Seaborn Cheat Sheet: Beginner to Advanced

1. Getting Started

```
import seaborn as sns
import matplotlib.pyplot as plt
import pandas as pd
```

Load Example Dataset

```
df = sns.load_dataset('iris')  # Or 'tips', 'penguins', etc.
```

2. Basic Plotting Functions

Plot Type	Function	Example	Purpose
Scatter	`scatterplot()`	`sns.scatterplot(x="sepal_length", y="sepal_width", data=df)`	Numeric vs numeric
Line	`lineplot()`	`sns.lineplot(x="sepal_length", y="petal_length", data=df)`	Trends/time series
Histogram	`histplot()`	`sns.histplot(df['sepal_length'])`	Distribution of values
KDE/Dist	`kdeplot()`, `displot()`	`sns.kdeplot(df['sepal_length'])`	Smooth distribution, density plot
Bar/CatBar	`barplot()`, `countplot()`	`sns.barplot(x='species', y='sepal_length', data=df)`	Aggregate stats per category
Box/Violin	`boxplot()`, `violinplot()`	`sns.violinplot(x='species', y='sepal_length', data=df)`	Distribution w/ outliers by group
Heatmap	`heatmap()`	`sns.heatmap(df.corr(), annot=True)`	Matrix/correlation visualization
Pairwise	`pairplot()`	`sns.pairplot(df, hue='species')`	All combinations of scatter plots
Joint Plot	`jointplot()`	`sns.jointplot(x='sepal_length', y='sepal_width', data=df)`	Bivariate with marginal distributions

3. Advanced Features

Multiple Plots: FacetGrid & catplot

```
g = sns.FacetGrid(df, col="species")
g.map(sns.histplot, "sepal_length")
```

Or use higher-level:

```
sns.catplot(x="species", y="sepal_length", data=df, kind="box")
```

Styling & Themes

```
sns.set_theme(style="whitegrid", palette="muted")  # Try 'darkgrid', 'ticks', etc.
sns.set_context('notebook')  # Or 'talk', 'poster', 'paper'
```

Color Palettes

```
sns.color_palette('pastel')  # Other options: 'deep', 'muted', 'bright', 'dark',
'colorblind'
sns.palplot(sns.color_palette('coolwarm', 7))  # Display colors
```

Customizing Plots

- **Axis labels & title:**

  ```
  plt.xlabel('X Axis'); plt.ylabel('Y Axis'); plt.title('Plot Title')
  ```

- **Legend:**

  ```
  plt.legend(title="Legend Title")
  ```

- **Add annotation:**

  ```
  plt.text(x, y, "label")
  ```

- **Save plot:**

  ```
  plt.savefig("figure.png", dpi=300)
  ```

4. Statistical & Distribution Plots

Function	Description	Example

`lmplot()`	Regression, fits line	`sns.lmplot(x='X', y='Y', data=df)`
`residplot()`	Residuals plot	`sns.residplot(x='sepal_length', y='petal_width', data=df)`
`boxenplot()`	Enhanced box (large datasets)	`sns.boxenplot(x=x, y=y, data=df)`
`swarmplot()`	Dots, no overlap (cats)	`sns.swarmplot(x='species', y='sepal_length', data=df)`
`stripplot()`	Dots with jitter (cats)	`sns.stripplot(x='species', y='sepal_length', data=df, jitter=True)`
`violinplot()`	Distribution+box	See above

5. Matrix, Heatmaps & Clustering

Function	Description	Example
`heatmap()`	Value/correlation matrix	`sns.heatmap(df.corr(), annot=True)`
`clustermap()`	Hierarchical clustering heatmap	`sns.clustermap(df.corr(), cmap='mako')`

6. Advanced Customization

- **FacetGrid with hue, row, col:**

```
g = sns.FacetGrid(df, row="species", hue="species")
g.map(sns.kdeplot, "sepal_width")
```

- **Plot overlays:**

```
sns.violinplot(...)
sns.swarmplot(..., color='k', alpha=0.7)
```

- **Custom ticks and formats:**

```
plt.xticks(rotation=45)
plt.yticks(np.arange(0, 8, 1))
```

7. Common Integration

- Works directly on pandas DataFrames:

```
sns.scatterplot(x='A', y='B', data=df)
```

- Always call `plt.show()` at the end (unless in Jupyter)
- Combine with matplotlib for deeper annotation/layout

8. Best Practices & Pro Tips

- Use **pairplot** and **heatmap** for quick EDA
- Use semantic mappings: `size=, style=, hue=`
- Use `sns.set_theme()` to change global defaults for all plots
- For publication-quality, set `dpi=300` when saving figures

References:

- Official seaborn tutorial and API[1][2][3]
- DataCamp seaborn cheat sheet[4]
- Codecademy and advanced example galleries[5]
- Community tips and professional guides[6][7]

1. https://seaborn.pydata.org/examples/index.html
2. https://www.geeksforgeeks.org/python-seaborn-tutorial/
3. https://www.tutorialspoint.com/seaborn/seaborn_cheatsheet.htm
4. https://www.datacamp.com/cheat-sheet/python-seaborn-cheat-sheet
5. https://www.codecademy.com/learn/advanced-graphing-in-python/modules/seaborn-dvp/cheatsheet
6. https://www.linkedin.com/posts/tajamulkhann_seaborn-cheat-sheet-activity-7293078459289845760-ZCHq
7. https://www.kaggle.com/discussions/getting-started/583241