**PH 262 Assignment**

We have studied electric force, electric field, and electric potential. In order to gain some insights into the practical applications of these concepts, you will be looking at the electrostatic properties of some proteins. These properties play important role in the function of a protein in an organism. Using freely available software on the internet, you will visualize electrostatic potential around a protein.

**Instructions**

Go to the protein data bank (pdb) website <http://www.rcsb.org/pdb/home/home.do> to find a protein that interests you and do the following

* Write a short description of what it is and its function (1 paragraph)
* Use the website <http://nbcr-222.ucsd.edu/pdb2pqr_1.9.0/> to enter the PDB ID of the protein
* Map out the equipotential surfaces.
* Identify the regions where the protein is more positive and more negative.
* Indicate/describe the regions of positive and negative regions on the picture

*An example is shown below*



*Fig. electric potential around a protein called integrase (PBID: 1ex4) that helps HIV virus stay dormant in humans for decades. Red is positive, white is neutral and blue is negative.* <http://www.rcsb.org/pdb/education_discussion/educational_resources/struct_bio_hiv_lores.pdf>

For ideas on what protein to choose go to the website <http://www.rcsb.org/pdb/101/structural_view_of_biology.do> and you can check under educational resources.