

## Microscopy:

Objective: Understanding the principles of microscope image generation and the data information.

- (1) Overview—Magnification v. Resolution, general behavior of light (Airy Disk)
- (2) Light and Optics Physics—**Mark Reeves**
  - Light and optics
  - Lens behavior
  - Geometric optics
- (3) Microscope anatomy/Microscope light path and image planes/Kohler illumination
  - Microscope and Objective anatomy
  - Kohler Illumination → optimize resolution, contrast, light intensity and evenness of illumination
  - Conjugate focal planes
  - Light path
- (4) Phase Contrast, Dark Field, DIC
- (5) Fluorescence—Principles/Techniques (FRAP (photobleaching), FRET, FLIM, TIRF)
- (6) Quantification
- (7) Live cell imaging—July 31, **Anastas Popratiloff**

## Web resources

<http://www.invitrogen.com/site/us/en/home/support/Tutorials.html>

<http://www.olympusmicro.com/primer/lightandcolor/index.html>

<http://micro.magnet.fsu.edu/primer/index.html>

<http://www.mih.unibas.ch/Booklet/Booklet96/Booklet96.html>

<http://www.biologie.uni-hamburg.de/b-online/e03/03.htm>

<http://www.mindspring.com/%7Ealshinn/Leeuwenhoekplans.html>