Chem 2300

General Learning Objectives

1. Apply electronegativity and VESPR to draw the Lewis structure and predict chemical properties for various functional groups.

2. Use electronegativity, octet rule, and electron(s)-moving to write the resonance structures and judge the order of stability for these structures.

3. Apply the concepts of acid/base and nucleophile/electrophile to predict a chemical reaction.

4. Recognize constitution (structural) isomers, configuration isomers, conformation isomers, and stereoisomers, and explain the difference in chemical and physical properties among these compounds.

5. Write correct electron-pushing mechanisms for the topic reactions in each chapter.

6. Apply the concepts of resonance and inductive effects to predict the chemical and physical properties for different functional groups and the molecule to which these functional groups are attached.

7. Explain the reaction mechanisms by using the concepts of steric hindrance, stability of carbocation, and leaving group capability.

8. Use the p*Ka* values to explain or define the roles of a molecule with lone-pair electron (**:**Z) as base, nucleophile, or leaving group in a chemical reaction.

9. Explain aromaticity and recognize aromatic compounds.

10. Perform all of the detailed learning objectives for every chapter posted online or distributed as hard copy.