**CHEM523 Protein Assignment Review Article Grading Rubric**

The purpose of this assignment is to allow you to explore your assigned proteins in a high level of detail by applying the concepts and techniques we have learned this semester.

Your review article must adhere to the following guidelines. Failure to include any of the elements listed below will result in point deductions.

1. Your article must be between 15 and 17 pages in length. Each 0.5 page under or over in length will result in a 2.5 point deduction. Twelve point, double –spaced, Times New Roman font must be used for body text.
2. Your article must include discussions of both your assigned proteins, with at least 7 pages dedicated to each protein.
3. Your discussion of each protein must include:
   1. The name of the protein and the organism the protein comes from
   2. The chemical reaction catalyzed by the enzyme
   3. Any known importance of the protein to agricultural, industrial, pharmaceutical or medical applications
   4. A discussion of the three dimensional structure of the protein including: Specific domains, active site residues (both binding and catalytic), necessary cofactors, interesting features of the protein and discussion of the quaternary structure of the protein (if applicable).
   5. A detailed explanation of the reaction mechanism with figure(s).
      1. Your mechanism must include all amino acid side chains involved in the catalytic reaction.
      2. You must use ChemSketch or MarvinDraw to draw your mechanism.
      3. Your explanation must include the residues involved in binding AS WELL AS the residues involved in the catalytic reaction.
   6. Detailed discussions of homologous proteins of known sequence AND known structure with figures. You must thoughtfully select your homologues to tell a story. Choosing homologous proteins from the same genus of organism is an example of a poor choice.
4. Figures must adhere to the following guidelines:
   1. All figures are limited in size to 4”x5”
   2. You are only allowed to have 7 figures for each protein.
   3. Each figure must have a numbered figure legend underneath it. The legend text must clearly indicate what is in the figure. The figure legend text must be 8 point font.
   4. If you use a figure that you didn’t design, you must cite it in the figure legend! **Failure to do so will be a half of a letter grade penalty.**
   5. The figures must be referred to in the text or they will be ignored.
   6. Color schemes, surfaces and molecular representations must be chosen to maximize their impact. Failure to use the correct rendition for the task at hand will result in point deductions. For example: Drawing every atom in the protein as a Van der Waals sphere when you are trying to show a hydrogen bond distance is a poor choice. You are being graded on your judgment and figure design choices as well as the information your article relays.
   7. Figures must be included as part of the text and not included at the end of the text.
5. References
   1. You must have **at least 5 references** for each protein. For each reference less than five, you will lose 5 points.
   2. Only one website may be used as your 5 base references. For every 4 non-website references, you may include another website reference.
   3. Your textbook may be used as a single reference.
   4. At least three references must be scientific articles from peer-reviewed journals. In short: **You will use PubMed to find articles**.
   5. References must follow the American Chemical Society guidelines for Citation (See the Useful Links page on the Course Website)
   6. Your references MUST be specific to your protein.
6. Plagiarism of any form will result in 0 points for the assignment, a substantial penalty for the course and immediate referral to the Student Honor Court. I expect to see each of you reflected in your work and, believe it or not, it is ridiculously easy to identify student writing.

The point of this article is to show what you have learned during the entire semester. This rubric is only intended to provide a minimum set of guidelines for you to work from. The more your work reflects the spirit of the assignment, the higher your grade will be. Think about this as you complete the assignment. For many of you, this article will be the difference between passing the course and enjoying the pleasure of my company again in the fall. DO NOT TAKE THIS ASSIGNMENT LIGHTLY.