BCHM 421/422 – 2022/2023

Project Outline: Student projects will involve addressing questions aimed at understanding calcium signal transduction in plants. Using the genetic model, Arabidopsis, our lab explores the biochemical properties and functions of the unique calcium-binding proteins that plants have evolved to coordinate cell responses to developmental cues and stresses such as drought, pathogen attack, and soil salinity. All 421/2 projects involve extensive lab training across a broad range of techniques. A background in protein biochemistry is sufficient and courses in plant biology helpful but not necessary. Interested students should contact Dr. Snedden directly to learn more about different project options and details.

Supervisor: W.A. Snedden (Biology), sneddenw@queensu.ca, co-supervision options available

Project Title: Investigating calcium signal transduction in plants

Keywords:
1. signal transduction
2. protein biochemistry
3. plant biotechnology
4. molecular biology
5. stress biology

Project Goals: The overarching goal of the lab is to understand how plant cells use calcium signalling to process information about their environment. Hypotheses will vary depending on student interests but for all projects, students will be trained in a variety of techniques and experience the scientific method from experimental design, to data collection and analyses and thesis writing.

Experimental Approaches: protein biochemistry (recombinant protein expression and purification, protein-protein interaction assays, structure/function analyses), molecular biology (PCR, cloning), genetics (plant transformation, use of gene knock-out transgenic plants, etc), basic bioinformatics, and a range of other techniques. This training is suitable to students interested in a lab-based research career.