

**Homework #3 BCHS 3304 – Spring 2011**  
**Basic Calculations, Proteins, Protein Function**

Note: This homework will **not** be collected. However, quizzes and exams will assume that you have completed and understand the homework assignment and could answer related questions.

Reading Assignment: Chapter 6 of *Biochemistry*,  
Chapter 7 of *Biochemistry*,

Study Exercises: Chapter 6, p. 173-4, #1, 2, 7, 10-12, 18  
Chapter 7, p. 216-7, #1, 2, 3, 6, 10, 15

*Note: Show all work and remember to incorporate your units in your calculations.*

1. Your experiment requires 100 ml 20 mM Tris, pH 8.0 which also contains 0.5 mM EDTA. Calculate and describe how you would make this solution using a stock of 1 M Tris, pH 8.0 and 0.5 M EDTA, pH 8.0.
2. Valine and isoleucine are isosteric indicating that they have the same shape. Draw each of these amino acids. What are their three-letter codes? What are their one-letter codes? Draw a circle around the methyl group which distinguishes isoleucine and valine.
3. Identify and draw another pair of isosteric amino acids in addition to the valine and isoleucine pair.
4. Complete the following problems of **Chapter 6** (p. 68-73) in the *Student Companion to Biochemistry*: Problems # 1, 2, 6, 8, 10, 11, 15,16, 17, 21, 22.
5. Complete the following problems of **Chapter 6** (p. 173-174) in your *Biochemistry* textbook: Problems # 1, 2, 7, 10-12, 18.
6. Complete the following problems of **Chapter 7** (p. 84-87) in the *Student Companion to Biochemistry*: Problems # 1, 2, 7, 8, 9, 23.
7. Complete the following problems of **Chapter 7** (p. 216-7) in your *Biochemistry* textbook: Problems # 1, 2, 3, 6, 10, 15