

Midterm Review 1

January 21, 2022

This is a checklist based on the lecture and textbook materials. It is not expected to be an all encompassing study guide and provides a guideline for your studies.

- Review real-world applications (lecture materials)
- Thermodynamic Systems (Open, Closed, and Isolated); sign conventions
- Zeroth Law of Thermodynamics
- Intensive and extensive variables

Ideal Gas Law

- Boyle's Law
- Charles' Law
- Amontons' Law or Gay Lussac's Law

Ideal Gas Mixtures

- Dalton's Law of Partial Pressures
- Mole fraction

Work and Heat

- Types of work (PV work and Isothermal expansion)
- Heat capacity ($C_{P,m}$ and $C_{V,m}$)

First Law of Thermodynamics

- State functions
- Internal energy (ΔU)
- Enthalpy (ΔH)
- Thermodynamic standard state
- Hess's Law
- Atomization energy and enthalpy, reaction enthalpy, and bond enthalpy
- Enthalpy of formation