Properties

Intensive	Extensive
- Don't depend on size of system	- Depend on size of system
- Temperature	- Mass
- Pressure	- Entropy
- Chemical Potential	- Volume

Laws

First: The internal energy of a system is the sum of the work done on the system and the heat transferred
-> Total energy of universe cannot change
-> U = Q + W + W'
-> Enthalpy: H = U + PV
**Se

Systems

Isolated: No transfer of heat or matter
- will never change thermodynamic state once it reaches equilibrium
- Entropy can never decrease, only remain constant or increase
- Internal Energy is always constant
- No work done on or by system
Open: Can exchange both energy and matter with surroundings
Closed: Can transfer work and energy
- Thermodynamic state can change after equilibrium is reached

Processes

Reversible: No entropy produced
- No permanent changes in the universe
Irreversible: Results in dissipations, entropy production, and permanent changes
Adiabatic: No heat transfer
Isobaric: Constant Pressure -> dP = 0
Isochoric: Constant volume -> dV = 0
Isothermal: Constant temperature -> dT = 0
Cyclical: Returns system to initial state -> Delta U = 0