

Chemistry 116 - Fall 20201
Dr. Audrey Dell Hammerich
7 - Week of October 34
Gases II: Kinetic Theory, Effusion, Collisions, and Real Gases

NOTE: Quiz on Friday emphasizing bonding aspects in Z Ch 13 where more than four electron pairs are about a central atom and Ch 5.1 - 5.5.

NOTE: The worksheet for this week covers the last half of Z Ch 5 beginning with Ch 5.6 The Kinetic Molecular Theory of Gases.

NOTE: Please remember to turn in any late lab reports.

LAB ASSIGNMENT: LM_5: Determination of NaHCO_3 , Molar Mass of CO_2 , and Value of R

LECTURE ASSIGNMENT: Online OWL assigned homework due on Monday, October 11 at noon except "W" problems are due Friday, October 8 at noon.

Monday, October 4

Reading Assignment: Z Ch 5.3 - 5.5 [know STP units and how to work with the **ideal gas equation** and its relation to density, molar mass; be able to solve gas stoichiometry problems; know how to work with mixtures of gases, **partial pressures**; know how to solve problems where a gas is collected over water]

Wednesday, October 6

Reading Assignment: Z Ch Z 5.6 - 5.8 understand basics of **kinetic theory** of gases, what temperature is a measure of, **root-mean square speed**, Maxwell-Boltzmann distribution of molecular speeds, **effusion**; start collisions]

Friday, October 8

Reading Assignment: Z Ch 5.8 - 5.12 [know how to work with Z, **collision rate** or collision frequency; collision of molecules with a wall - pressure, effusion; collision of molecules with each other - can lead to chemical reactions; understand what a **mean free path** (λ) is and how to use it; **van der Waals equation** (may cover on Monday) - know what aspects of the equation model a real gas better than the ideal gas equation of state; what are the effects of **attractive** and **repulsive forces**; be able to compare ideal, van der Waals, and real gases; know what the troposphere, photochemical smog and acid rain are]

all collision frequencies consist of three factors:
(number density) \times (size of area being struck) \times (relative speed)