

Live Cell Imaging Facility Microscopy course		
Public lectures (green). No registration required. Will be broadcasted (link on our website)		
Course #2871 (green and blue)		
Course #2870 (green, blue and orange = everything)		
Week 1	17.01 09:00-10:00 Sylvie Le Guyader 10:10-12:10 Sylvie Le Guyader 13:00-14:00 Vladana Vukojevic 14:00-15:00 Nicolas Dolman 15:00-17:15 Sylvie/Gabriela/Tobias/Thibault	Microscope types, fluorescence, fluorophores Welcome and introduction Lecture: Nature of light, basic optics, anatomy of a microscope, filter-based or spectral detection Lecture: Fluorescence, types and quality of fluorophores Lecture: Latest development in fluorophores Workshop: Anatomy of a microscope
	18.01 09:00-10:00 Sriram Aravamudhan 10:10-11:45 Mehmet/Anders/Shijun 11:45-12:00 Gabriela Imreh 13:00-14:00 Jan Mulder 14:00-15:00 Sylvie Le Guyader 15:15-15:45 Gabriela Imreh 16:15-16:45 Gabriela Imreh	Antibody staining, sample preparation, live cell imaging Lecture: Antibody troubleshooting Demo rally: Culture dishes (Ibidi), micropatterning (Alveole), microfluidics (Fluicell) Tour of the cell culture room Lecture: Multiplexing Lecture: Live cell imaging Lecture: Koehlering, sample preparation, autofluorescence Workshop demo: Koehlering (not mandatory)
	19.01 09:00-10:00 Thomas Prudil 10:10-12:10 Sylvie Le Guyader 13:00-15:00 Sylvie/Gabriela/Tobias/Agustin 15:15-15:45 Sylvie Le Guyader 15:45-16:45 Sylvie Le Guyader 16:45-17:00 Sylvie Le Guyader	Objectives, cameras/detector, unmixing Lecture: How to choose the correct camera for your application? detectors and cameras Lecture: Objectives, refraction index mismatch and aberrations Workshop: The art of bleaching samples Lecture: Linear unmixing Discussion about bleedthrough video and sample preparation Wrapping up week 1
	20.01	week 1 assignment
Week 2	23.01 09:00-10:00 Sylvie Le Guyader 10:10-12:10 Kjell Carlsson 13:00-14:30 Sylvie Le Guyader 14:30-15:00 Thommie Karlsson 15:15-17:15 Rickard/Tobias/Sylvie	Resolution and contrast, lightsheet imaging Student imaging challenge presentation Lecture: Resolution, contrast, point spread function, Airy, Rayleigh, Abbe, Nyquist and MTF curves Quiz and assignment discussion Lecture: Introduction to light sheet microscopy Workshop: Objectives and RI or Light sheet or Student imaging challenge
	24.01 09:00-10:00 Sylvie Le Guyader 10:10-12:10 Sylvie Le Guyader 13:00-15:00 Rickard/Tobias/Sylvie	Confocal and wide field settings Student imaging challenge presentation Lecture: Setting parameters on a confocal and a widefield system, saturation, bit depth Workshop: Objectives and RI or Light sheet or Student imaging challenge
	25.01 09:00-10:00 Sylvie Le Guyader 10:10-10:30 Sylvie Le Guyader 10:30-11:00 Sofia Johansson 11:00-11:30 Arne Lindqvist 11:30-12:00 Jeremy Adler 13:00-13:30 Sylvie Le Guyader 13:30-15:00 Tobias Nyberg 15:15-17:15 Gabriela/Sylvie	Visualizing protein-protein interactions and colocalization Student imaging challenge presentation Lecture: PLA, FRAP Lecture: ICCS, FCCS, BiFC, RICS Lecture: FRET and FLIM Lecture: Colocalization Wrapping up week 2 Workshop: Refraction index mismatch analysis Workshop: Filter-based and spectral detector-based systems or Student imaging challenge
	26-27.01	week 2 assignment
Week 3	30.01 09:00-10:00 Sylvie Le Guyader 10:10-11:40 Sylvie Le Guyader 11:40-12:10 Victoria Menendez Benito 12:10-15:00 Sylvie Le Guyader 15:15-17:15 Gabriela/Sylvie	Scaling up: xyz automation, autofocus, fast imaging, high throughput imaging Student imaging challenge presentation Lecture: Scaling up and speeding up imaging Lecture: High throughput screens Quiz and assignment discussion Workshop: Filter-based and spectral detector-based systems or Student imaging challenge
	31.01 09:00-10:00 Sylvie Le Guyader 10:10-11:40 Sylvie Le Guyader 11:40-12:10 David Unnesjö-Jess 13:00-15:00 Marie/Sylvie 15:15-16:15 Sylvie Le Guyader 16:15-17:15 Sylvie Le Guyader	Volume imaging, multiphoton microscopy, super resolution Student imaging challenge presentation Lecture: Volume imaging, multiphoton, super resolution Lecture: Clearing and expansion microscopy Workshop: STORM or Student imaging challenge Workshop: Multiphoton microscopy Workshop: Zen crash course (not mandatory)
	01.02 09:00-10:00 Sylvie Le Guyader 10:10-12:10 Tessma Mesfin Kassaye 12:10-12:20 Sylvie Le Guyader 13:00-15:00 Marie/Sylvie 15:15-16:15 Sylvie Le Guyader 16:15-17:15 Sylvie Le Guyader	Statistics in imaging Student imaging challenge presentation Lecture: Statistics in imaging Wrapping up week 3 Workshop: STORM or Student imaging challenge Workshop: Multiphoton microscopy Workshop: Zen crash course (not mandatory)
	02-03.02	week 3 assignment
	06.02 09:00-10:00 Sylvie Le Guyader	Data handling, processing and management Student imaging challenge presentation

Week 4	10:10-12:00	Sylvie Le Guyader	Lecture: How to deal with images for publications, image formats, image/data management
	13:00-15:00	Sylvie Le Guyader	Quiz and assignment discussion
	15:15-17:15	Tobias/Sylvie	Workshop: High speed imaging or Student imaging challenge
	07.02		ImageJ/Fiji
	09:00-10:00	Sylvie Le Guyader	Student imaging challenge presentation
	10:15-12:00	Sylvie Le Guyader	Workshop: Vernissage
	13:00-15:00	Sylvie Le Guyader	Lecture: ImageJ/FIJI. Sample and microscopy requirements for image analysis
	15:15-17:15	Tobias/Sylvie	Workshop: High speed imaging or Student imaging challenge
	08.02		Image processing and quantitative analysis- Cell Profiler and Cell Profiler Analyst
	10:00-10:30	Sylvie Le Guyader	Wrapping up week 4
	10:30-17:00	Carolina Wählby	Workshop: Cell Profiler workshop
	09.02		examination
	13:00-13:15	Sylvie Le Guyader	Conclusion and feedback
13:15-...		Examination	

Lectures

Arne Lindqvist	KI
Carolina Wählby	SciLife/Uppsala University
David Unnersjö-Jess	SciLife/KTH
Gabriela Imreh	LCI/KI
Jan Mulder	SciLife/KI
Jeremy Adler	Uppsala University
Kjell Carlsson	KTH
Nicolas Dolman	Molecular Probes/Fischer
Sriram Aravamudhan	Cell Signaling Technology/bionordika
Sylvie Le Guyader	LCI/KI
Tessma Mesfin Kassaye	KI
Thomas Prudil	PCO
Thommie Karlsson	Leica
Victoria Menendez Benito	KI
Vladana Vukojevic	KI

Workshops

Mehmet Deniz Akyz	Alveole
Tobias Nyberg	LCI/KTH
Agustin Sola Carvajal	KI
Anders Broander	ibidi/LRI
Gabriela Imreh	LCI/KI
Marie Andersson	Nikon/Bergman Labora
Rickard Linnskog	Leica/Micromedic
Shijun Xu	Fluicell
Sylvie Le Guyader	LCI/KI
Thibault Boudierlique	KI
Thommie Karlsson	Leica