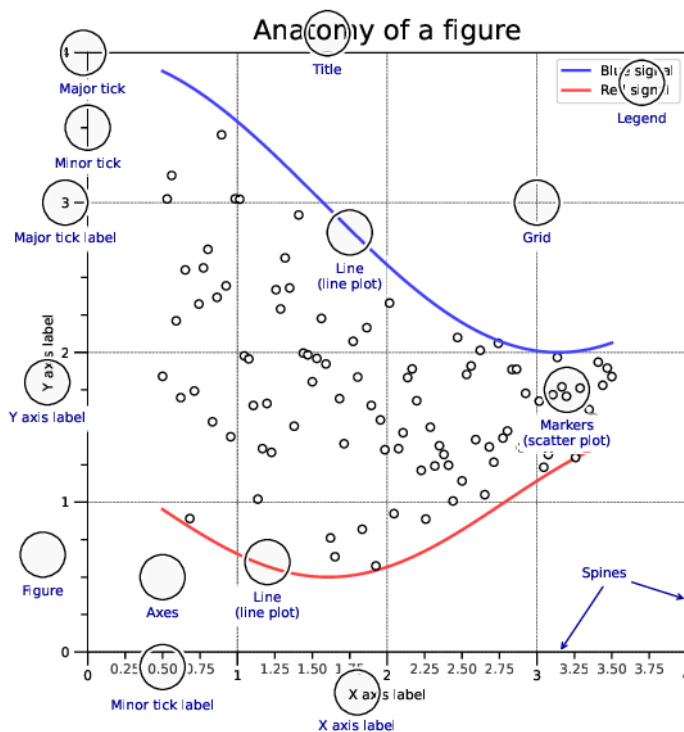


Matplotlib for intermediate users

A matplotlib figure is composed of a hierarchy of elements that forms the actual figure. Each element can be modified.



Figure, axes & spines

```
fig, axs = plt.subplots(3, 3)
axs[0, 0].set_facecolor("#dddfdf")
axs[2, 2].set_facecolor("#ffffdd")
```



```
gs = fig.add_gridspec(3, 3)
ax = fig.add_subplot(gs[0, :])
ax.set_facecolor("#dddfdf")
```

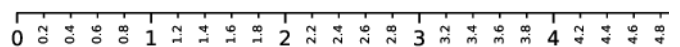


```
fig, ax = plt.subplots()
ax.spines["top"].set_color("None")
ax.spines["right"].set_color("None")
```



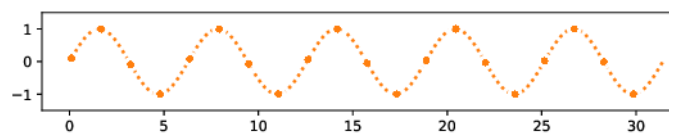
Ticks & labels

```
from mpl.ticker import MultipleLocator as ML
from mpl.ticker import ScalarFormatter as SF
ax.xaxis.set_minor_locator(ML(0.2))
ax.xaxis.set_minor_formatter(SF())
ax.tick_params(axis='x', which='minor', rotation=90)
```



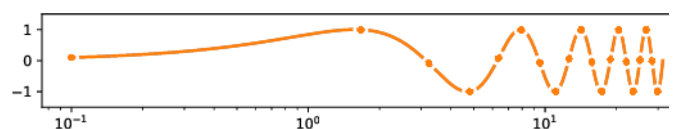
Lines & markers

```
X = np.linspace(0.1, 10*np.pi, 1000)
Y = np.sin(X)
ax.plot(X, Y, "C1o:", markevery=25, mec="1.0")
```



Scales & projections

```
fig, ax = plt.subplots()
ax.set_xscale("log")
ax.plot(X, Y, "C1o-", markevery=25, mec="1.0")
```



Text & ornaments

```
ax.fill_betweenx([-1, 1], [0], [2*np.pi])
ax.text(0, -1, r"Period $\Phi$")
```

