



Axes adjustments

API

Uniform colormaps

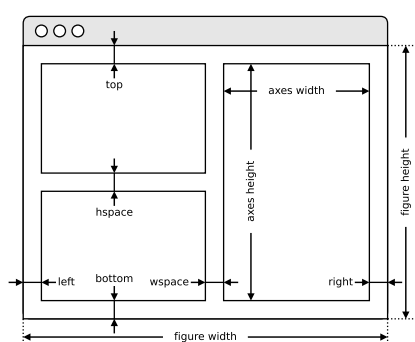
Color names

API

Legend placement

How do I ...

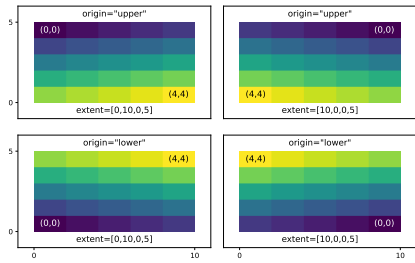
plt.subplots\_adjust(...)



Extent & origin

API

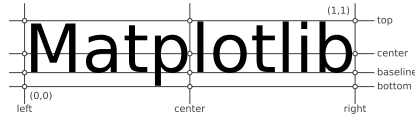
ax.imshow(extent=..., origin=...)



Text alignments

API

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



Text parameters

API

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

ax.text(..., fontproperties=...)

The quick brown fox jumps over the lazy dog

xx-large (1.73)

x-large (1.44)

large (1.20)

medium (1.00)

small (0.83)

x-small (0.69)

xx-small (0.58)

black (900)

bold (700)

semibold (600)

normal (400)

ultralight (100)

monospace

serif

sans

curative

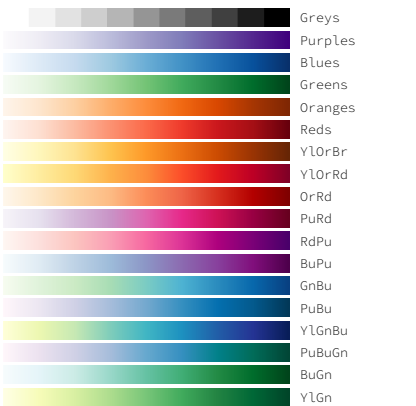
italic

normal

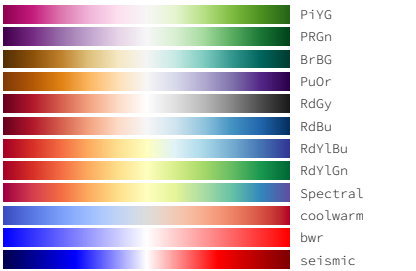
small-caps

normal

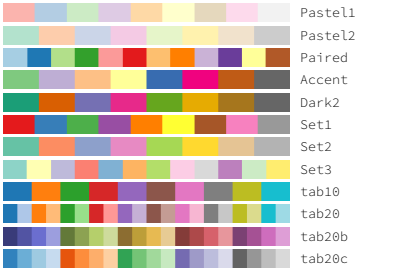
Sequential colormaps



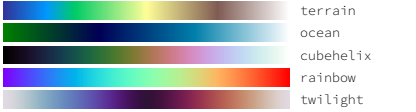
Diverging colormaps



Qualitative colormaps



Miscellaneous colormaps



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



Annotation arrow styles

API



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)

plot(X, Y, marker="o", ls="")

slow

fast

for i in range(n): plot(X[i])

slow

fast

plot(sum([x+[None] for x in X], []))

fast

cla(), imshow(...), canvas.draw()

slow

fast

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

Matplotlib Cheatsheets

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NUMFOCUS

OPEN CODE = BETTER SCIENCE