

## CHM 1046 Exam 1 Review Sheet

Study all of the concepts and equations on the following list.

- Phase Transitions  
Review Example 11.01, as well as Figures [10.24](#) and [10.29](#).
- Phase Diagrams  
Review Figures [10.30](#), [10.31](#) and [10.34](#), as well as Text Examples [10.11](#) and [10.12](#).
- Solution, Solute, and Solvent  
Review Table [11.1](#) and page 1 of chapter 12 notes.
- Equilibrium, Saturation, Super-Saturation, and Solubility  
Review pages 2 and 3 of chapter 12 notes.
- Miscible, Partially Miscible, and Immiscible  
Review pages 1 and 2 of chapter 12 notes, as well as Figures [11.14](#) and [11.15](#).
- Hydration and Lattice Energy  
Review page 4 of chapter 12 notes, as well as Figures [11.4](#) and [11.7](#).
- Determining and Converting Concentrations (Molarity, molality, and mole fractions)  
Review Examples 12.03, 12.04, and 12.08, as well as [Example 11.5](#).
- Raoult's Law  $P_A = (P_A^0)(X_A)$   
Review Examples 12.04 and 12.09, as well as Figure [11.18](#).
- Freezing Point Depression ( $\Delta T_f = k_f C_m$ ) and Boiling Point Elevation ( $\Delta T_b = k_b C_m$ )  
Review Examples 12.10 and 12.12, as well as Figure [11.23](#).
- Osmotic Pressure ( $\Pi = MRT$ )  
Review Example 12.13 and Figure [11.24](#).
- Colligative Properties of Ionic Solutions  
 $\Pi = iMRT$  and  $\Delta T_f = ik_f C_m$  (i = number of ions in the formula)  
Review page 4 of chapter 12 notes, as well as [Table 11.3](#).
- Types of Colloids  
Review [types of colloids](#), as well as Figure [11.33](#).

## CHM 1046 Exam 1 Review Sheet (continued)

- Factors Affecting Rates  
Review page 1 of chapter 13 notes.
- Activated Complex and Activation Energy  
Review [Exercise 12.81](#) and [Figure 12.14](#).
- Initial Rate Experiments  
Review Example 13.04.
- Concentration-Time Equations and Graphs  
 $\ln[A] = \ln[A]_0 - kt$       and       $\frac{1}{[A]} = \frac{1}{[A]_0} + kt$   
Review [Table 12.2](#), as well as the Examples and Figures in [Section 12.4](#).
- Half-Life  
 $t_{1/2} = 0.693/k$       and       $t_{1/2} = 1/k[A]$   
Review table on page 4 of chapter 13 notes. Also review [Section 12.4](#).
- Reaction Mechanisms and Elementary Reactions  
Review [Section 12.6](#), including Example 12.14.
- Effects of Catalyst  
Review [Figure 12.19](#) and Example 12.15 (following the figure).