The Motivated Student

Dr. Adams was teaching a biochemistry CURE for the first time. She was excited because the CURE would allow her to introduce students to protein modeling software that was being used by scientists all over the world. Her students would not only learn fundamental principles of protein folding and test the effects of mutations they choose on protein structure, they would also develop computational skills that would make them more employable.

She started the CURE by explaining that they were going to work on a real research project to understand the structure and function of a protein important for the regulation of glucose levels in the bloodstream. She tasked students with reading about glucose processing and about the protein they would be working on. Then she gave them a homework assignment to look up the protein in the Protein Database, use the software to model the protein, and hypothesize three mutations that might enhance the function of the protein.

One student came to class the next week with fantastic work: images of the protein from different perspectives with some preliminary modeling of the effects of hypothetical mutations. Other students submitted less impressive work, such as only one protein image and only one idea of a possible mutation to make. One even submitted images of the wrong protein! Although she was disappointed in the class as a whole, she was relieved to have at least one motivated student…

Take ~10 minutes to discuss the case in groups…

- What are the themes raised in the case?

- Why does the instructor think one student is motivated and the others not?

- What knowledge or skills might students bring to this CURE that might make them more or less successful, even BEFORE they start the course?

- What questions do you have about the case?