

Live Cell Imaging Facility Microscopy course

Lectures, public and broadcasted (link on our website, no registration needed) GREEN

Worshops for #2870 and #2871 BLUE

Worshops for #2870 only ORANGE

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Week 1	Tues 22/01		Microscope types, fluorescence, fluorophores
	09:00-10:00	Sylvie Le Guyader	Welcome and introduction Tour of the facility
	10:10-12:10	Sylvie Le Guyader	Lecture: Nature of light, basic optics, anatomy of a microscope, filter-based or spectral detection
	13:00-14:00	Sylvie Le Guyader	Lecture: Fluorescence, types and quality of fluorophores, latest development
	14:00-15:00	Sylvie Le Guyader	Lecture: Linear unmixing
	15:15-16:45	Sylvie/Gabriela/Tobias	Workshop: Anatomy of a microscope
	16:45-17:15	Sylvie/Gabriela/Tobias	Results of Anatomy of a microscope workshop
	17:15-17:30	Gabriela Imreh	Tour of the cell culture room (for those with live samples)
	Wed 23/01		Antibody staining, sample preparation, live cell imaging, imaging protein interactions
	09:00-10:00	Human prot atlas	Lecture: Immunostaining troubleshooting
	10:10-11:10	Sylvie Le Guyader	Lecture: imaging protein-protein interactions
	11:10-12:10	Jeremy Adler	Lecture: Colocalization
	13:00-14:00	Sylvie Le Guyader	Lecture: Live cell imaging, label free imaging
	14:00-15:00	Sylvie/Gabriela	Discussion about bleedthrough video and sample preparation videos
	15:15-17:15	Gabriela/Sylvie	Workshop: Filter/spectral or lightsheet or Student imaging challenge
	Thurs 24/01		Objectives, cameras/detector, unmixing
	09:00-11:00	Sylvie Le Guyader	Lecture: Objectives, refraction index mismatch and aberrations, Cameras and detectors
	11:10-12:10	Sylvie/Gabriela/Tobias/Agustin	Workshop: The art of bleaching samples
	13:00-14:00	Sylvie Le Guyader	Results of the Art of bleaching workshop
	14:00-14:45	Sylvie Le Guyader	Quiz and questions
	14:45-15:00	Sylvie Le Guyader	Wrapping up week 1 and presenting assignments
	15:15-17:15	Gabriela/Sylvie	Workshop: Filter/spectral or lightsheet or Student imaging challenge
	Friday-Monday		week 1 assignment
Week 2	Tues 29/01		Resolution and contrast, lightsheet imaging
	09:00-10:00	Sylvie Le Guyader	3 Student imaging challenges
	10:10-12:10	Anna Burvall/Illaria Testa	Lecture: Resolution, contrast, point spread function, Airy, Rayleigh, Abbe, Nyquist and MTF curves
	13:00-15:00	Sylvie Le Guyader	Quiz and assignment discussion - week 1
	15:15-17:15	Rickard/Tobias/Sylvie	Workshop: Objectives and Refraction Index or camera or Student imaging challenge
	Wed 30/01		Confocal and wide field settings. Scaling up: the power of xyz automation, autofocus, fast imaging, high throughput/content imaging
	09:00-10:00	Sylvie Le Guyader	3 Student imaging challenges
	10:10-12:10	Sylvie Le Guyader	Lecture: Setting parameters on a confocal and a widefield system, saturation, bit depth
	13:00-14:30	Sylvie Le Guyader	Lecture: Scaling up and speeding up imaging: xyz automation, autofocus, fast imaging, high throughput imaging
	14:30-15:00	Victoria Menendez Benito	Lecture: High throughput screens
	15:15-17:15	Rickard/Tobias/Sylvie	Workshop: Objectives and Refraction Index or camera or Student imaging challenge
	Thurs 31/01		Volume imaging, multiphoton microscopy, super resolution, clearing and expansion
	09:00-10:00	Sylvie Le Guyader	3 Student imaging challenges
	10:10-11:40	Sylvie Le Guyader	Lecture: Volume imaging, multiphoton, super resolution
	11:40-12:10	David Unnesjö-Jess	Lecture: Clearing and expansion microscopy
	13:00-14:30	Tobias Nyberg	Workshop: Refraction index mismatch analysis
	14:30-14:45	Sylvie Le Guyader	Wrapping up week 2 and presenting assignments
	14:45-15:15	Sylvie Le Guyader	Workshop: Zen for confocal crash course (not mandatory, skipping coffee break)
	15:15-17:15	Tobias/Sylvie	Workshop: High speed imaging or RCM or Student imaging challenge
	Friday-Monday		week 2 assignment
Week 3	Tues 5/02		Quantitative imaging
	09:00-10:00	Sylvie Le Guyader	3 Student imaging challenges
	10:10-12:10	Tessma Mesfin Kassaye	Lecture: quantitation and Statistics in imaging
	13:00-15:00	Sylvie Le Guyader	Quiz and assignment discussion - week 2
	15:15-17:15	Tobias/Sylvie	Workshop: High speed imaging or RCM or Student imaging challenge
	Wed 6/02		Data handling, processing and management, Fiji
	09:00-10:00	Sylvie Le Guyader	3 Student imaging challenges
	10:10-12:10	Sylvie Le Guyader	Lecture: How to deal with images for publications, image formats, image/data management
	13:00-14:45	Sylvie Le Guyader	Lecture: ImageJ/FIJI. Sample and microscopy requirements for image analysis
	14:45-15:00	Sylvie Le Guyader	Wrapping up week 3 and presenting assignments
	15:15-17:15	Marie/Sylvie/Oliver	Workshop: STORM or AO or Student imaging challenge
	Thurs 7/02		Image processing and quantitative analysis- Cell Profiler and Cell Profiler Analyst
	09:00-09:20	Sylvie Le Guyader	1 Student imaging challenge
	09:20-10:00	Sylvie Le Guyader	Questions
	10:10-12:10	Carolina Wählby	Workshop: ImageJ/FIJI workshop
	13:00-15:00	Carolina Wählby	Workshop: Cell Profiler workshop
	15:15-17:15	Marie/Sylvie/Oliver	Workshop: STORM or AO or Student imaging challenge
	Fri 8/02		Image processing and quantitative analysis- Cell Profiler and Cell Profiler Analyst
	13:00-13:15	Sylvie Le Guyader	Conclusion and feedback
	13:15-...		Examination