

**General Chemistry II**  
**Topic: Buffers,  $K_{sp}$ , and Complex Ion Equilibrium**

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The student should be able to:

1. Recognize the components of a buffer system.
2. State the purpose of a buffer system and explain how it accomplishes that goal.
3. Determine the pH of a buffer system given relevant concentration and ionization constant data.
4. State the purpose of an acid-base titration.
5. Interpret titration curves for acid-base titrations.
6. Explain how acid-base indicators function.
7. Predict in which form an acid-base indicator will exist given ionization constant and concentration data.
8. Determine  $K_{sp}$  values given appropriate solubility data.
9. Determine solubilities of relatively insoluble inorganic salts from  $K_{sp}$  data.
10. Predict when a relatively insoluble salt will precipitate given appropriate concentration and  $K_{sp}$  data.
11. Write mass law equations for  $K_{formation}$  and  $K_{dissociation}$  ( $K_{instability}$ ) for complex ions in aqueous medium.
12. Determine  $K_{formation}$  or  $K_{instability}$  constants from suitable concentration data for complex ions.