ABSTRACT:
It has been my goal as an educator to engage students in meaningful and innovative assessments that are hands-on, engage their creativity and improve their interdisciplinary understanding. At the same time, the engagement need to be equitable as well, to recognize each student for their individuality and creativity. To this end, I created my Pathophysiology course with the objective of teaching students how to model biological systems. The course is a one semester course that is based on homeostasis maintenance in the body and how homeostatic disruptions result in symptoms of pathologies. Students are required to understand how homeostasis is maintained in individual organ systems and encouraged to model their understanding of homeostatic disruptions in ways other than biology, such as computer science and mathematics. This gives them an opportunity to use their creativity as well as apply their learning in other disciplines to create an interdisciplinary model of a biological system. Students have indicated that they appreciate being able to use their creative talents and non-biological skills to model biological systems. Being able to use their non-biological skills in a biology elective both encourages their problem solving skills and gives them confidence. Student learning is assessed through pre and post assessments and shows significant improvement in student understanding.

Promoting equity in assessments has been challenging. There is a need to recognize the individual skills and learning patterns of each student and allow for this in creating assessments. I decided to replace two written assessments with hands on projects such as the heart model project and the graphic novels project. My purpose was to minimize memorization and promote integrative learning in a fun way. The heart model project replaced the cardiovascular system unit test. A variety of materials are provided to students for making life sized heart models, and instructor approval of student blueprints is required before beginning construction. Extra credit is offered if the model "works". A second assessment, the graphic novel project, replaced student presentations and were much preferred by the students for demonstrating their understanding and they also have a choice on which kind they wish to use.

RESULTS:
• Modeling biological systems through hands on activities that stimulate student learning has greatly helped student performance in my Pathophysiology class and also given students a sense of pride for their creations.
• Students have learned to take responsibility for their own learning, since they are graded on their effort.
• Students feel included since there are many different ways of demonstrating their understanding and they also have a choice on which kind they wish to use.
• Students agree that this is an equitable way of learning a new language – modeling – a logical thinking exercise which will help them in their other classes as well.

1. "I absolutely LOVED making the heart model, it helped me remember the parts of the heart and understand how it works... So much better than memorizing!"
2. "I like that the teacher allows us to choose which way we will model. I am good at drawing so I chose the graphic novel."
3. "Allowing us to use what we are good at is so inclusive and equitable, I love this teacher!"
4. "I understood programming better when she explained it, better than my CS teacher, and I love the logical thinking that she makes us do. It helped me in my math class as well."
5. "I wish all classes were like this one!"
6. "I am glad the teacher took the trouble to introduce us to something like this, it is a new concept and helped me very much!"

DISCUSSION:
Having students model their understanding in various and diverse ways has vastly improved student engagement and performance in my Pathophysiology class.
This class is a perfect opportunity to allow students to express their creativity and cultivatetrical thinking which will serve them well in other classes as well.
My Pathophysiology class provides an excellent platform for integrating interdisciplinary learning into my classroom.
Students are quickly learning that all sciences – physiology, physical sciences, mathematics and STEM skills such as computer programming are all highly integrated and make learning much more fun!