bbox_to_anchor=(x,y))

2: upper left	9: upper center	1: upper right
6: center left	10: center	7: center right
3: lower left	8: lower center	4: lower right

A: upper right / `(-0.1,0.9)`	B: center right / `(-0.1,0.5)`
C: lower right / `(-0.1,0.1)`	D: upper left / `(0.1,-0.1)`
E: upper center / `(0.5,-0.1)`	F: upper right / `(0.9,-0.1)`
G: lower left / `(1.1,0.1)`	H: center left / `(1.1,0.5)`
I: upper left / `(1.1,0.9)`	J: lower right / `(0.9,1.1)`
K: lower center / `(0.5,1.1)`	L: lower left / `(0.1,1.1)`

Annotation connection styles

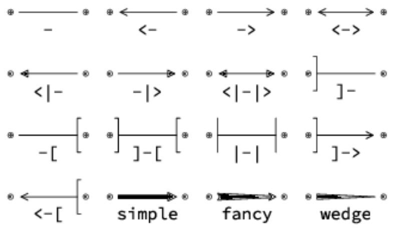
API



arc3, rad=0
arc3, rad=0.3
angle3, angleA=0, angleB=90
angle, angleA=-90, angleB=180, rad=0
angle, angleA=-90, angleB=180, rad=10
arc, angleA=-90, angleB=0, armA=0, armB=20, rad=0
bar, fraction=0.3
bar, fraction=-0.3
bar, angle=180, fraction=-0.2

Annotation arrow styles

API



How do I ...

... resize a figure?
→ fig.set_size_inches(w, h)
... save a figure?
→ fig.savefig("figure.pdf")
... save a transparent figure?
→ fig.savefig("figure.pdf", transparent=True)
... clear a figure/an axes?
→ fig.clear() → ax.clear()
... close all figures?
→ plt.close("all")
... remove ticks?
→ ax.set_[xy]ticks([])
... remove tick labels ?
→ ax.set_[xy]ticklabels([])
... rotate tick labels ?
→ ax.tick_params(axis="x", rotation=90)
... hide top spine?
→ ax.spines['top'].set_visible(False)
... hide legend border?
→ ax.legend(frameon=False)
... show error as shaded region?
→ ax.fill_between(X, Y+error, Y-error)
... draw a rectangle?
→ ax.add_patch(plt.Rectangle((0, 0), 1, 1)
... draw a vertical line?
→ ax.axvline(x=0.5)
... draw outside frame?
→ ax.plot(..., clip_on=False)
... use transparency?
→ ax.plot(..., alpha=0.25)
... convert an RGB image into a gray image?
→ gray = 0.2989*R + 0.5870*G + 0.1140*B
... set figure background color?
→ fig.patch.set_facecolor("grey")
... get a reversed colormap?
→ plt.get_cmap("viridis_r")
... get a discrete colormap?
→ plt.get_cmap("viridis", 10)
... show a figure for one second?
→ fig.show(block=False), time.sleep(1)

Performance tips

```
scatter(X, Y)                                slow
plot(X, Y, marker="o", ls="")                fast
for i in range(n): plot(X[i])                slow
plot(sum([x+[None] for x in X],[]))          fast
cla(), imshow(…), canvas.draw()              slow
im.set_data(…), canvas.draw()                fast
```

Beyond Matplotlib

Seaborn: Statistical data visualization
Cartopy: Geospatial data processing
yt: Volumetric data visualization
mpld3: Bringing Matplotlib to the browser
Datashader: Large data processing pipeline
plotnine: A grammar of graphics for Python

NUMFOCUS
OPEN CODE = BETTER SCIENCE

The quick brown fox jumps over the lazy dog
normal
twilight
mitchell
sinc
lanczos
OPEN CODE = BETTER SCIENCE