

Your Chemistry 3202 Midyear Exam covers all topics studied this term, from September to January.

Note: Use the following as a guide only. Any material covered and assigned are fair game for inclusion on the exam. Worksheets, assignments, labs, review sheets and unit tests given throughout the term, as well as the problems located throughout the unit will assist you in your review for the exam (some of which you might already have done for homework). I suggest you focus more on those topics that you are experiencing difficulty with, and repeat the problems for those topics.

Happy Studying!

Unit 1: Thermochemistry

Ch. 16 (p. 626-659), Ch. 17 (p. 660-709)

Introductory concepts

- Energy
- Temperature
- Kinetic energy
- Work
- Heat
- System
- Surroundings
- First law of Thermodynamics
- Law of Conservation of Energy
- Types of Systems
- Open
- Closed
- Isolated

Types of Energy Changes

- Involves mass (m), temperature difference (T), heat capacity (C or c)
- $q = mc\Delta T$ or $q = C\Delta T$

Phase

- Change in potential energy
- Endothermic
- Exothermic

Chemical

- Change in potential energy
- Bond breaking/bond forming

Enthalpy Changes

- Terminology
- Enthalpy (H)
- Enthalpy change (ΔH)
- Molar enthalpy (ΔH in kJ/mol or J/mol)
- Standard Molar enthalpy (ΔH° in kJ/mol or J/mol)
- Vaporization and condensation, fusion and solidification, formation and decomposition

Methods of representing enthalpy changes

- Thermochemical equations
- ΔH notation
- Enthalpy diagrams

Calculating heat in a phase change or chemical change

- $q = n\Delta H$

Heating and Cooling Curves

- Drawing
- Calculating the heat absorbed or released with each portion of the curve
- Calculating the total heat absorbed or released by a system