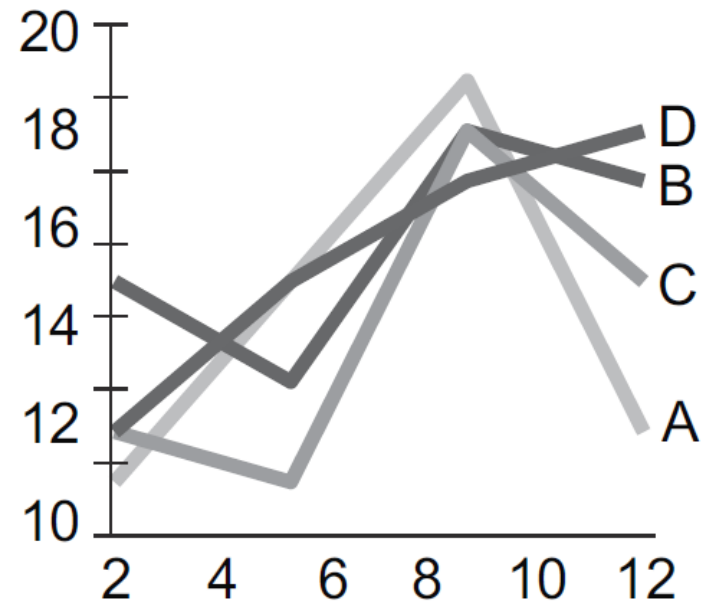
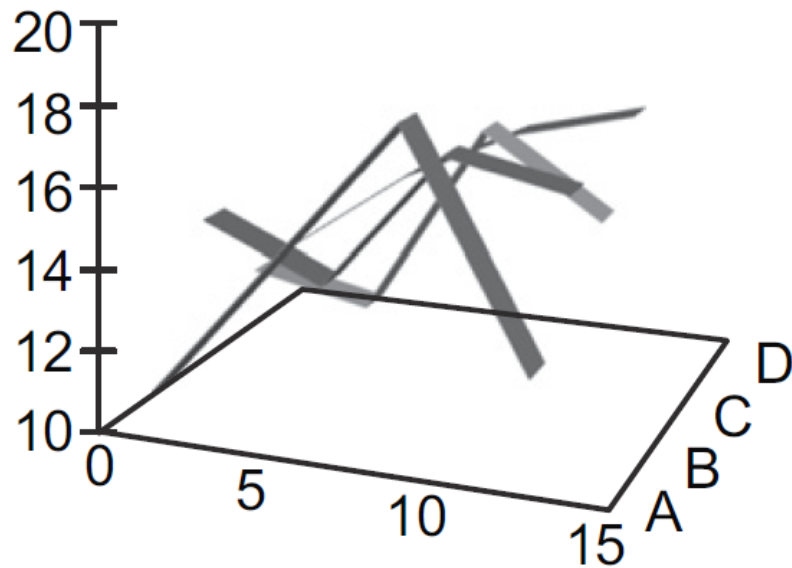



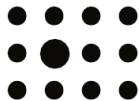



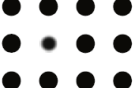

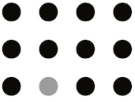
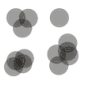







# Guidelines for scientific data visualization

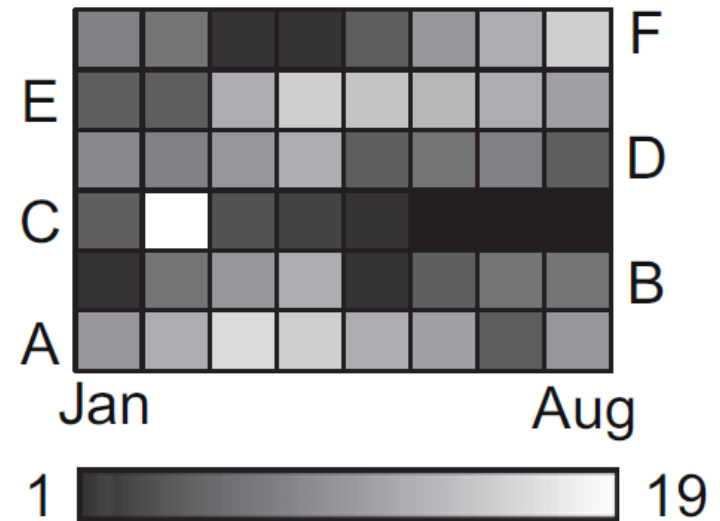
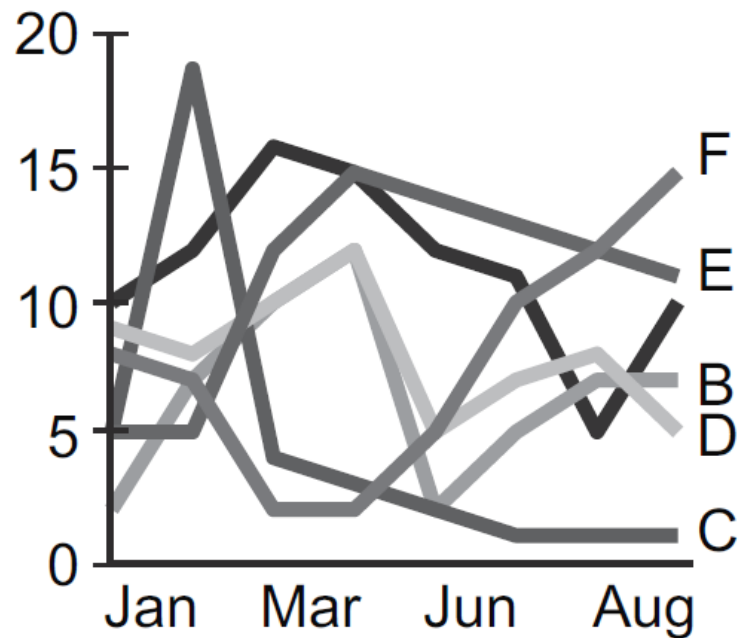
ENS-215  
(Winter 2020)



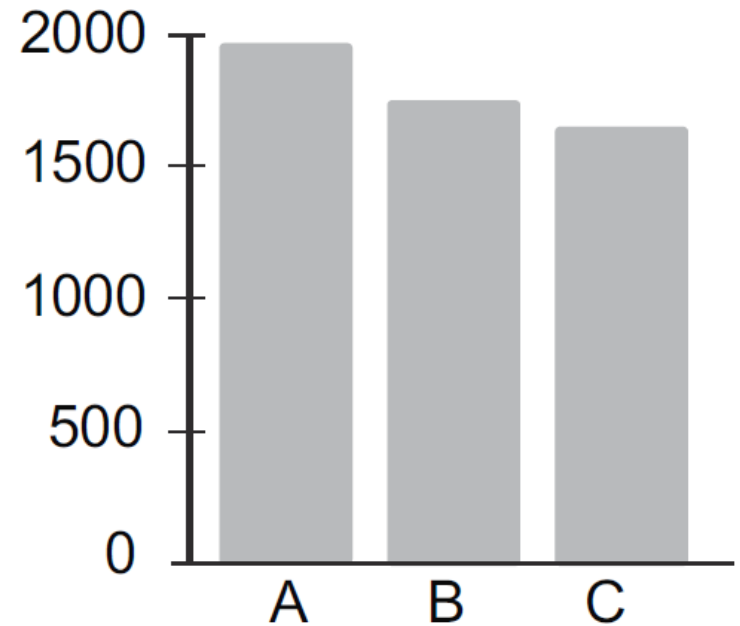
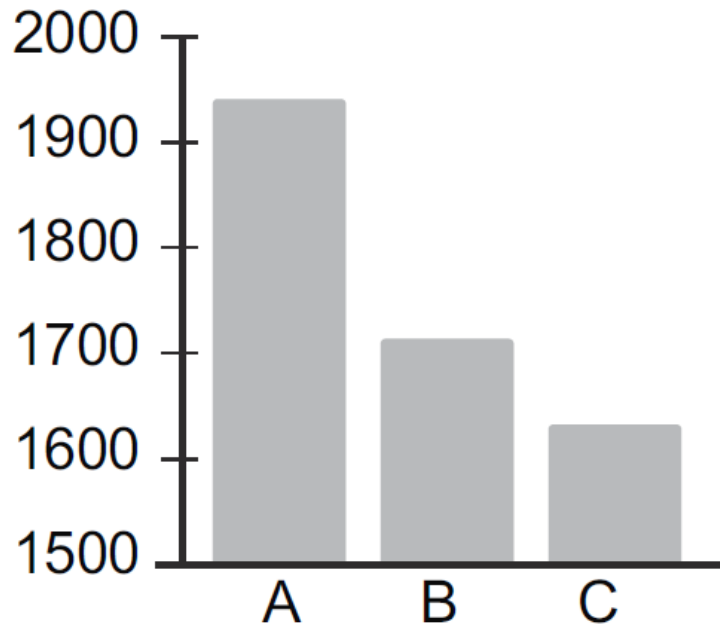
**Guideline:** Create the simplest graph that conveys the information you want to convey

Value encoding attribute			
Form	Length	Width	Orientation
			
	Size	Shape	Curvature
Color			
	Enclosure	Blur	Transparency
Spatial Position			
	Hue	Intensity	
Motion			
	2-D Position	Spatial Grouping	Density
Motion			
	Direction	Pathway	
			

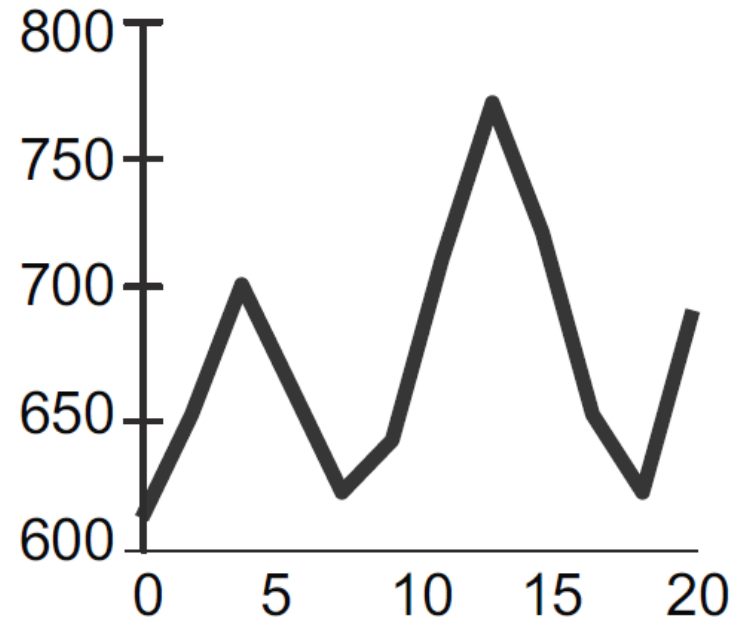
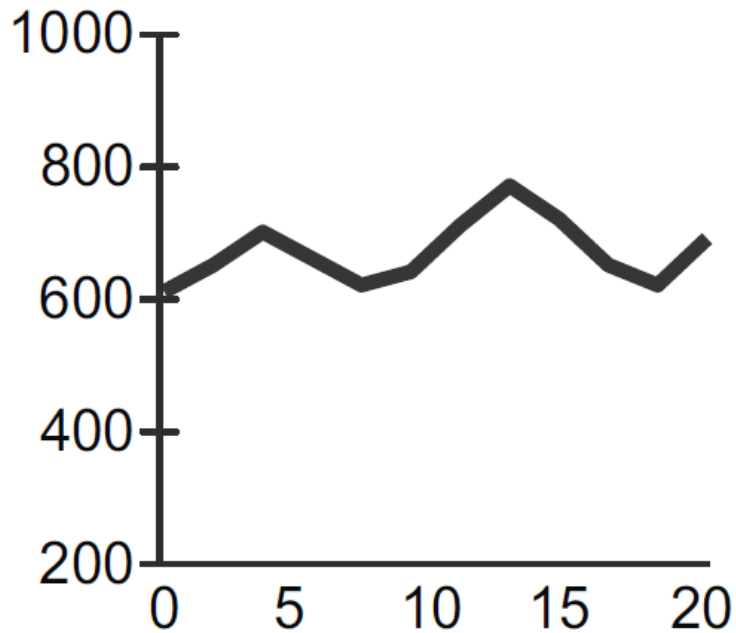
**Guideline:** consider the type of encoding object and attribute used to create a plot



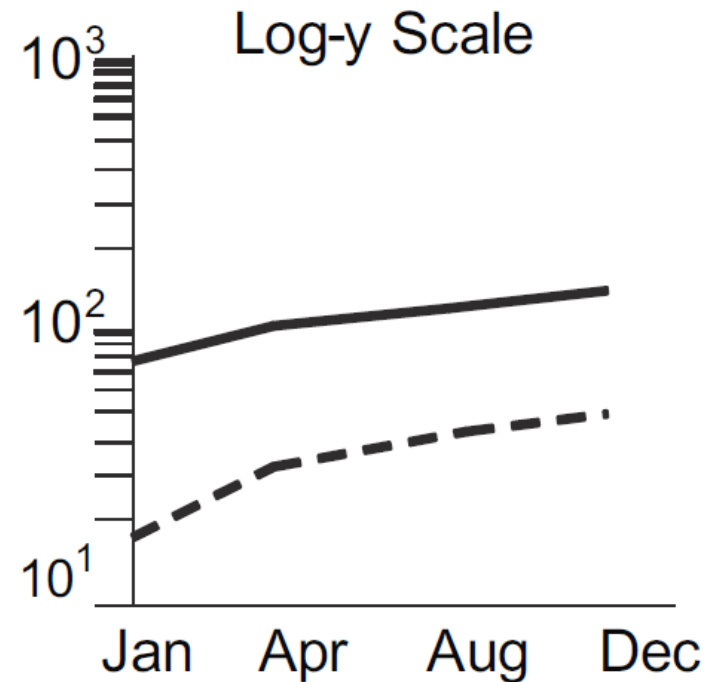
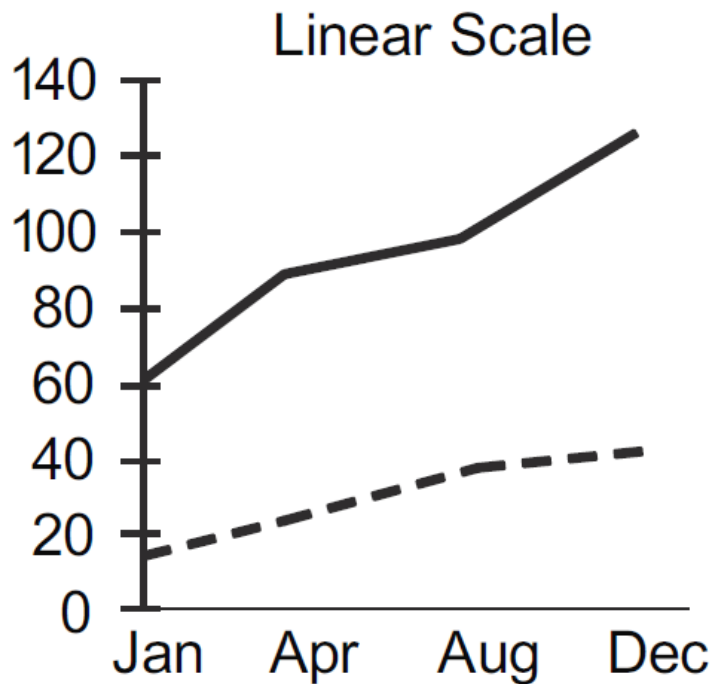
**Guideline:** focus on visualizing patterns or on visualizing details, depending on the purpose of the plot



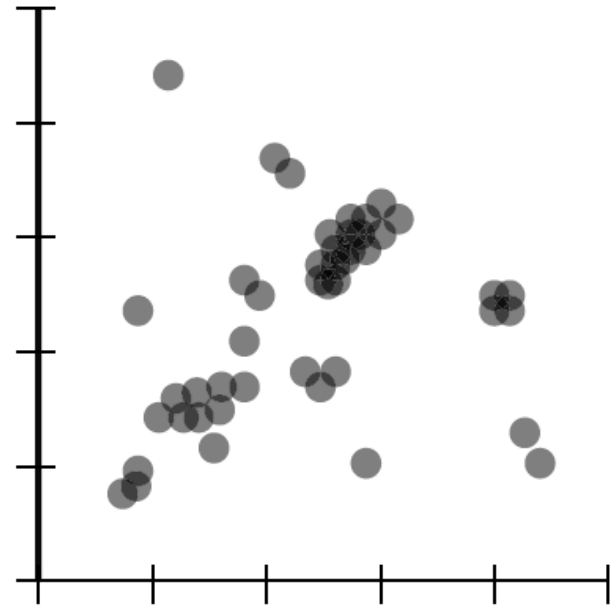
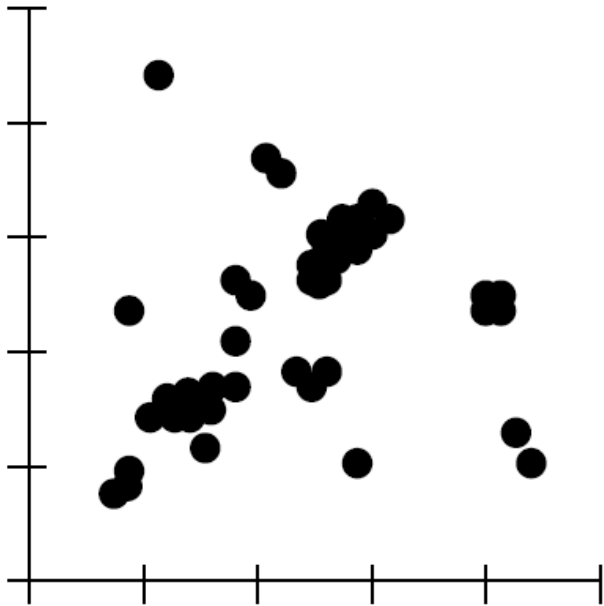
**Guideline:** select meaningful axis ranges



**Guideline:** select meaningful axis ranges

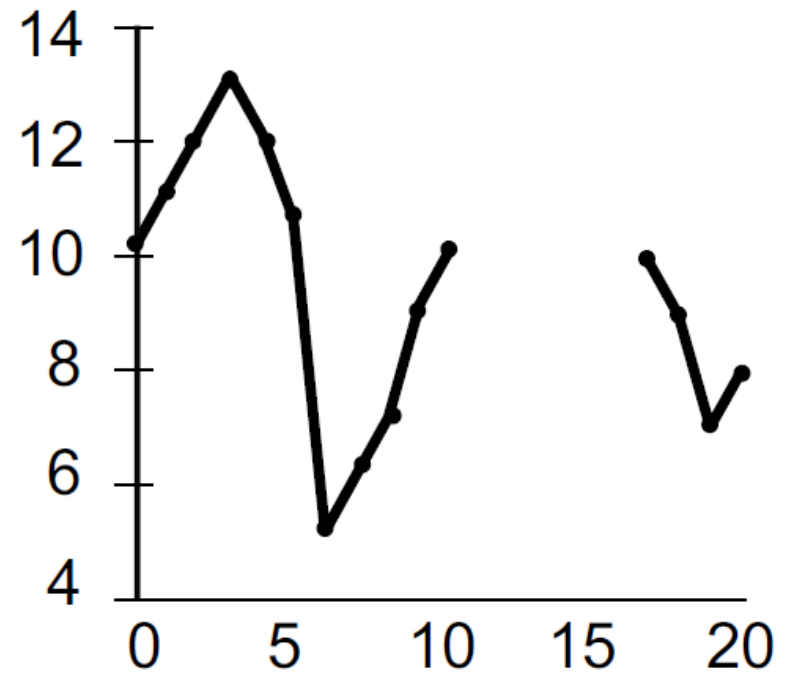
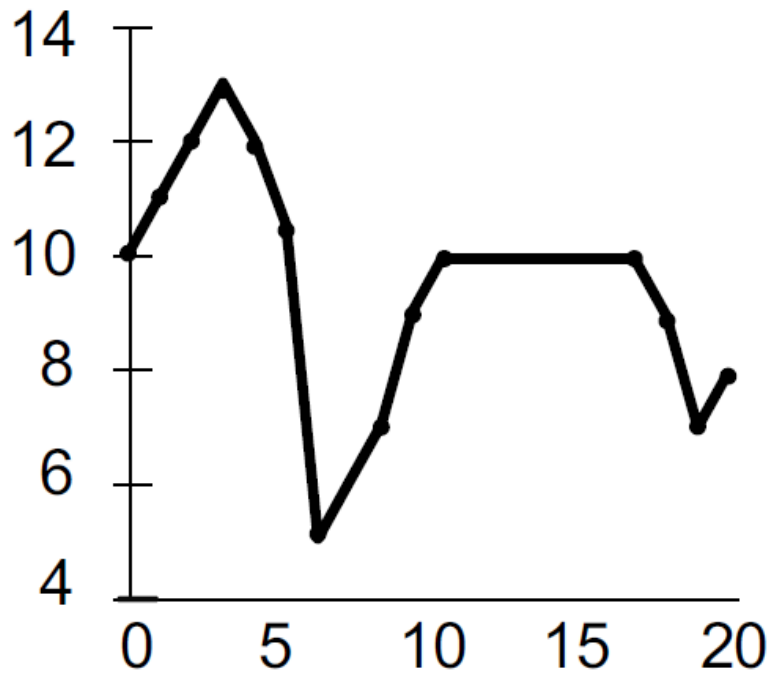


**Guideline:** data transformations and carefully chosen graph aspect ratios can be used to emphasize rates of change for time-series data

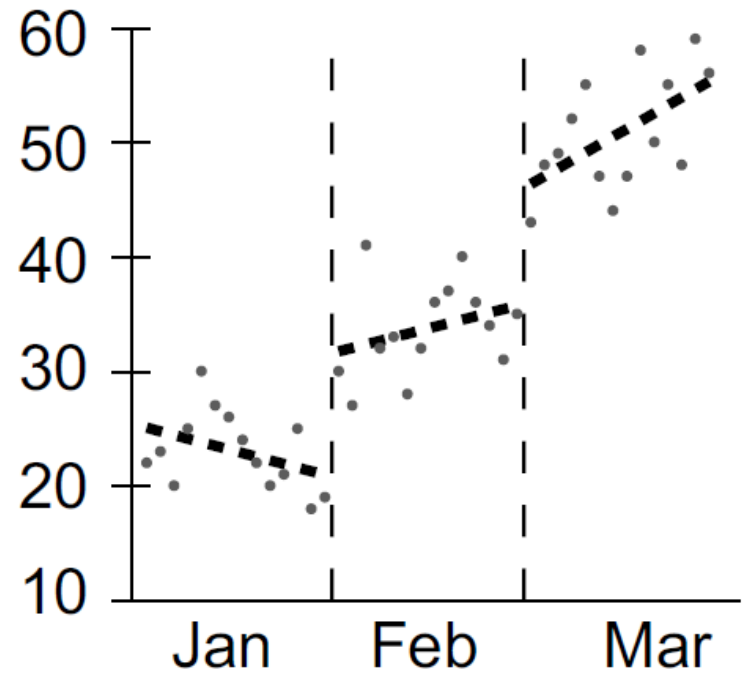
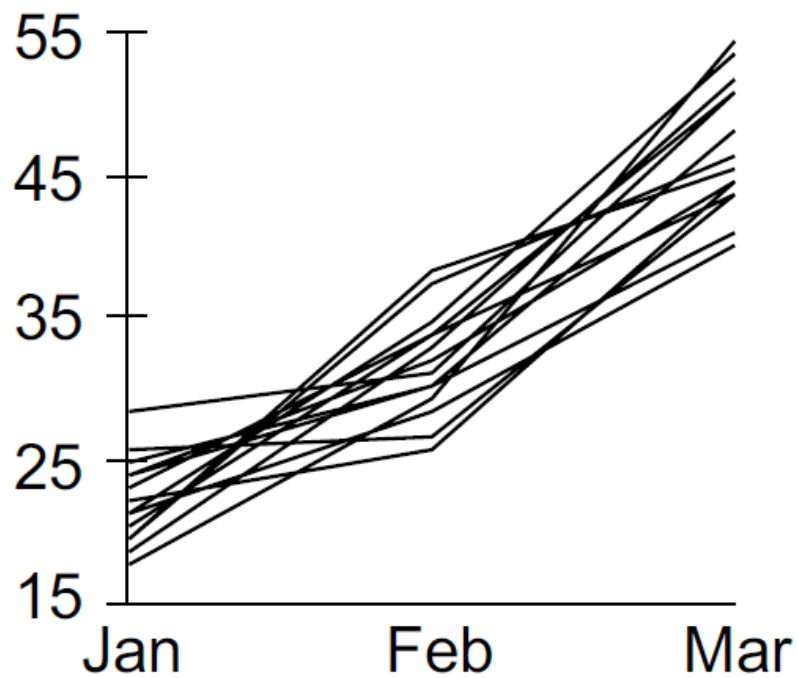


**Guideline:** plot overlapping points in a way that density differences become apparent in scatter plots

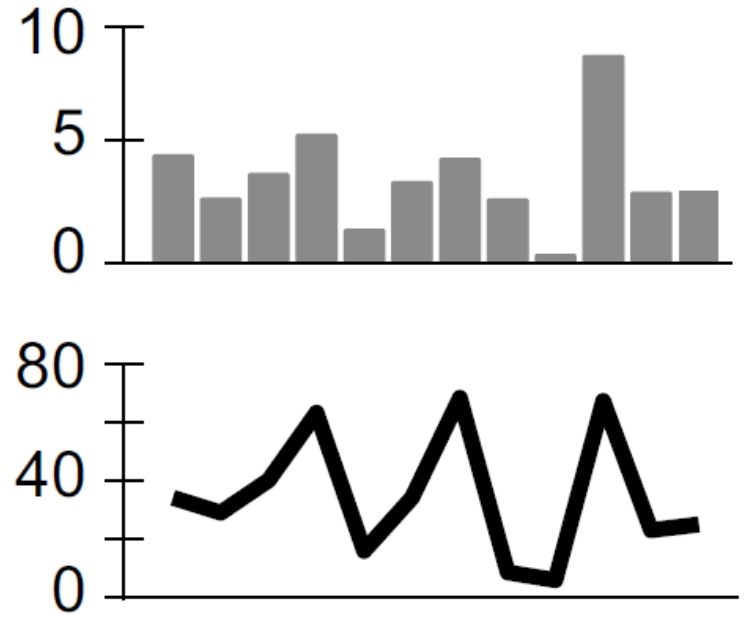
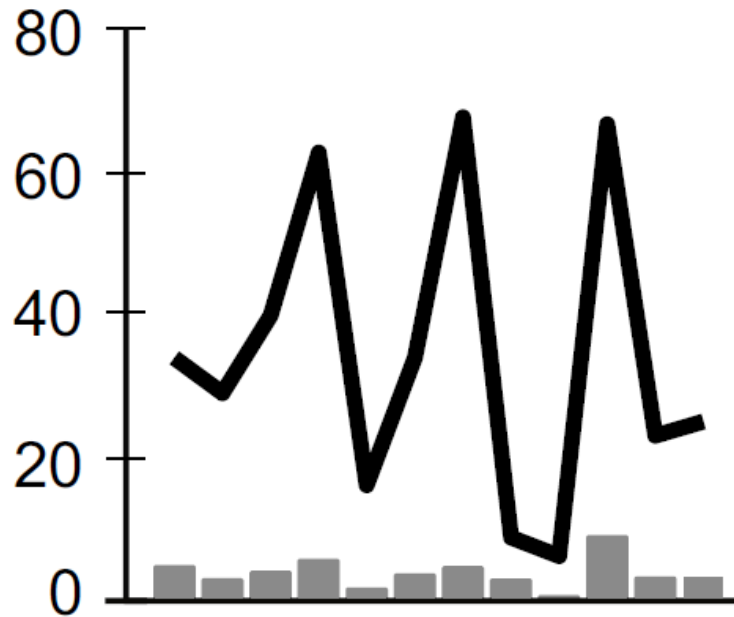




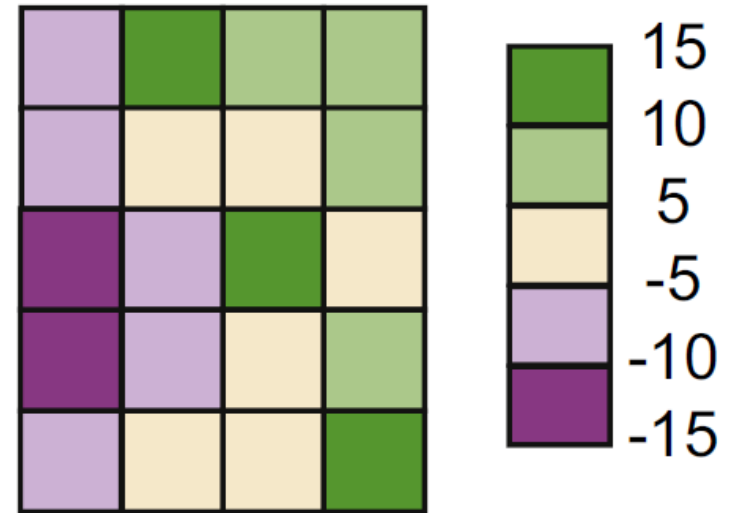
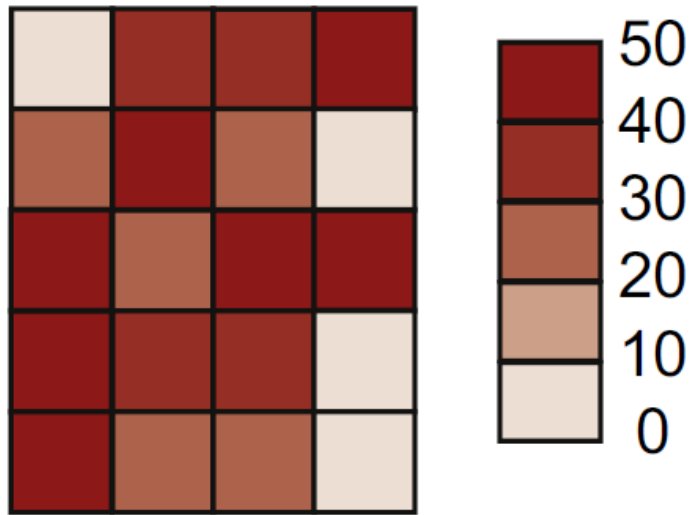
**Guideline:** use lines when connecting sequential data in time-series plots



**Guideline:** aggregate larger datasets in meaningful ways



**Guideline:** Keep axis ranges as similar as possible to compare variables



**Guideline:** select an appropriate color scheme based on the type of data