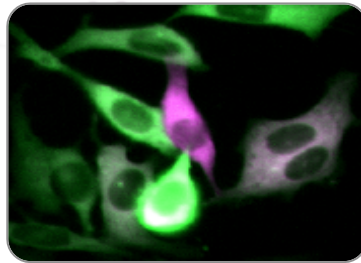
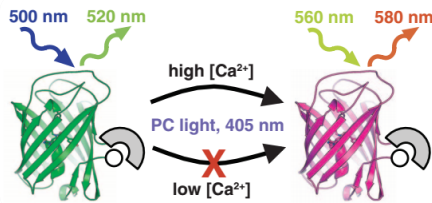


**Overview:**

*New Additions for Fall 2017-Spring 2018*

- Experience biotechnology research and explore its impact in research and industry.
- Students will gain hands-on experience with modern biotechnology techniques and develop technical skills for future laboratory research and industry positions.



**Lecture Topics:**

1. What is DNA cloning?
2. Experimental Design
3. PCR cloning & Gateway technology
4. Screening recombinant clones
5. **Animal cell culture & Aseptic Technique**
6. Next Generation Sequencing: A Case Study
7. RNA interference and Genome Editing with CRISPR-Cas9

**CaMPARI cloning**

1. **Hypothesis Design**
2. Cloning by PCR
3. Plasmid DNA purification and quantification
4. Ligation and Transformation
5. Screening clones (PCR, DNA sequencing)
6. **Gateway Cloning technology**

**CaMPARI expression in *E.coli* & animal cells**

1. Hypothesis Testing
2. Protein Purification
3. SDS-PAGE and Western Blotting
4. **Animal cell culture & transfection**
5. **Fluorescence microscopy**
6. **Quantitative Data Analysis**