CHEMISTRY 116 - Fall 2021

Dr. Audrey Dell Hammerich

1 - Week of August 23

Matter and Measurement; Atoms, Molecules, and Ions, Atomic Theory; Periodicity, Nomenclature

NOTE: Start your OWLv2 homework **now**. If you cannot purchase it now you have a two-week free trial.

NOTE: Remember to watch safety videos before lab and read/sign/return undergraduate safety rules.

NOTE: Prelabs – for in-person labs TA checks prelab in your notebook before experimental work can begin; for online labs prelab submitted on Blackboard before lab session starts.

NOTE: For in-person labs have TA sign original copy of all data pages in your lab notebook and turn in these sheets before lab period ends.

NOTE: Throughout course, capital letter Z will indicate the general chemistry Zumdahl text, H will denote the analytical Harris text or lab, and LM refers to the lab manual.

LAB ASSIGNMENT: Group A – submit prelab in Blackboard for Data Analyis Lab (Excel spreadsheet assignment) before end of lab; check in, safety orientation; H_Exp 1: Calibration of Volumetric Glassware (H: Ch 1–2-9); LM: Data Analysis Lab (H: Ch 2-10–3-3), Practice Problems on pp. xxxii-xxxiii are postlab problems. **Group B** – submit prelab before lab session starts; – Online H_Exp 2: Gravimetric Determination of Calcium as $CaC_2O_4 \cdot H_2O$ (H: Ch 1-4, 2-7– 2-8, 27-1–27-3). Your TA will send you the data for this lab. Note that this lab has a coversheet (CS) which you will turn in as the first page of your lab report.

NOTE: Answers to all end-of-chapter problems (H) or odd-numbered problems (Z) can be found in the back of indicated text. In addition detailed worked out solutions for all end-of-chapter exercises are given in the back of Harris.

LECTURE ASSIGNMENT: Online OWL assigned homework due on Monday, August 30 at noon except "W" problems are due Friday, August 27 at noon.

Monday, August 23

Reading Assignment: Z: Appendix 1, 2, Ch 1; H: Ch 0, 1-1, 3-1–3-3 [scientific method, units of measurement, SI units, commit to memory the **fundamental SI units in H Table 1-1** with the name of the unit and its symbol (omit ampere candela, and angles), commit to memory the metric prefixes in **H Table 1-3** with its value, prefix, and symbol; **precision** and **accuracy**, be able to use significant figures in arithmetic calculations and determine a standard deviation]

Wednesday, August 25

Reading Assignment: Z: Ch 2.1–2.7 (review) [atomic theory, **law of conservation of mass**, law of definite proportion, Dalton's atomic theory, law of multiple proportion, **Avogadro's Hypothesis**, early experiments leading to understanding interior structure of atoms, basics of the atom (electrons, protons, neutrons), isotopes, ionic/covalent bonding]

Friday, August 27

Reading Assignment: Z: Ch 2.7–2.9 (review) [overview of periodic table: metals, nonmetals, semimetals (metalloids), periods, groups, main group elements, electronegativity, acidic/basic oxides; know **nomenclature**: binary ionic and molecular compounds, compounds that contain polyatomic ions, elements with multiple ions - commit to memory **Elements to Know and Ions to Know from the web site (under Miscellaneous Information) and the nomenclature outlined in lecture** - omit nomenclature of acids, we will return to this in Chapter 4]

HANDOUTS: Alchemist's Metals
PRACTICE: Nomenclature