Overview:

• Participants will be introduced to a variety of methods for studying cellular signaling processes including theory, applications and limitations.

• Students will use select techniques in the laboratory to examine the effects of a chemotherapeutic agent on cancer cell signaling and survival.

Lectures:
1. Introduction to cell signaling
2. Drug receptor interactions, dose-response relationships
3. Protein gel electrophoresis (1D and 2D)
4. Fluorescence microscopy (confocal, TIRF, PALM)
5. Flow cytometry
6. Immunoprecipitation

Labs:
1. Dose-Response and EC$_{50}$ Determination  2 weeks
2. Nuclear and Cytoplasmic Fractionation  1 week
3. Western Blot  1 week
4. Fluorescence Microscopy  1 week
5. Flow Cytometry and Analysis  3 weeks