CURRICULUM VITAE

NAME: **Omneya Nassar**

PRESENT POSITION: Assistant Professor of Instruction
Department of Chemistry and Biochemistry
Texas State University

EDUCATION:

July 2013 – 2019 *PhD in Pharmacology and Toxicology*
Department of Pharmacology and Toxicology
The University of Texas Medical Branch at Galveston
Advisor: Dr. B. Montgomery Pettitt
GPA: 3.801

Aug 2009 – May 2013 *Bachelors of Science in Biochemistry*
St. Edward's University in Austin, TX
GPA: 3.73

HONORS AND AWARDS

June 2018	Best Talk at the Second Annual Pharmacology and Toxicology Symposium
March 2018	Chemical Computing Group Travel Award to National ACS Meeting in Boston
Jan 2017	22nd SCSB Annual Symposium Logo Competition
May 2013	Bachelors of Science Degree with Magna Cum Laude Honor
May 2011 – May 2013	Welch Foundation Scholarship
April 2013	Distinguished Biochemistry Student of the Year at St. Edward's University
Jan 2012 – Dec 2012	Jimmy Mills Scholarship
Jan 2011– May 2013	Faculty Scholarship Award
Nov 2012	American Chemical Society: Commendable Chapter Award
Aug 2009 – May 2013	Academic Competitive Grant

PROFESSIONAL AND TEACHING EXPERIENCE:

August 2021 – Present *Chemistry Lecturer*
Department of Chemistry and Biochemistry
Texas State University, San Marcos, TX

Courses: General Chemistry I
General Chemistry II
Chemistry for Non-science majors
Biochemistry Lecture for Chemistry and Biology Majors
Biochemistry for Nutrition Majors Lecture
Biochemistry for Nutrition Majors Lab

Faculty Development Programs:
STEM Communities Learning Assistant Program for General Chemistry
General Chemistry Transformers Program

March 2020 – July 2021 *Clinical Data Associate*
Pharmaceutical Product Development (PPD) Inc.
Austin, TX

RESEARCH ACTIVITIES:

CURRENT RESEARCH PROJECT:

Archaeal viruses are phages that are structurally and functionally unique from eukaryotic and bacterial phages. They can maintain their structure and function in boiling acid environments, such as pH of 2.2 and temperatures as high as 90ºC. I am interested in understanding why archaeal viruses can survive such extreme environments. I plan on answering this question using molecular dynamics simulations as well as machine algorithms such as AlphaFold to determine the contribution of the protein sequence and multisubunit interactions that support their structural resilience in extreme environments.

DOCTORAL RESEARCH:

The regulation of glutamate dehydrogenase (GDH) is associated with insulin secretion and currently serves as a possible target in pursuit of developing an alternate type 2 diabetes treatment. However, the progress of developing GDH agonists and antagonists is impeded by conflicting GDH crystal structure and kinetics. We are currently building computational models of GDH interacting with native ligands, such as NADH, ADP and GTP, to improve our understanding of GDH ligand binding. Our models involve thermodynamic cycles to compute relative binding free energies of GDH-ligand interactions. While building our models, we discovered several sequence errors, specifically the misidentification of residue 387 as asparagine instead of lysine in the bovine GDH protein sequence. The error was a result of using chemical modification methods to determine the amino acid identity of the GDH protein sequence.

Dept. of Pharmacology and Toxicology/PHTO, The University of Texas Medical Branch
Advisor: Dr. B. Montgomery Pettitt
Collaborator: Dr. Thomas Smith
Field of Study: Thermodynamics of Protein-Ligand Interactions
Ligand – Glutamate Dehydrogenase Interactions: A Link to Type 2 Diabetes

PUBLICATIONS:

Papers:

Nassar, Omneya M., Ka-Yiu Wong, Gillian C. Lynch, Thomas J. Smith, and B. Montgomery Pettitt. "Allosteric discrimination at the NADH/ADP regulatory site of glutamate dehydrogenase." *Protein Science* 28, no. 12 (2019): 2080-2088.

Nassar, Omneya M., Changhong Li, Charles A. Stanley, B. Montgomery Pettitt, and Thomas J. Smith. "Glutamate dehydrogenase: Structure of a hyperinsulinism mutant, corrections to the atomic model, and insights into a regulatory site." *Proteins: Structure, Function, and Bioinformatics* 87, no. 1 (2019): 41-50

Abstracts:

Nassar, OM, Pettitt, BM, Smith, TJ. *Discovery of a 40-year-old Sequence Error Unveils New Understanding of Allosteric Ligand Binding to Glutamate Dehydrogenase.* Poster presented at National American Chemical Society Meeting in Boston, MA. August 2018.

Nassar, OM, Pettitt, BM. *Ligand-GDH Interactions Using a Computational Approach.* Poster presented at the Annual Structural Biology Symposium in Galveston TX. April 2016.

Nassar, OM, Pettitt, BM. *Thermodynamics of Ligand Binding to Glutamate Dehydrogenase.* Poster presented at the Keck Center Annual Research Conference in Houston TX. October 2015.

Nassar, OM, Pettitt, BM. *Electrostatic Binding Energy Calculations of Acetylcholinesterase-Fasciculin II Complex*. Poster presented at the Keck Center Annual Research Conference in Houston TX. October 2014.

MEMBERSHIP IN SCIENTIFIC SOCIETIES: American Chemical Society (August 2012 – present)

VOLUNTEER SERVICE:

November 2021-2023	Bobcat Day Faculty Volunteer Texas State University 601 University Dr. San Marcos, TX 78666
March 2018 – March 2019	Professionalism Liaison Honor Pledge Committee University of Texas Medical Branch 301 University Blvd Galveston, TX 77550
March 2018 – August 2019	Student Representative (Honor Pledge Committee) UTMB Professionalism Committee University of Texas Medical Branch 301 University Blvd Galveston, TX 77550
September 2017	American Red Cross Volunteer Hurricane Harvey Disaster Relief (DR397-18) American Red Cross 2700 Southwest Fwy Houston, TX 77098