Overview:

- Introduce students to basic skills and theory needed to purify recombinant proteins from microbial expression hosts using FPLC.
- Use enzymes from hyperthermophiles to simplify assays and minimize stability problems.

Lectures:

1. Introduction to Liquid Chromatography
2. Protein Purification Basics
3. Liquid Chromatography - Ion Exchange
4. Liquid Chromatography - Hydrophobic Interaction
5. Liquid Chromatography - Gel Filtration/Affinity
6. Protein Folding and Re-folding
7. Downstream Processing

Labs:

1. FPLC Operation - Purification of Protein Standards 1 week
2. AEC purification of *Thermotoga maritima* α-gal from Heat-Treated *E. coli* 1 week
3. Purification of *Thermotoga maritima* α-gal from *E. coli* by AEC, HIC, HAP 3 weeks
4. Purification of *Thermotoga maritima* α-gal from *E. coli* by His-tag/IMEC 1 week
5. Finish assays and run gels 1 week