A STUDY OF THE EFFICACY OF 3-D VIRTUAL MODELS AS AN ADDITIONAL TOOL TOWARD VISUOSPATIAL LEARNING IN AN UNDERGRADUATE SETTING. Dr. Jeremy Cody* (*jacsch@rit.edu*), Dr. Paul Craig (*pac8612@rit.edu*), Adam Loudermilk (*adl2114@rit.edu*), Sarah Frisco (*slf4878@rit.edu*)

The effectiveness of virtual three-dimensional computer modeling as a chemistry teaching tool has not been fully investigated. Promising results have been proven at the high school level and lower, but surprisingly little research has been done at the university level. The purpose of this study will be to ascertain the value of virtual 3-D molecular images as a supplemental tool for the instruction of undergraduate students in the stereochemistry of organic molecules. Stereochemistry has traditionally been taught with the use of handheld molecular model kits and/or 2-D images on paper. However, as modern technology plays a larger role in education we feel that the addition of virtual 3-D molecular images can supplement or perhaps replace conventional teaching techniques. An additional advantage, specific to our study, is the widely compatible software used to construct the virtual models. Most other studies of this nature use their own software, compatible only with itself and often at significant monetary cost. Our universally compatible, free software eliminates this financial problem usually associated with virtual modeling. We implemented this new system of virtual 3-D modeling to create a series of interactive worksheets to supplement the existing organic chemistry curriculum. Taking advantage of this new technique we started by creating mini-lessons focusing on historically challenging material in terms of visuospatial learning such as stereochemistry and conformational analysis. In the future we plan to expand this idea to encompass virtual labs utilizing pre-made interactive models.