CH 221 "q&d" Guide to Periodic Trends

"q&d" = "Quick 'n' Dirty"

- Each column represents a family or group of elements whose properties are similar

- Periodic Trends are ***generalizations***; subtle deviations in trend exist for almost all periodic properties

- **Metallic Properties** increase going down a column and moving left across a period

- **Atomic Size** increases going down a column and moving left across a period

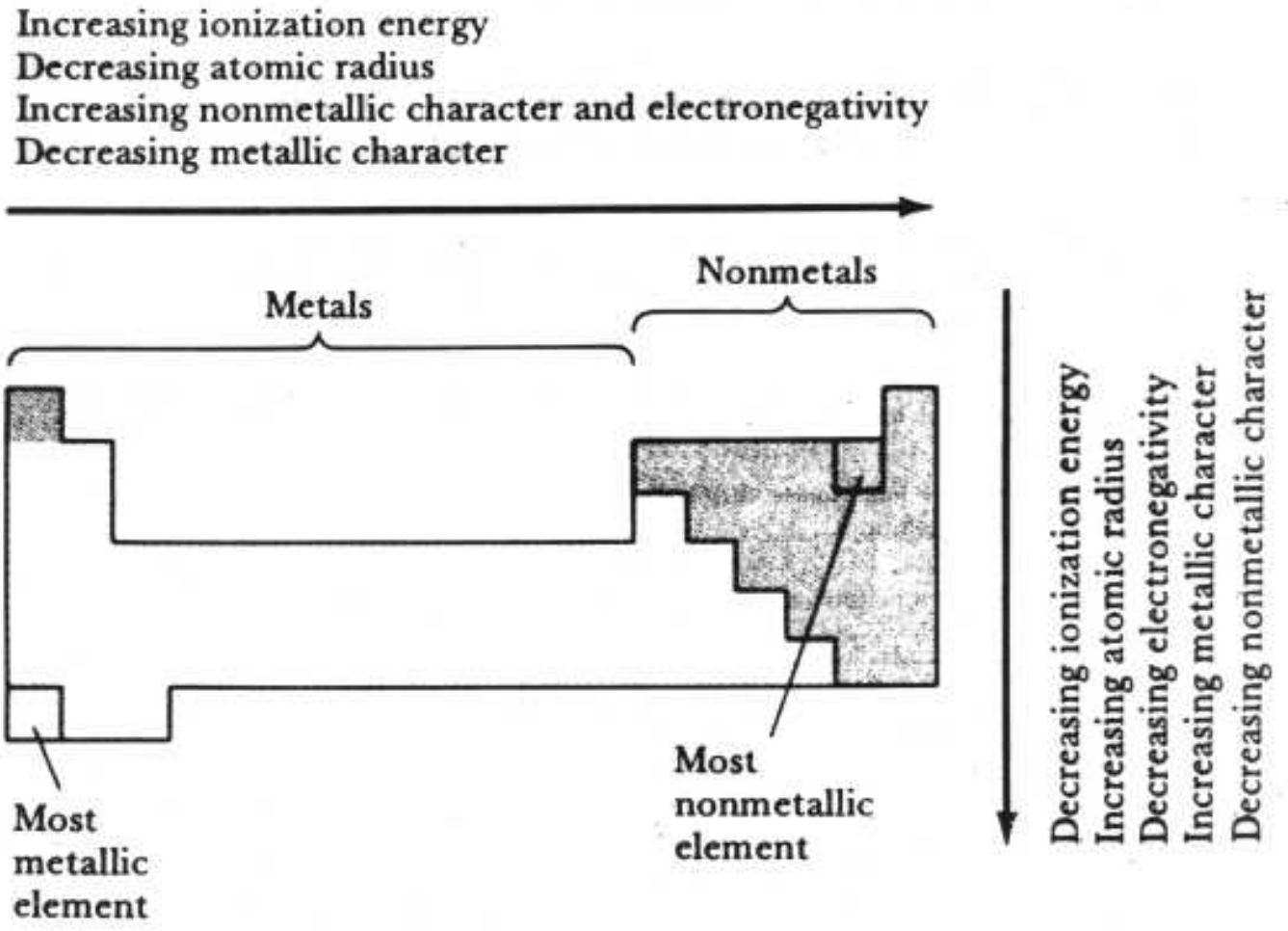
- **Cationic Size** increases going down a column and moving left across a period

- **Anionic Size** increases going down a column and moving left across a period

- **First Ionization Energy** increases going up a column and moving right across a period ($M \rightarrow M^+ + e^-$)

- **Electron Affinity** increases going up a column and moving right across a period *if* the noble gases are omitted ($X + e^- \rightarrow X^-$)

- **Electronegativity** increases going up a column and moving right across a period *if* the noble gases are omitted ($X + e^- \rightarrow X^-$)


Increasing ionization energy
Decreasing atomic radius
Increasing nonmetallic character and electronegativity
Decreasing metallic character
Nonmetals
Metals
Most
metallic
element
Most
nonmetallic
element
Decreasing ionization energy
Increasing atomic radius
Decreasing electronegativity
Increasing metallic character
Decreasing nonmetallic character