Summary

- **First Law** of thermodynamics: Energy Conservation
  - ➜ $Q = \Delta U - W$

- Heat Engines
  - ➜ Efficiency = = $1 - Q_C/Q_H$

- Refrigerators
  - ➜ Coefficient of Performance = $Q_C/(Q_H - Q_C)$

- Entropy $\Delta S = Q/T$

- **Second Law**: Entropy always increases!

- Carnot Cycle: Reversible, Maximum Efficiency $e = 1 - T_c/T_h$