
af_utils

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mpl_bsic

mpl_bsic helps you style matplotlib plots in BSIC style.

`mpl_bsic` helps you style matplotlib plots in BSIC style.

1.1 Guidelines

Plotting Yield Curves

When plotting yield curves, to make the x ticks the same distance regardless of time:

```
data.index = data.index.astype(str)
```

Saving the figure

When saving the figure, you should use `bbox_inches='tight'` to make sure the figure is not cropped.

```
fig, ax = plt.subplots(1,1)

... # plot your data and apply the style

fig.savefig("your_filename.svg", dpi=1200, bbox_inches="tight")
```

1.2 Module Components

Module Attributes

<code>DEFAULT_TITLE_STYLE</code>	Default Title Style.
<code>DEFAULT_COLOR_CYCLE</code>	Default Color Style.
<code>DEFAULT_FONT_SIZE</code>	Default Font Size for the plot (text, labels, ticks).
<code>BSIC_FONT_FAMILY</code>	Default Font Family for the plot (text, labels, ticks).

1.3 `mpl_bsic.DEFAULT_TITLE_STYLE`

```
mpl_bsic.DEFAULT_TITLE_STYLE = {'color': 'black', 'fontname': 'Gill Sans MT', 'fontsize': 12, 'fontstyle': 'italic', 'fontweight': 'bold'}
```

Default Title Style. Used in `apply_BSIC_style`.

Details:

- `fontname`: Gill Sans MT
- `color`: black
- `fontweight`: bold
- `fontstyle`: italic
- `fontsize`: 12

See also:

[`mpl_bsic.apply_BSIC_style`](#)

The function that applies the style to the plot.

[`mpl_bsic.DEFAULT_COLOR_CYCLE`](#)

The default color cyler that gets applied to the plot.

[`mpl_bsic.DEFAULT_FONT_SIZE`](#)

The default font size that gets applied to the plot.

Examples

This is the examples section. WIP.

1.4 `mpl_bsic.DEFAULT_COLOR_CYCLE`

```
mpl_bsic.DEFAULT_COLOR_CYCLE = cycler('color', ['#38329A', '#8EC6FF', '#601E66', '#2F2984', '#0E0B54'])
```

Default Color Style.

Cycle:

- #38329A
- #8EC6FF
- #601E66
- #2F2984
- #0E0B54

See also:

[`mpl_bsic.apply_BSIC_style`](#)

The function that applies the style to the plot.

[`mpl_bsic.DEFAULT_TITLE_STYLE`](#)

The default title style that gets applied to the plot.

mpl_bsic.DEFAULT_FONT_SIZE

The default font size that gets applied to the plot.

Examples

This is the examples section. WIP.

1.5 mpl_bsic.DEFAULT_FONT_SIZE

mpl_bsic.DEFAULT_FONT_SIZE = 10

Default Font Size for the plot (text, labels, ticks).

The default font size used for the plots is 10.

See also:

mpl_bsic.apply_BSIC_style

The function that applies the style to the plot.

mpl_bsic.DEFAULT_TITLE_STYLE

The default title style that gets applied to the plot.

mpl_bsic.DEFAULT_COLOR_CYCLE

The default color cycler that gets applied to the plot.

Examples

This is the examples section. WIP.

1.6 mpl_bsic.BSIC_FONT_FAMILY

mpl_bsic.BSIC_FONT_FAMILY = 'Garamond'

Default Font Family for the plot (text, labels, ticks).

The default font family used for the plots is Garamond.

See also:

mpl_bsic.apply_BSIC_style

The function that applies the style to the plot.

mpl_bsic.DEFAULT_TITLE_STYLE

The default title style that gets applied to the plot.

mpl_bsic.DEFAULT_FONT_SIZE

The default font size that gets applied to the plot.

Examples

This is the examples section. WIP.

Functions

<code>apply_BSIC_style(fig, ax[, title])</code>	Apply the BSIC Style to an existing matplotlib plot.
<code>check_figsize(width, height, aspect_ratio)</code>	Check the validity of the figsize.
<code>format_timeseries_axis(ax, time_unit, freq, fmt)</code>	Format the x-axis of a timeseries plot.
<code>preprocess_dataframe(df)</code>	Handle and preprocess the DataFrame before plotting.

1.7 mpl_bsic.apply_BSIC_style

`mpl_bsic.apply_BSIC_style(fig: Figure, ax: Axes, title: str | None = None)`

Apply the BSIC Style to an existing matplotlib plot.

Apply the BSIC Style to the plot. First, it sets the font family and size for the overall plot and the color cycle to use. Then, if the plot has a title, then it applies the default title style.

Should be called *before* plotting, to make sure the right color cycle gets applied.

Warning: if you want to specify and set a title to the plot, you can either set it before or give it to the function. Otherwise, the correct style won't be applied. This is forced by matplotlib and must be done to make sure the function works.

Parameters

fig

[`matplotlib.figure.Figure`] Matplotlib Figure instance.

ax

[`matplotlib.axes.Axes`] Matplotlib Axes instance.

title

[`str` | `None`] Title of the plot. If `None`, it will try to get the title from the Axes instance.

See also:

`mpl_bsic.DEFAULT_TITLE_STYLE`

The default title style that gets applied to the plot.

`mpl_bsic.DEFAULT_COLOR_CYCLE`

The default color cycler that gets applied to the plot.

`mpl_bsic.DEFAULT_FONT_SIZE`

The default font size that gets applied to the plot.

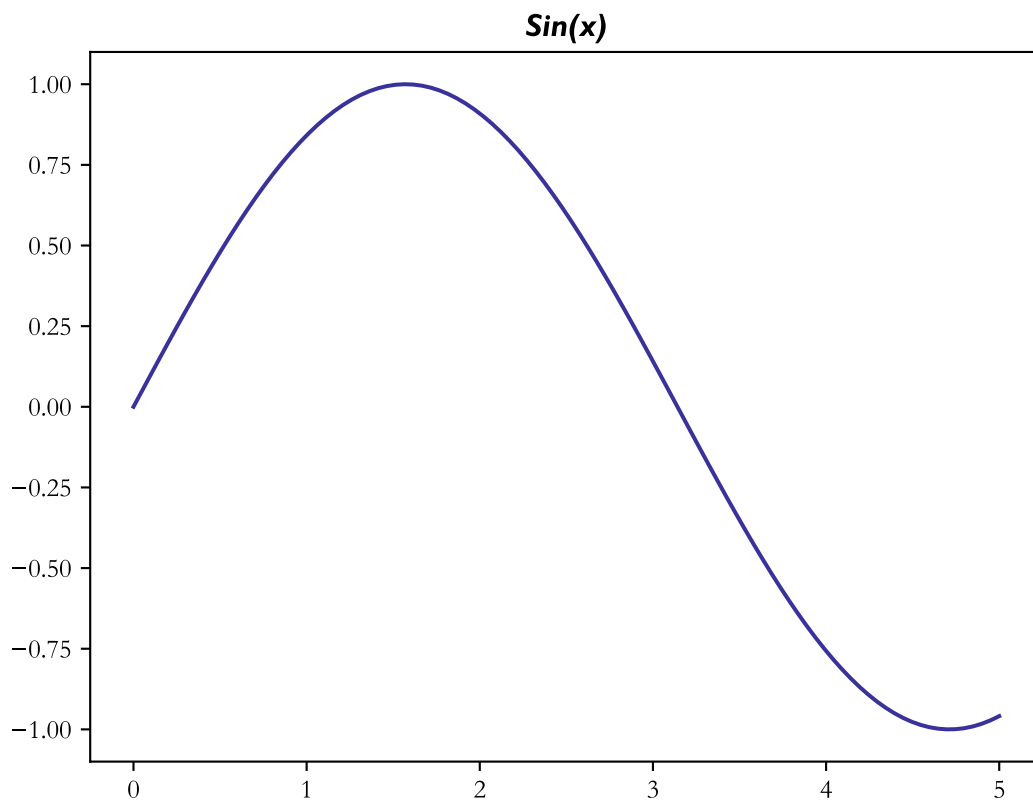
Examples

```
from mpl_bsic import apply_BSIC_style

x = np.linspace(0, 5, 100)
y = np.sin(x)

fig, ax = plt.subplots(1, 1)
apply_BSIC_style(fig, ax, 'Sin(x)') # apply right after creating the Figure and
→ Axes instances

ax.plot(x,y)
```



```
from mpl_bsic import apply_BSIC_style

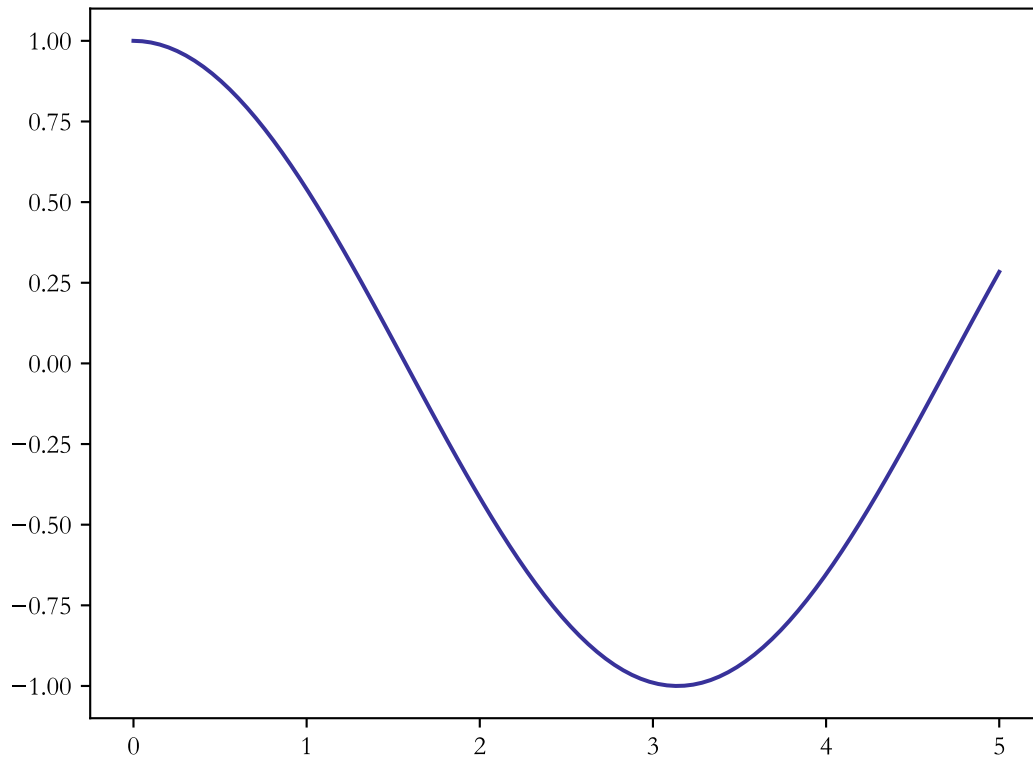
x = np.linspace(0, 5, 100)
y = np.cos(x)

fig, ax = plt.subplots(1, 1)
# ax.set_title('Cos(x)') # set the title before applying the style
apply_BSIC_style(fig, ax) # the function will re-set the title with the correct
→ style
```

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```
ax.plot(x,y)
```



1.8 mpl_bsic.check_figsize

`mpl_bsic.check_figsize(width: float, height: float | None, aspect_ratio: float | None) → tuple[float, float]`

Check the validity of the figsize.

Checks the validity of the figsize parameters and returns the width and height to use.

Parameters

width

[float] Width of the Figure, in inches.

height

[float | None] Height of the Figure, in inches.

aspect_ratio

[float | None] Aspect Ratio of the figure, as a float. E.g. 16/9 for 16:9 aspect ratio.

Returns

`tuple[float, float]`

The width and height to use for the Figure.

See also:

`mpl_bsic.apply_BSIC_style`

The function that applies the style to the plot.

`mpl_bsic.preprocess_dataframe`

The function that preprocesses the DataFrame before plotting.

Examples

This is the examples section. WIP.

1.9 mpl_bsic.format_timeseries_axis

`mpl_bsic.format_timeseries_axis(ax: Axes, time_unit: Literal['Y', 'M', 'D'], freq: int, fmt: str | None)`

Format the x-axis of a timeseries plot.

It sets the major locator and formatter for the x-axis. Note that this function does not take as an input the figure, but just the matplotlib Axes instance.

Parameters

ax

`[matplotlib.axes.Axes]` Matplotlib Axes instance.

time_unit

`[Literal['Y', 'M', 'D']]` Time unit to use. Can be “Y” for years, “M” for months, or “D” for days.

freq

`[int]` Time Frequency. For example, if time_unit is “M” and freq is 3, then the x-axis will have a tick every 3 months.

fmt

`[str | None]` Date Format which will be fed to `matplotlib.dates.DateFormatter`. If None, the default format will be used (`%b-%y`).

Raises

Exception

If the time frequency is not supported.

See also:

`mpl_bsic.apply_BSIC_style`

The function that applies the style to the plot.

Examples

Examples will come soon.

1.10 mpl_bsic.preprocess_dataframe

`mpl_bsic.preprocess_dataframe(df: DataFrame)`

Handle and preprocess the DataFrame before plotting.

Handle and preprocess the DataFrame before plotting. It sets all the columns to lowercase and sets the index as the dates (converting to datetime).

Parameters

df

[`pd.DataFrame`] The DataFrame to preprocess.

See also:

`mpl_bsic.apply_BSIC_style`

The function that applies the style to the plot.

Examples

This is the examples section. WIP.

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