

First Year Research Award: **Chemistry/Flame Temperatures**

Faculty Supervisor: **Dr. Ray Dudek**

Position Title: **First Year Student Researcher**

Criteria: The Wittenberg University **Chemistry** will offer a First Year Research Award for the academic year 2024-25 to an incoming student to work with **Ray Dudek**. This student will have a demonstrated academic ability and/or research interest in **Chemistry**.

Expectations: FYRA Scholarship recipients will devote between 6 and 8 hours per week across their first year to the FYRA program and their research-related project, according to the FYRA Learning Contract agreed upon by the sponsoring professor and the scholarship recipient. Recipients will also be expected to participate in a regular meeting of FYRA recipients, present their results in an appropriate forum and submit a copy of their presentation to the appropriate university office. FYRA Scholarship recipients will also participate in an assessment of the FYRA program. (The FYRA Scholarship is not part of a student's work study award.)

Research Activity: This project involves improving a thermodynamics laboratory experiment. Currently, flame temperatures are measured with a higher temperature thermocouple and then modeled using the adiabatic flame model. The experimental temperatures are roughly half of the theoretical and literature values. Instead of using a thermocouple, the student will record the spectrum of a glowing body and use a radiation simulation to obtain the temperature. A successful project may be published in the Journal of Chemical Education. A student participating in this project will learn some thermodynamics, spectroscopy, and data processing with Excel.