

Training and Remote Training

(Fun Times in Aberdeen)

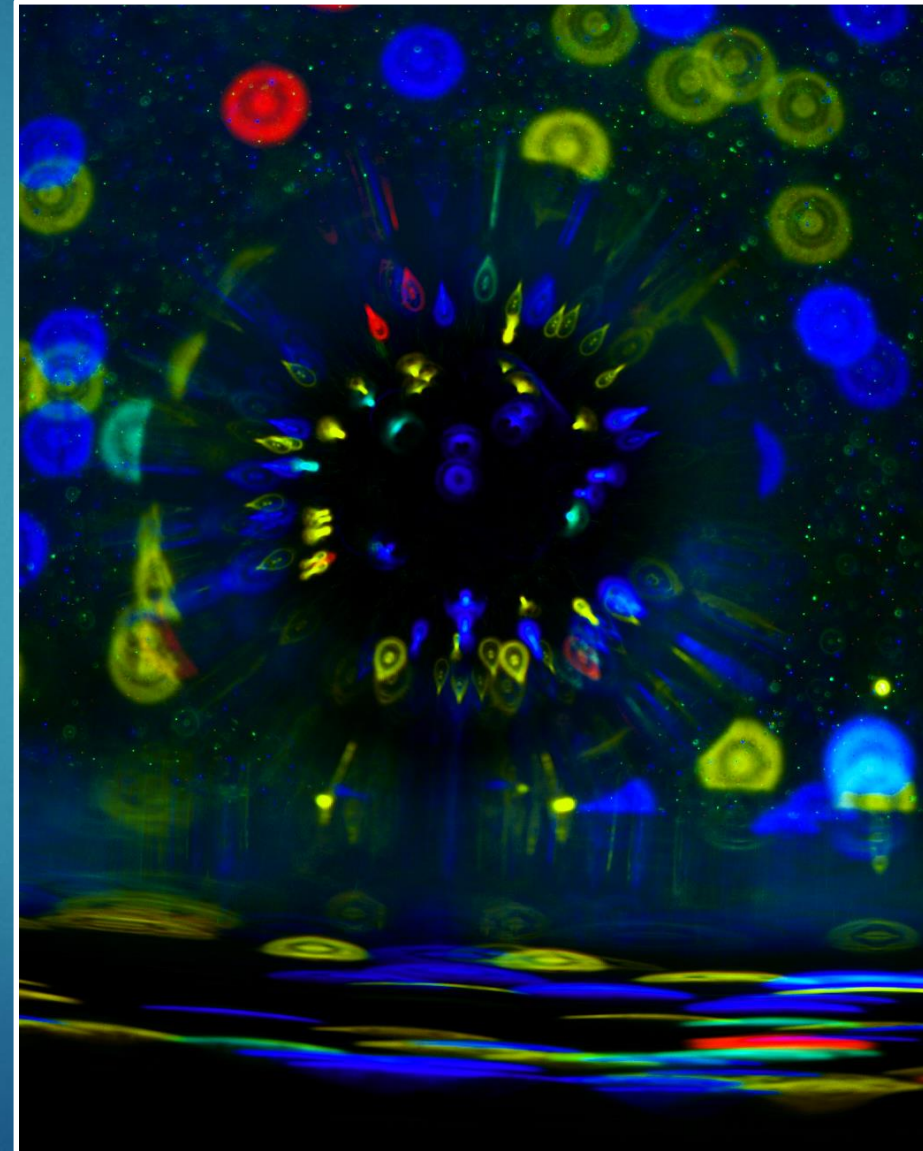
Kevin Mackenzie

Facility Manager

Microscopy and Histology Core Facility

Institute of Medical Sciences

University of Aberdeen



Where is Aberdeen (57° N)



Institute of Medical Sciences

About the facility

The Institute of Medical Sciences is the largest research institute at the University of Aberdeen, encompassing 375 researchers and support staff. These comprise 70 principal investigators, 55 post-doctoral scientists and academics, 64 technicians and 120 PhD students.

The Microscopy and Histology Facility has a wide range of equipment including 18 different types of microscopes. Staff of 4 (Myself, Debbie, Gillian and Lucy)

We provide services for both internal and external users on: Histology (sample prep, sectioning and staining), Slide Scanning, Light and Fluorescent Microscopy, Confocal Microscopy, Live Cell Imaging, and also Transmission and Scanning Electron Microscopy plus Micro CT.

www.abdn.ac.uk/microscopy

Coronavirus (Covid-19) adventures

Email 12th March from senior management – global pandemic.

Meeting on Tuesday 17th March and last day Friday 20th March @ 5pm
(Scanned over 600 slides)

Thought would be for 3 months or possibly longer!

All facility staff furloughed on the 27th April - email to colleague “It will be 3 weeks in the first instance but is set as an unknown - could see them being off for 6 weeks or longer”.

For some staff it was the 1st Dec before they have access to the IMS (8 months)

Online meetings, demos via Zoom and Teams. Also using WhatsApp and Messenger.

23rd March - Day 1- my home office

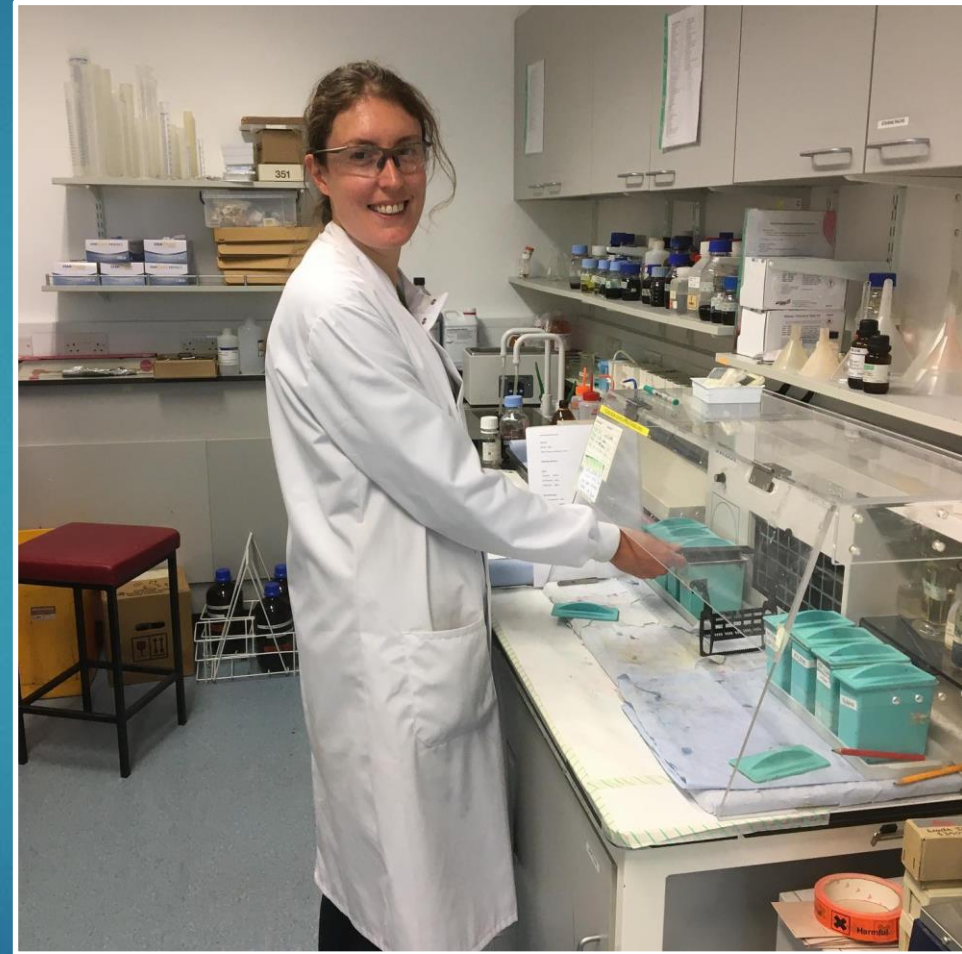


After 2 weeks working from home, started a “What is it” on FB from 7th April to 3rd July

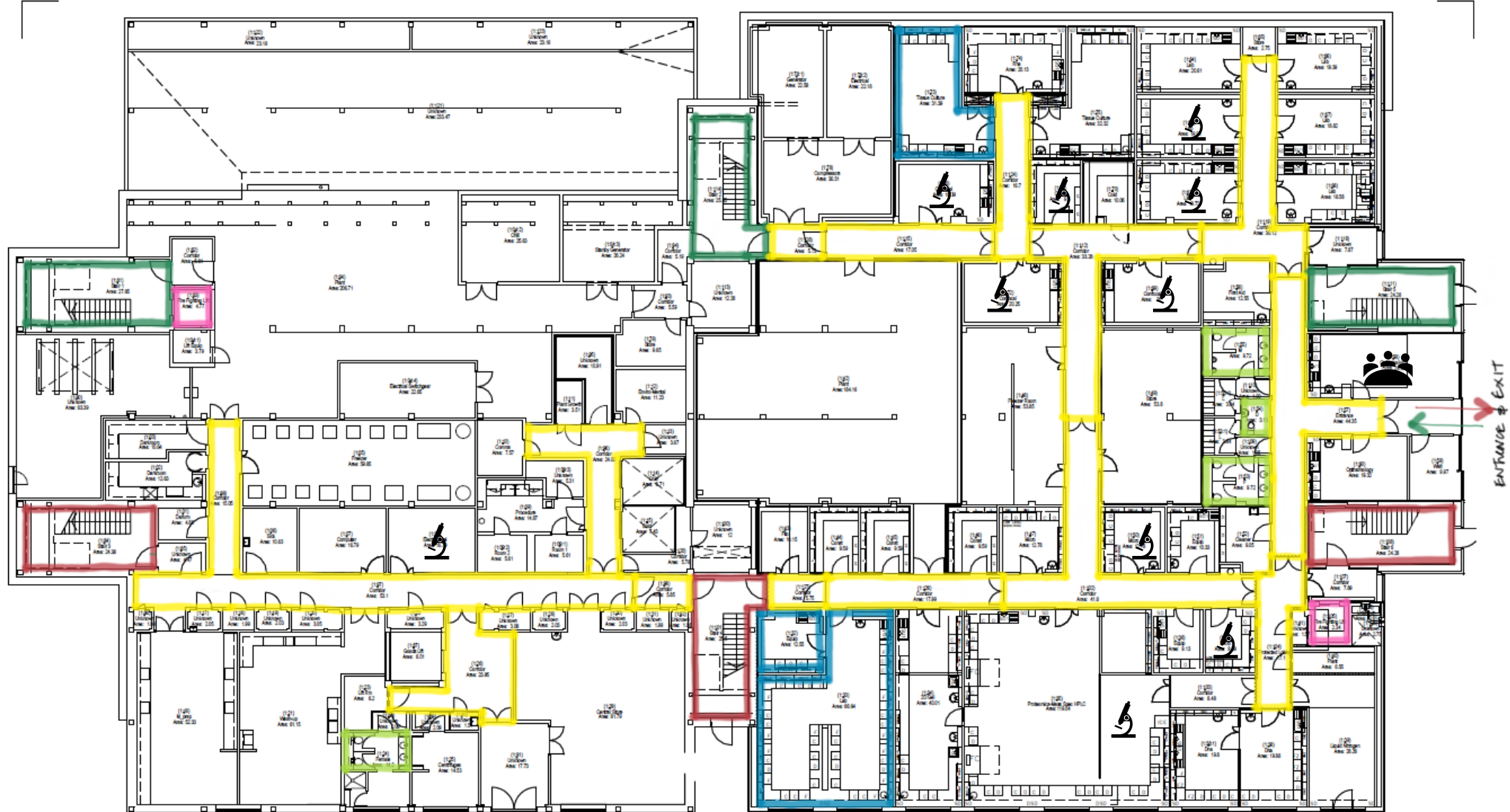


@AberdeenMicro

We are back – 6th July



Myself and Lucy return to switch everything back on and produce rules/RA for users and think about training.



KEY

ENTRANCE

EXIT

VERTICAL CIRCULATION - ASCENDING

VERTICAL CIRCULATION - DESCENDING

TWO-WAY DIRECTION CIRCULATION (MANAGEMENT SOLUTION)

TRILAB (RESTRICTED TO ONE OCCUPANT)

LIFT RESTRICTED TO REAR ONLY

OCC CAP (OCCUPANT CAPACITY OF ROOM)

(RESTRICTED BY SOCIAL DISTANCING MEASURES)

DO NOT USE WHEN WEARING LAB COATS OR CARCASS SAMPLES

SOCIAL DISTANCING MEASURES

FIMS19105/001A



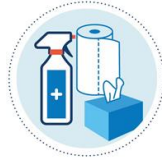
Estates & Facilities

location file name C:\Users\W26609\Documents\A-IMS_CENTRAL_alphabetic_buahan\W26609				building Institute of Medical Science	
scale 1 : 200	paper size A3	drawn by SB	date 22/04/19	floor ref 1	floor name Level 1
campus Foresterhill	building ref ES024	sheet name Baseplan			

22/04/2019 14:32:45

ALL USERS!!!

- Wear lab coat
- Clean before and after use with 70% ethanol
- Any symptoms? Go home!

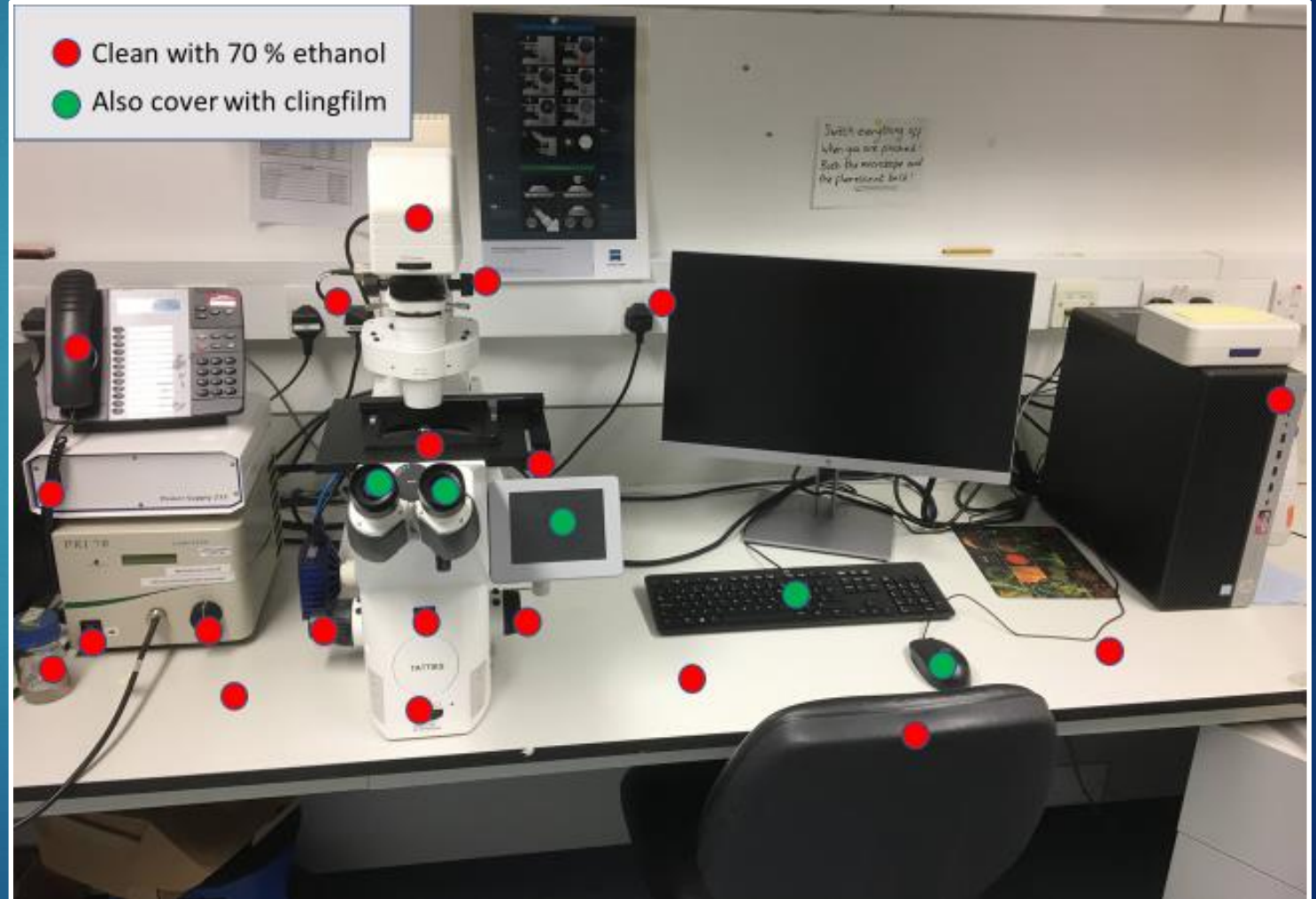


Max Occupancy = 1

Only **1** user at a time.
Wait until **prior** user **leaves** the room
before **entering** room.

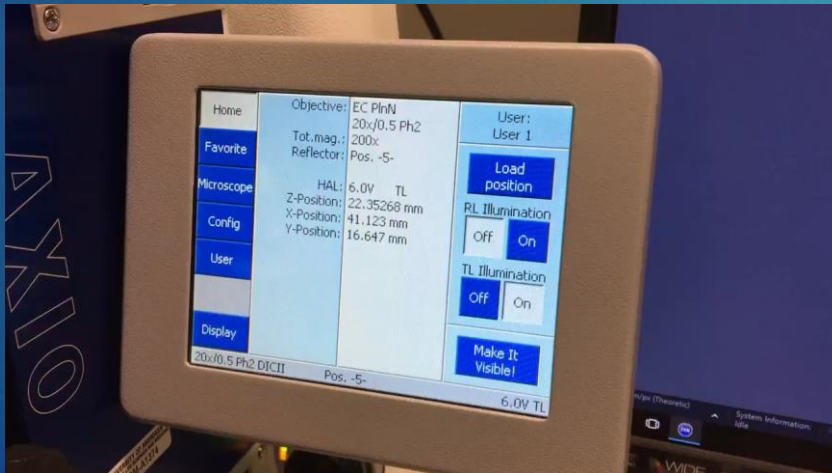
START of SESSION

- Wash hands
- Confirm no spills, no immersion oil on lenses
- Clean all surfaces with 70% ethanol (*see annotated print out*)
- Use new cling film on:
 - Eyepieces
 - Keyboard
 - Mouse
 - Touchpad
 - Joystick



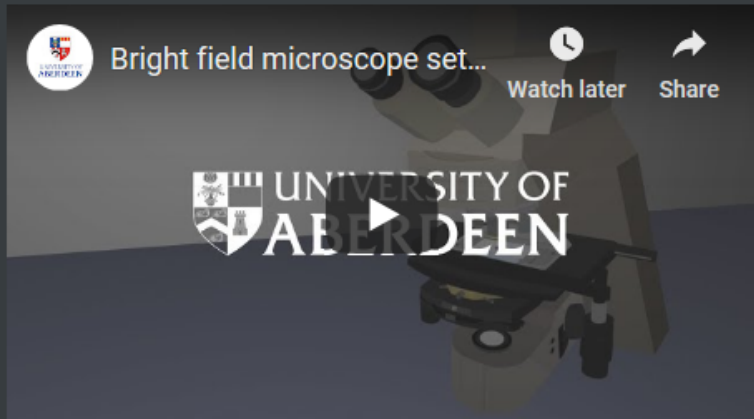
Training

- ▶ Microsoft Teams – use of microscope software, remote sessions with individual users on advanced functions of software
- ▶ Problem on Windows 7 machines as no longer on network
- ▶ Webcam usb issues when we already have a usb microscope camera connected. Also issue in purchasing webcams.
- ▶ Short videos on use of microscope.





Microscopy



Set up a light
microscope for
Koehler



Light Microscopy
Introduction



Electron
Microscopy
Introduction



Microscopy and Histology provides access to advanced research technologies. Within the facility we have a wide range of modern equipment and techniques available and are here to help you make the best use of them. We have many years of experience with Histology, Fluorescence and Electron Microscopy.

Our **Videos** will provide you with a short introduction to Light Microscopy, Electron Microscopy and Fluorescent Microscopy, and also show you how to set up a microscope for Brightfield imaging.

We are happy to meet up to help you get started with a new study or help you sort out an unexpected result. We are pleased to welcome all users with all levels of experience in Microscopy and/or Histology.

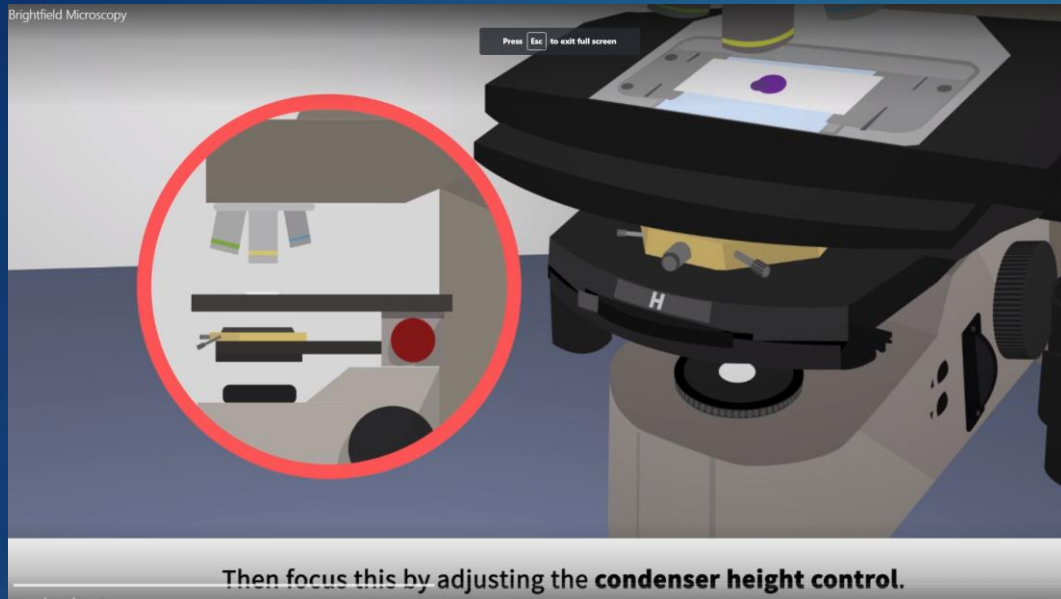


Info

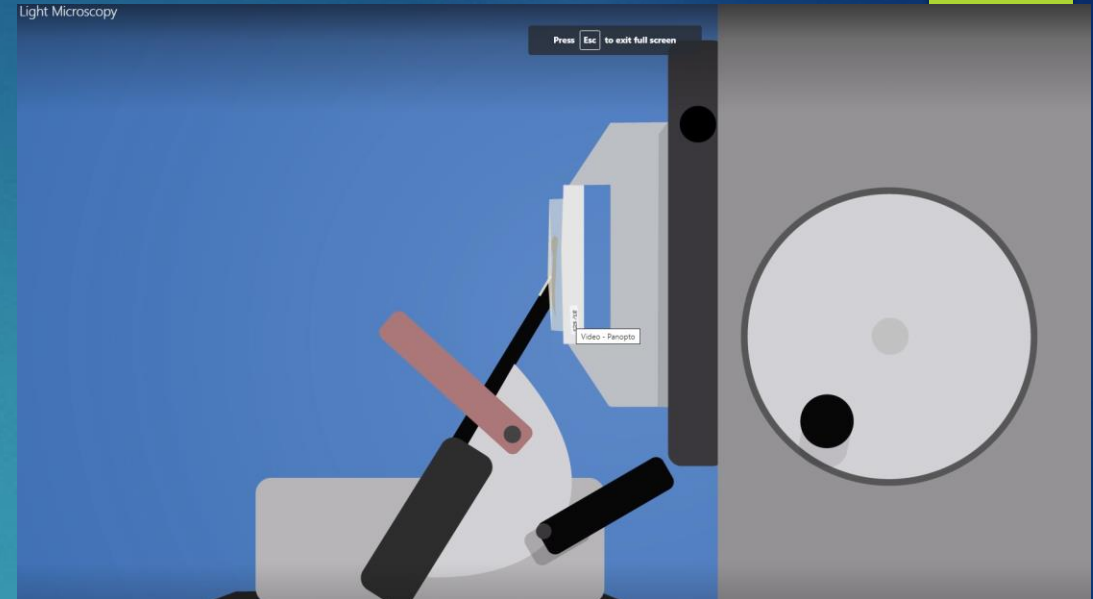


Links

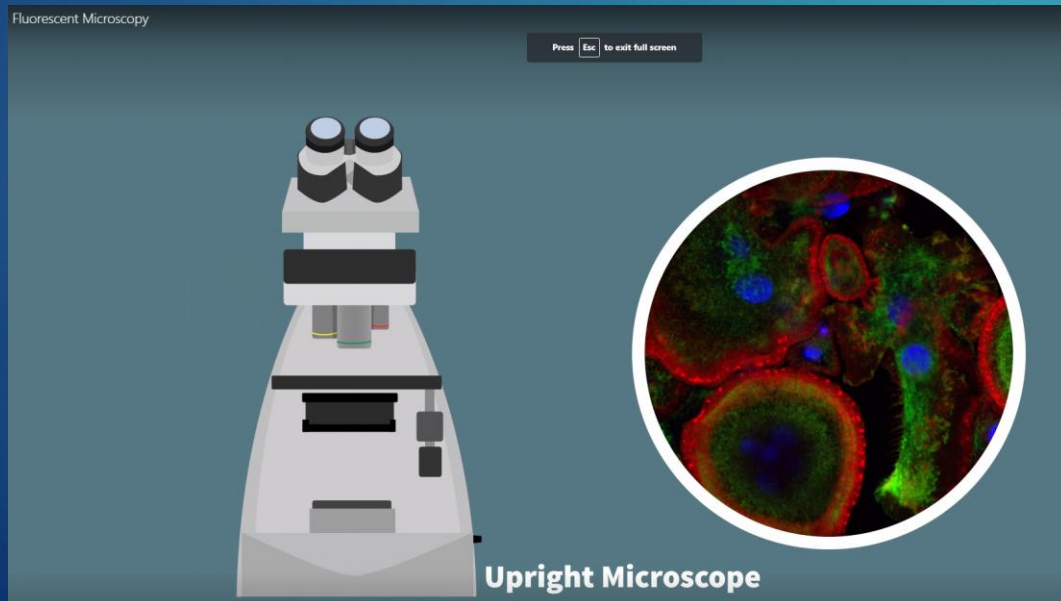
Setup of brightfield microscope



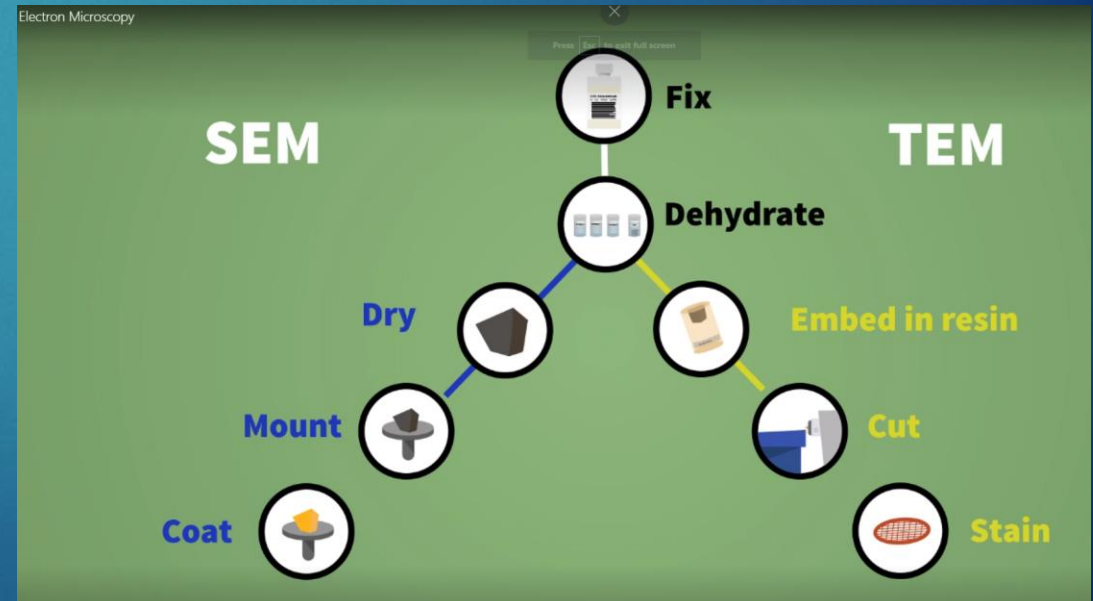
Histology – sample preparation



Fluorescence – direct and indirect



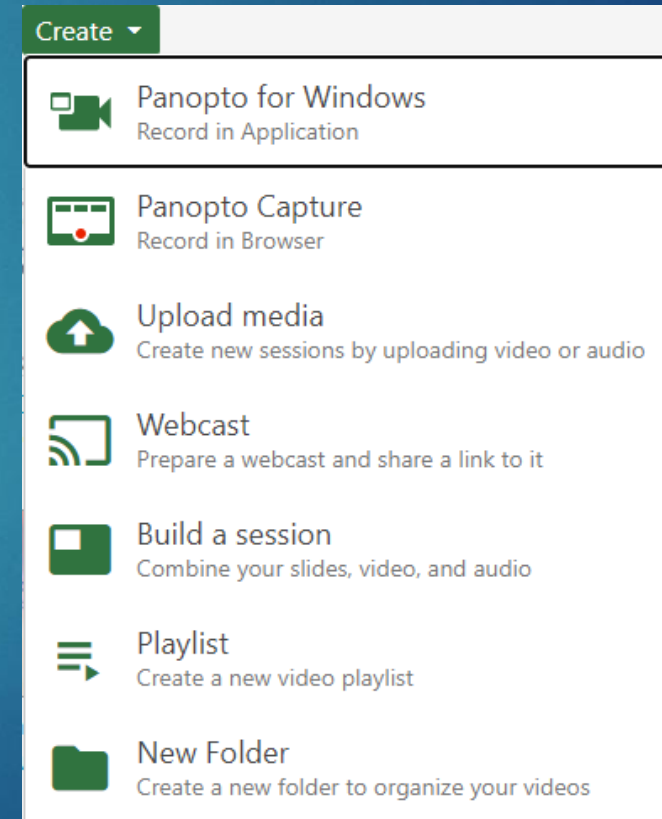
Electron Microscopy – SEM and TEM





The University of Aberdeen provides **Panopto** digital capture software which can be used to record lectures or to record digital content and presentations at your desk.

Capture video feeds from any camera and any screen — even multiple feeds



It is an online learning platform with ready-to-use content for life sciences, nursing and medicine.

www.adinstruments.com/lt

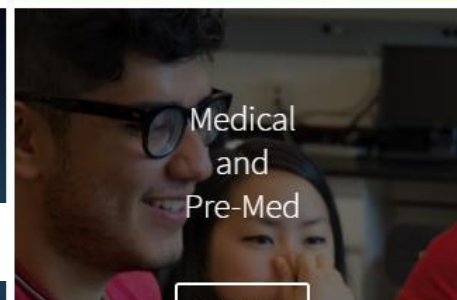
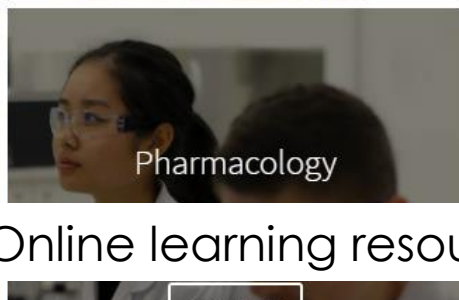
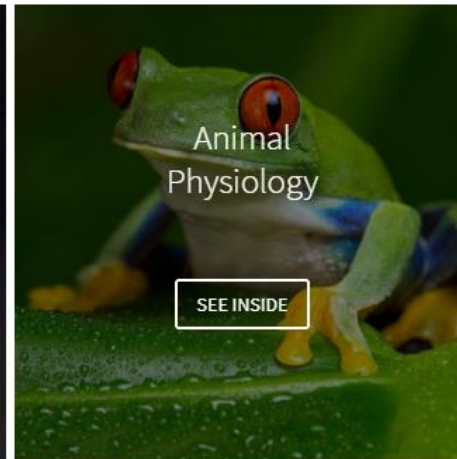
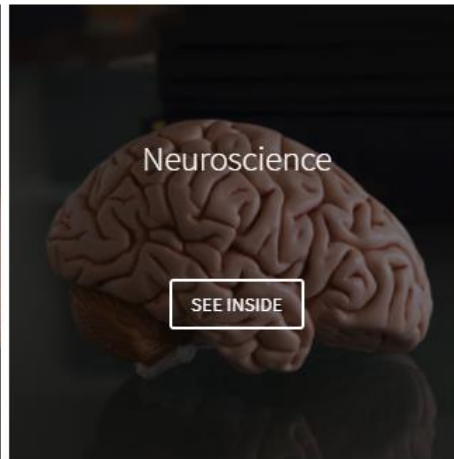
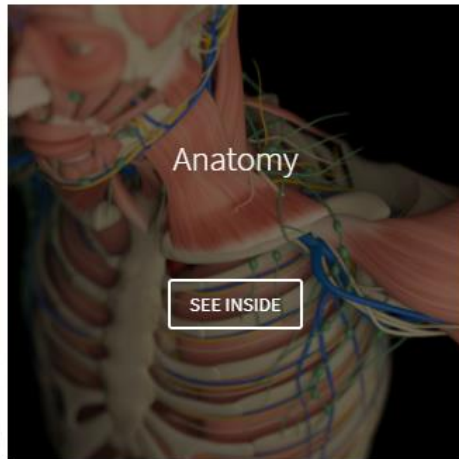
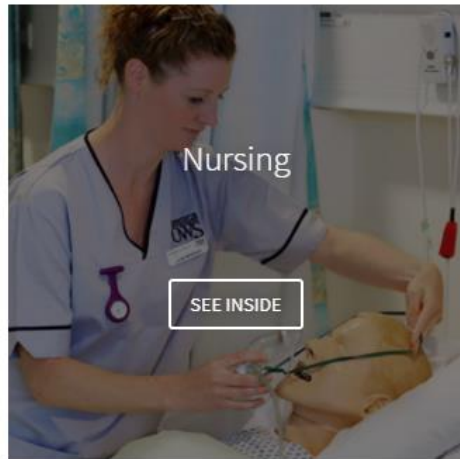


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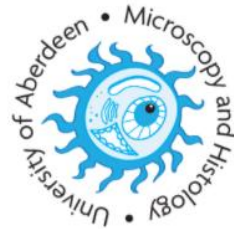
Over 500 interactive and fully customizable life science lessons for active learning, whether you're teaching in the lab or remotely.

Search Lt lesson library

Type a keyword to find content, e.g. Heart and ECG



Online learning resource for Microscopy



Microscopy

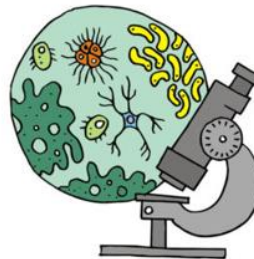
This lab will give you an overview of the different microscopes that can be used to look at cells and tissues. We will also introduce the basics of sample preparation (fixation, sectioning and staining) for each method.

Learning Outcomes



By the end of this lab you will know about:

- Sample preparation techniques and staining methods for Light microscopy.
- Sample preparation techniques and staining methods for Fluorescence Microscopy.
- Sample preparation techniques and imaging methods for Electron Microscopy.



5. What is the advantage of Immunofluorescence

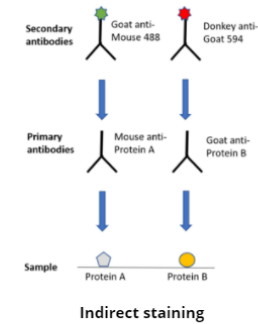
2 pts

- ☐ High specificity
- ☐ High sensitivity
- ☐ Multiple staining
- ☐ All of the above

Check Answer

6. Is there anything wrong with this indirect staining experiment?

2 pts



Check Answer

7. Confocal Microscopy advantages over standard fluorescence microscopy. What is not true

2 pts

- ☐ Removal of out of focus light
- ☐ Optical sectioning
- ☐ Use of lasers with specific excitation wavelengths
- ☐ Can only image two separate colours

Check Answer

Divider



Notebook



Minipages



Hotspot

Aberdeen 2nd lockdown – 5th August



Loch Hope – far north of Scotland



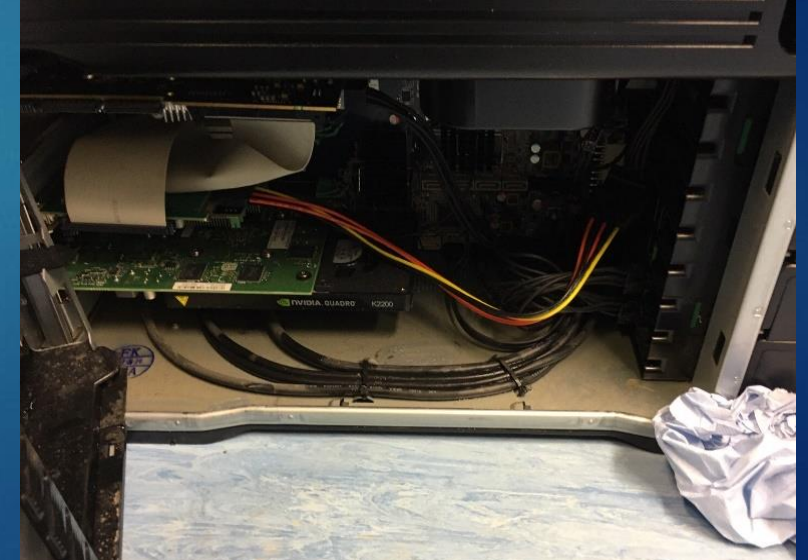
Meanwhile in Aberdeen

WFH for 2 weeks unless an emergency.....


12th August – then it rained!!!



Flood in the basement




www.rms.org.uk/resources-downloads/online-microscopy-talks.html



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DISCOVER
& Engage



Online Microscopy Talks: Connect, learn and stay up to date

Host of online opportunities for those working from home or away from the lab

With many people across the scientific community now away from the lab during these uncertain times – and with meetings and other events on hold, the RMS is keen to help the microscopical community continue to share its knowledge and expertise remotely.

We are currently developing a dedicated website feature for our members to share information on a whole host of events, training, webinars and other items.

In the meantime, below is a list of useful courses, webinars, lectures and other online resources which we hope will be of interest to anyone looking for ways to stay busy and motivated. We would like to thank everyone who has been in touch to raise awareness of these opportunities, and we will endeavour to add new updates as we receive them.

To let us know about your online talk, please contact georgina@rms.org.uk


[Working Safely in the Covid Era](#)

[Recorded Talks & Lectures](#)


[Live Streams](#)

[Software Special Offers](#)

[Other Online Resources](#)



Virtual Light Microscopy Facility Meetings - 13 May, 10 June, 14 July 2020
View the summary document and links from the Virtual Light Microscopy Meetings



Virtual Electron Microscopy Meetings - 14 May, 11 June, 17 July, 1 October 2020
View the summary document and links from the Virtual EM Meetings

[Working Safely in the Covid Era](#)

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[Other Online Resources](#)

- Python for BioImage Analysis (IA-FIG from the RMS)
- Python "Zero-to-Hero" Beginner's Course
- 30-min Introduction to Fiji/ImageJ for bioimage/microscopy analysis
- iBiology Microscopy Series
- MYSCOPE Microscopy Training
- Python tutorials for microscopists with no coding skills
- Teaching data science, biostats and bioinformatics, Rafa Lab
- Bioimage Analysis Resources
- Unix, R and Python tools for genomics and data science
- Introduction to Machine Learning
- CYTO-U, cytometry education
- 2019 Quantitative BioImaging Keynote Talks
- Image Processing and Analysis for Life Scientists MIT
- Remote Code Clinics, Sheffield University
- Ilastik Tutorials
- MicroCourse YouTube Channel
- Image processing with Python for beginners
- Image processing with Python advanced
- CellProfiler tutorials on Youtube
- Short videos on how to setup a brightfield microscope, intro to LM, Fluorescent and EM, Aberdeen University
- Robert Haase's YouTube page - a collection of BioImage Analysis resources
- NIH ImageJ tutorials

Video resources – email discussion on Confocal Microscopy List

Thanks to Pablo Ariel, University of North Carolina at Chapel Hill School of Medicine

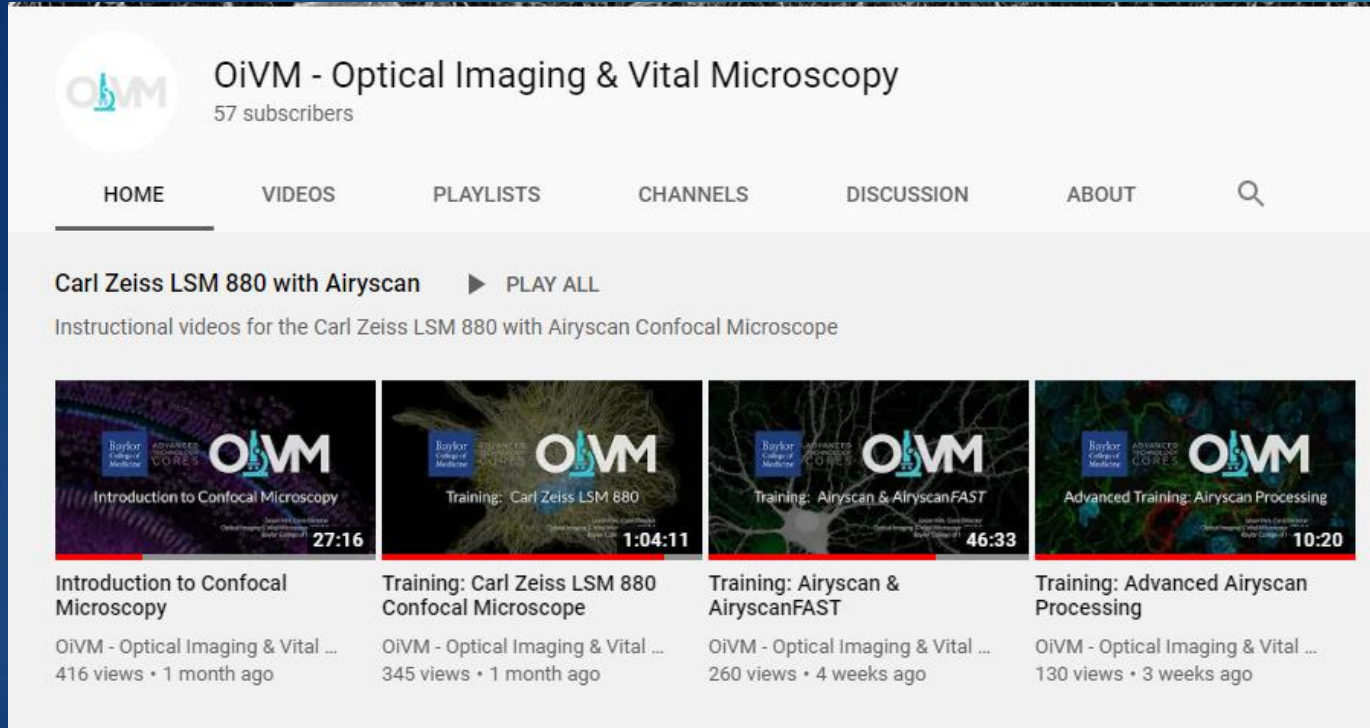
The screenshot shows the YouTube channel page for the Microscopy Services Laboratory UNC, which has 45 subscribers. The navigation bar includes links for HOME, VIDEOS, PLAYLISTS (which is the active tab), CHANNELS, ABOUT, and a search icon. Under the 'All playlists' dropdown, there are two sections: 'Created playlists' and 'Playlists'. The 'Created playlists' section features five video thumbnails with their respective video counts and titles: 'Spinning disk - Hagrid' (27 videos), 'Maintenance on LaVision BioTec UltraMicroscope II' (5 videos), 'IX81 - Luna - Fluorescence' (12 videos), 'IX81 - Luna - Brightfield' (4 videos), and 'IX81 - Luna' (4 videos). Each thumbnail has a 'VIEW FULL PLAYLIST' link below it. The 'Playlists' section features five video thumbnails with their respective video counts and titles: 'Microscopy lectures' (3 videos), 'Software demos' (6 videos), 'UltraMicroscope II light-sheet' (25 videos), 'LSM700' (7 videos), and 'LSM710' (7 videos). Each thumbnail also has a 'VIEW FULL PLAYLIST' link below it.

- 1) Ask users to watch the videos in advance, not during the training.
- 2) For our more complicated systems (laser scanning confocals, LaVision light-sheet), we provide detailed written instructions that they can use to follow along during the video, as well as bring to the training.
- 3) We have an **online quiz** they have to complete before the in-house training to make sure they watched the videos and got the most important points.
- 4) We check that their sample has some sort of reasonable signal before the in-house training.
- 5) The in-house training involves a brief interaction reinforcing the steps for setting up their sample. The rest is remote, via zoom, with screen sharing and remote control. The "remote" staff member is an office nearby and can walk over and help if they get stuck and the issue is not resolvable via zoom.

This training process has worked very well. With few exceptions, people come much better prepared and the training is smoother. I will probably keep the requirement to watch the training videos when this mess is over.

<https://www.youtube.com/channel/UCTqLyJ-2uBII0hHV9mD4pCQ/playlists>

Thanks to Jason M. Kirk - Baylor College of Medicine (bcm.edu)



The screenshot shows the YouTube channel page for 'OiVM - Optical Imaging & Vital Microscopy', which has 57 subscribers. The navigation bar includes links for HOME, VIDEOS, PLAYLISTS, CHANNELS, DISCUSSION, and ABOUT, along with a search icon. Below the navigation bar, there is a section titled 'Carl Zeiss LSM 880 with Airyscan' with a 'PLAY ALL' button. A subtitle reads 'Instructional videos for the Carl Zeiss LSM 880 with Airyscan Confocal Microscope'. Four video thumbnails are displayed in a row:

- Introduction to Confocal Microscopy**: 27:16 duration, 416 views, posted 1 month ago.
- Training: Carl Zeiss LSM 880 Confocal Microscope**: 1:04:11 duration, 345 views, posted 1 month ago.
- Training: Airyscan & AiryscanFAST**: 46:33 duration, 260 views, posted 4 weeks ago.
- Training: Advanced Airyscan Processing**: 10:20 duration, 130 views, posted 3 weeks ago.

User to watch the introductory video as well as the full training video before arriving for their training.

When they arrive we give them a quick overview of the core and then have them go through the full resolution video on a monitor right next to the instrument. This way they can follow along and start/stop the instruction to move at their pace.

https://www.youtube.com/channel/UCVOV2V_G20MvT79gfXBYO5A



SCOTTISH MICROSCOPY SOCIETY

FORMERLY SCOTTISH MICROSCOPY GROUP

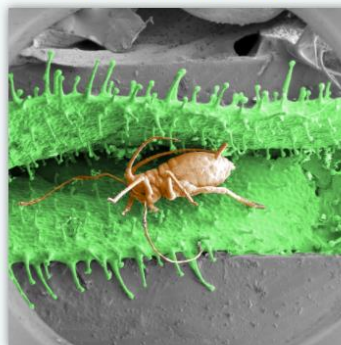
scottishmicroscopygroup.org.uk

ABOUT US



Find out more about who we are and the SMS mission.

SMS SYMPOSIA



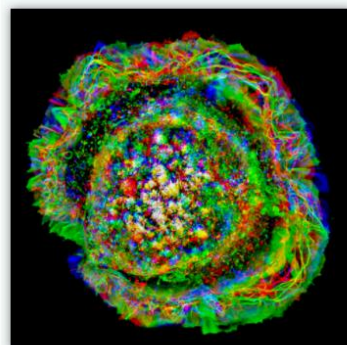
Find details about the upcoming SMS symposium and explore previous years.

OUTREACH



Learn more about our outreach activities and how we can help with your events.

COMPETITIONS



Find out about upcoming image competitions, and view previous entries.

EVENTS



Click here to explore upcoming events, and learn more about our Facilities Open Series.

LEARNING RESOURCES



Coming soon! Resources to help with your own microscopic imaging and analysis.