Chemistry and Biochemistry

Clarkson University

**Seminar**

**Friday, April 11th, 2025**

**3:30 PM, BH Snell Hall 214**

**Troy Wood,** **Ph.D.,**

Professor in the Department of Chemistry at State University of New York in Buffalo, Buffalo, NY

***will speak on:***

**Antibody and Bacteriophage Therapeutics Driven by Bioanalytical Mass Spectrometry**

**Abstract:** Medicinal chemistry focuses on the discovery and development of molecules for therapeutic use, and is grounded in synthetic organic chemistry and relatively small molecules (&lt; 1000 Da). Medicinal chemistry as a discipline has been evolving to consider other larger molecules (such as antibodies) as potential therapeutics. Bioanalytical mass spectrometry has also evolved, leading to detection of increasingly lower levels of large molecule therapeutics in clinical samples. Here, we will discuss two examples where bioanalytical mass spectrometry is used in the analysis of large molecule therapeutics. In the first case, a proteomic approach to quantify the broadly-neutralizing antibody PGT 121 used in HIV-1 treatment with peptide surrogates is detailed. In addition, the heterogeneity of glycosylation on PGT is also investigated. In the second case, we report on a liquid chromatography-tandem mass spectrometry (LC-MS/MS) approach developed to quantify bacteriophages as a pre-clinical tool for treatment of multi- and extensively-drug resistant Pseudomonas aeruginosa (MDR/XDR-PA). Tryptic peptides from a number of “hypothetical” proteins derived from bacteriophages are reported here for the first time. The approach of identifying surrogate peptides to quantify proteins involved in therapeutics will be addressed.

**Zoom Information:** [Link](https://clarkson.zoom.us/j/95010997564?pwd=Tk5STDlQaU9LTGN2b1hIY3VIYVNVdz09)

Meeting ID: 950 1099 7564 Passcode: chemistry

