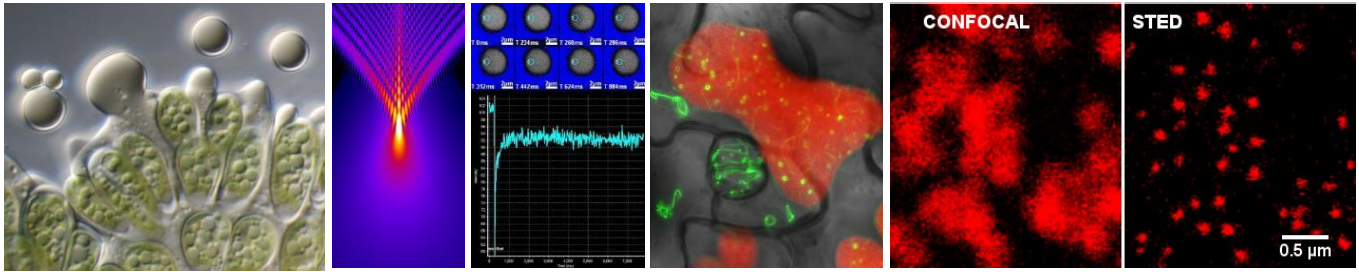


# THEORY AND APPLICATIONS OF BIOL 608 LIGHT MICROSCOPY



**3 credits Spring Semester ILSB Rm. 1143**  
**Lectures: Wed+Fri 1-2:15 PM, flexible lab sessions**

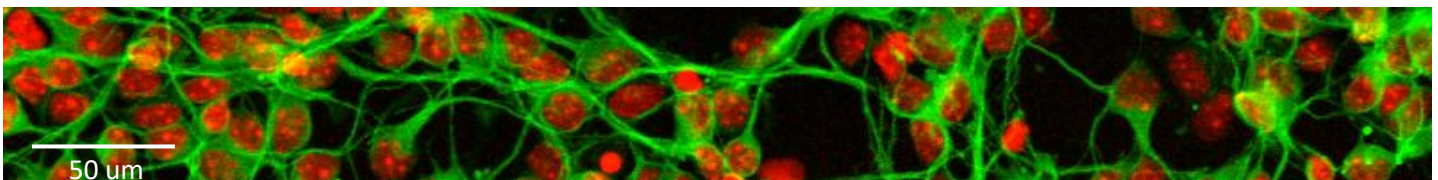
For biologists, material scientists, and students from other disciplines. Gain theoretical background and practical experience in operation of light microscopes, sample preparation, image acquisition and image processing.

## Topics:

- Fluorescence Microscopy, Confocal Imaging, Multiphoton Excitation
- Brightfield, Darkfield, Phase Contrast, Differential Interference Contrast, Polarized Light Microscopy
- Principles of superresolution LM (STED, STORM, PALM, SIM, SRRF...)
- Studying molecular dynamics and interactions by fluorescence microscopy: FRAP, FRET, FLIM, Fluorescence Correlation Spectroscopy, RICS
- Image processing and analysis, deconvolution

## Lab section:

- Demonstration and hands-on experience with light microscopes (wide-field, laser scanning confocal, STED superresolution, FLIM, Light Sheet)
- Full confocal microscopy training at reduced cost (optional)
- Analyzing point spread functions, resolution and optical aberrations
- Image processing and analysis



Contact: Dr. Beiyang Nan (845-3487; [bnan@bio.tamu.edu](mailto:bnan@bio.tamu.edu));  
Dr. Stanislav Vitha (845-1607, [vitha@tamu.edu](mailto:vitha@tamu.edu));