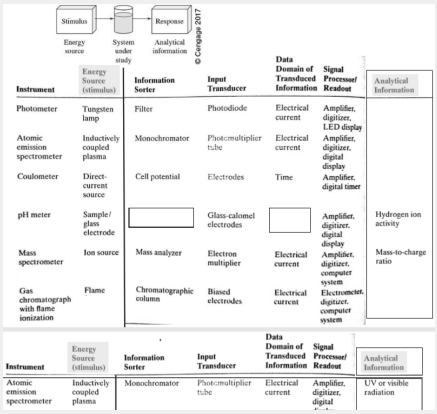
Definitions

Spectroscopy	Interaction of radiation, traditionally electromagnetic radiation, with matter
Spectrometry	Measurement of the intensity of radiation
Spectrophotometry	Quantitative measurement of light absorption and transmission as function of the wavelength
Absorbance	Log measure of the amt of light that is absorbed when passing though a substance
	Beer's Law: A=logIo/It

Components of spectroscopic instruments



Figures of Merit

Sensitivity	High, steep curve so that for every small change in conc, there is a large change in signal
Signal to noise ratio (S/N)	Compares level of desired signal to level of background noise. Mean of signal/standard deviation of noise. Large S/N >3 times that SD of noise
Specificity	High responsiveness to target analyte

Figures of Merit (cont)

Detection limit	Lowest analyte conc. that can be measured at a certain confidence level. 1) Run solvent/blank multiple times 2) Signal for LOD=mean of blank +3SD of blank. In conc. below detection limit, cannot measure sample because don;t know if signal is from analyte or solvent
Dynamic range	Wide, linear concentration range that can be determined using the calibration curve ie. calibration curve to be proportional
Accuracy	Closeness of a measured value to a standard value (reference sample)
Precision	Closeness of 2 or > measurements to each other ..
Speed	
Ease and convenience	
Skill required of operator	As conc. decrease, we are limited by prep error and intrumental error (signal fluctuates) ie. % error will increase
Cost and availability of equipment	
Per-sample cost	
Relative standard deviation (RSD) ...% = standard deviation/ mean	We are reaching LOD of instrument thus decrease in concentration, RSD increases