

EMS MICROSCOPY ACADEMY

MICROSCOPY: THE COMPLETE IMAGE WORKSHOP

Do you want to add to your skills in Scanning, Transmission, Optical Light, or General Microscopy?

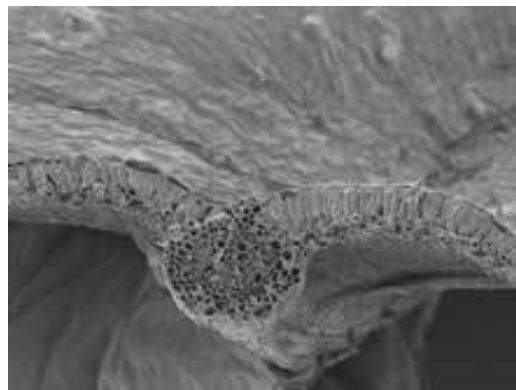
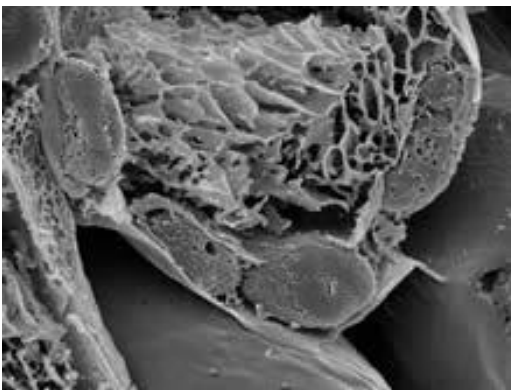
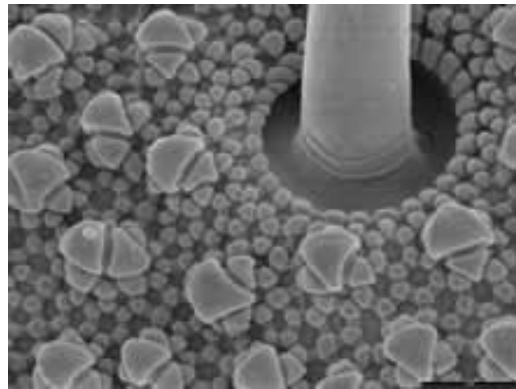
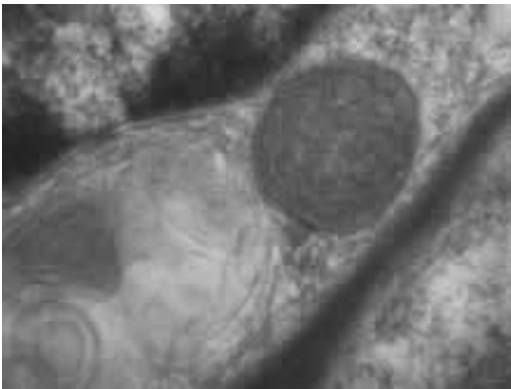
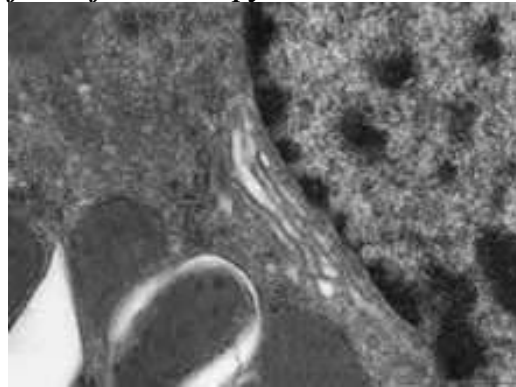
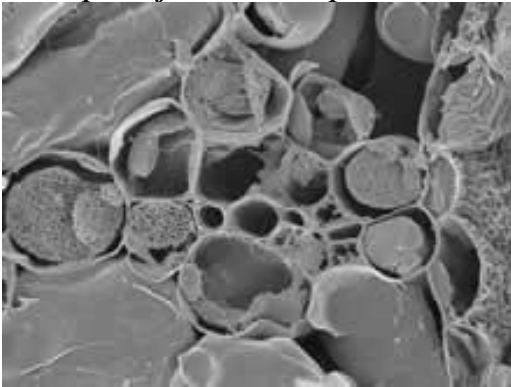
Are you working in a lab that requires you to be proficient in *all* fields of microscopy?

If the answer is yes to either of those questions, then this is the class for you!

Walk away in two short weeks with the ability to run and be proficient in all aspects of specimen preparation and biological materials.

Be a glowing asset in any lab you walk into!

Examples of the endless possibilities in the field of Microscopy



EMS MICROSCOPY ACADEMY

MICROSCOPY: THE COMPLETE IMAGE WORKSHOP

Details

Two-Week Comprehensive Microscopy Summer Course

Monday - Friday
August 10 - 21, 2020
8:30 a.m. - 4:30 p.m.
Hatfield, Pennsylvania, USA

Targeted Participants

Individuals who are currently employed in the biological field and want to add a significant skill level to their resume. Also anyone with an undergraduate degree in the sciences and need a specific skill set for employment. **Limit: 4 - 6 students.**

Scope of Class

This 2-week intensive course will prepare participants to enter the field of microscopy with a strong emphasis on electron microscopy specifically. Both in-depth theory and extensive hands-on lab work in specimen preparation methodologies, instrumentation, and image assessment are the prime focus of this course.

Sample preparation will cover cell/tissue requirements, tonicity, buffers, fixatives evaluation, fixation, dehydration and embedment. The process of microtomy, 0.5 μm and 60 nm, for OLM and TEM respectively, will take up a significant portion of the hands-on lab exercises. The theory and practical operation of the OLM, SEM, and TEM will complete the course and give the participant the information and skills necessary to function as an electron microscopy technician.

The EMS Microscopy Academy

Located in Hatfield, Pennsylvania, the Academy provides electron microscopy classes, workshops and training sessions for all fields of microscopy, including materials science and biological science.

Format

Lecture, demonstration and lots of personal hands-on training and application of electron microscopy techniques.

EMS MICROSCOPY ACADEMY

MICROSCOPY: THE COMPLETE IMAGE WORKSHOP

Main Curriculum

- Optical Light
- Biological Sample Preparation
- Transmission Electron Microscope
- Scanning Electron Microscope

Instruments Available

OLM	- Reichert-Jung Polyvar - Jenco
SEM	- Hitachi S3500 - COXEM SEM EM-30
TEM	- Zeiss 10C
Ultramicrotome	- Leica EM UC7 (RT & Cryo) - Boeckeler RMC PowerTome (RT & Cryo)
Sample Processing	- Lynx II automated tissue processor - EMS 9000 microwave

Faculty

Michael Kostrna was the program director of the Electron Microscopy Technician program at Madison Area Technical College and has more than more than 35 years in EM technical education and research experience. He has been training EM students for 30 years and has developed curricula and lab exercises for TEM, SEM, OLM, lab safety, introductory and advanced biological EM, EM, maintenance, and x-Ray microanalysis. He has worked with companies such as SC Johnson Polymer, Dow Chemicals, Io Genetics, Virent Technologies, ABS Global, NanoOnocology, and Microscopy Innovations, and in the process gained insight to the various applications of EM.

Al Coritz has been doing Electron Microscopy for 39 years, beginning at the Yale School of Medicine and ending up on the commercial side with several key EM companies. His specialty is Cryo-techniques and Thin Film Technology: i.e. Freeze Fracture/Rotary Shadowing, High Pressure Freezing, and more He is currently with Electron Microscopy Sciences where he has been the Technical Director for over 20 years.

Schedule

Week 1 - Optics for Light and Electron Microscopes

- I. The Nature of Light vs Electrons
 - a. Electro-magnetic radiation – Charged Particle
 - i. Wave function

EMS MICROSCOPY ACADEMY
MICROSCOPY: THE COMPLETE IMAGE WORKSHOP

- ii. Particle function
 - b. Interaction of Light and Electrons with Matter
 - i. Absorption – energy transfer (SE)
 - ii. Transmission - Scattering
 - iii. Reflection - Backscattering
 - iv. Diffraction
- II. Optics
 - a. Image Formation
 - b. Aberrations
 - i. Chromatic
 - ii. Spherical
 - c. Astigmatism
 - d. Ray Diagram
- III. Specimen Preparation for OLM, TEM, and SEM
 - a. Chemical / Physical / Microtomy

Week 2 - Optics for Light and Electron Microscopes, Continued

- I. Optical Light Microscope (OLM), Transmission EM (TEM), Scanning EM (SEM)
 - a. Illumination sources
 - b. Condenser Lenses
 - c. Mechanical Stage
 - d. Objective Lens
 - i. Magnification
 - ii. Resolution
- II. Alignments Kohler / Column

Transmission Electron Microscope

- I. Term Definitions
- II. Beam Specimen interactions -
- III. Vacuum System

Scanning Electron Microscope

- I. Spot Size / Probe Current
- II. Scanning System
- III. Signal Detectors
- IV. Image Collection and Problems
- V. Coating

Schedule subject to change

EMS MICROSCOPY ACADEMY

MICROSCOPY: THE COMPLETE IMAGE WORKSHOP

Registration Fee: \$2,195.00 Includes

- Workshop syllabus
- All supplies
- Reagents and solutions
- Lunches
- Coffee
- Tea
- Dinner on the first evening of the workshop

Lodging

Participants are responsible for making their own hotel reservations.

The following hotel has been designated as the host hotel:

Homewood Suites

1200 Pennbrook Parkway
Lansdale, PA 19446
Phone: 215-362-6400

The special rate is \$119.00 per night (plus tax) which includes a hot breakfast and a light dinner in the evening.

Please make your reservations and mention you are participating in the EMS Workshop.
GROUP CODE: EMS WORKSHOP

Everyone should plan to arrive the night before class begins.

Enrollment Note

Registration will be limited to a maximum of 4-6 participants.
EMS will provide samples to those who prefer not to bring their own.

EMS MICROSCOPY ACADEMY
MICROSCOPY: THE COMPLETE IMAGE WORKSHOP

Printable Registration Form

_____ M / F
Name / Title

Institution

Department

Mailing address

City / Zip

Country

Telephone / Fax

Email:

Will you bring your own specimens? Yes___ / No___ (See Note on prior page)
What Samples are you bringing and most interested in?

All registrations must include payment.
Rate \$2,195.00 per Person
Number of Participants _____
Total \$_____

Pay by check: make payable to EMS and reference "Microscopy Complete Aug20".
Pay by credit card: Credit Card Type _____
Credit Card Number _____
Expiration Date _____ 3 Digit Code _____

Signature / Date

Return your registration to:
Stacie Kirsch
1560 Industry Road
Hatfield, PA 19440 USA
Phone: 215-412-8402
E-Mail: info@emsdiasum.com or Fax: 215-412-8452

TO REGISTER ONLINE, CLICK [HERE](#).