



Alumnus of the Month June 2022

Dr. Acree graduated from Missouri S & T with a bachelor's degree (1975), a master's degree (1977), and a doctorate degree (1981) in Chemistry. He did his postdoctoral research at the University of Kansas in the Department of Pharmaceutical Chemistry. He taught at Kent State University from September 1982 to August 1988 before moving to the University of North Texas, where he is currently a Professor in the Chemistry Department.

Research interests: Chemical and solution thermodynamics, spectrofluorometric probe studies, and the development of Linear Free Energy Relationships to mathematically describe solute transfer properties of chemical, biological, pharmaceutical and environmental importance. Specific processes that have been successfully described include the partitioning of drug molecules between the blood and various body tissues and fluids, the toxicity of organic compounds to various aquatic organisms, the gas chromatographic and liquid chromatographic retention behavior of organic solutes on several hundred different chromatographic stationary phases, and the partitioning behavior of both molecular and ionic solutes. Dr. Acree's research has resulted in the publication of more than 1,000 peer-refereed research articles, one research monograph on solution thermodynamic properties of nonelectrolyte solutions, six volumes in the IUPAC-NIST Solubility Data Series, as well as several encyclopedia articles, book chapters and educational articles in the *Journal of Chemical Education*.

For more information visit:

<https://chemistry.unt.edu/people-node/william-e-acree-jr>

<https://facultyinfo.unt.edu/faculty-profile?query=Bill+Acree&type=name&profile=wea0007>

Recent publications:

Kashefolgheta, S., Wang, S., Acree, W. E., Hunenberger, P. H. (2021). "Evaluation of Nine Condensed-Phase Force Fields of the GROMOS, CHARM, OPLS, AMBER and OpenFF Families Against Experimental Cross-Solvation Free Energies". *Physical Chemistry Chemical Physics*, 23, 13055 - 13074.

Naef, R., Acree, W. E. (2021). "Calculation of the Vapour Pressure of Organic Molecules by Means of a Group-Additivity Method and Their Resultant Gibbs Free Energy and Entropy of Vaporization at 298.15 K". *Molecules*, 26, 1045/1 - 1045/29.

Hille, C., Ringe, S., Deimel, M., Kunkel, C., Acree, W. E., Reuter, K. U., Oberhofer, H. (2019). "Generalized Molecular Solvation in Non-Aqueous Solutions by a Single Parameter Implicit Solvation Scheme". *The Journal of Chemical Physics*, 150, 041710-1 to 041710-13

Acree, W. E., Chickos, J. S. (in press). "Phase Transition Enthalpy Measurements of Organic Compounds. An Update of Sublimation, Vaporization and Fusion Enthalpies from 2016 to 2021". *Journal of Physical and Chemical Reference Data*, in press. doi: 10.1063/5.0081916.