Live Cell Imaging Facility Microscopy course 22 Jan- 08 Feb 2019
Schedule subject to last minute changes. Always check the latest update on this page.
All lectures will be held in the **Gene** seminar room (see How to find us on our website, course webpage)

			Activity code
			Code 1 (Green): Lectures, public and broadcasted, no registration needed (see link and instructions on our website)
			Code 2 (Blue): Worshops for course #2870 and course #2871
			Code 3 (Orange): Worshops for course #2870 only

	When	**Code**	**What**
Week 1	**Tues 22/01**		**Microscope types, fluorescence, fluorophores**
	09:00-10:00	2	Welcome and introduction
		2	Tour of the facility
	10:10-12:10	1	Lecture: Nature of light, basic optics, anatomy of a microscope, filter-based or spectral detection
	13:00-13:55	1	Lecture: Fluorescence and different types of fluorophores
	14:00-15:00	1	Lecture: Linear unmixing
	15:15-16:45	2	Workshop: Anatomy of a microscope
	16:45-17:15	2	Discussion about anatomy of a microscope
	17:15-17:30	3	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	1	Lecture: Immunostaining troubleshooting
	10:10-11:05	1	Lecture: imaging protein-protein interactions
	11:10-12:10	1	Lecture: Colocalization
	13:00-14:00	1	Lecture: Live cell imaging, label free imaging
	14:00-15:00	2	Discussion about bleedthrough video and sample preparation videos
	15:15-17:15	3	Workshop: Filter/spectral or STORM or Rescan Confocal Microscope or Student imaging challenge
	Thurs 24/01		**Objectives, cameras/detector, unmixing**
	09:00-11:00	1	Lecture: Objectives, refraction index mismatch and aberrations, Cameras and detectors (break in the middle)
	11:10-11:55	2	Quiz and questions
	11:55-12:10	2	Wrapping up week 1 and presenting assignments
	13:00-14:00	2	Workshop: The art of bleaching samples
	14:00-15:00	2	Results of the Art of bleaching workshop
	15:15-17:15	3	Workshop: Filter/spectral or STORM or Rescan Confocal Microscope or Student imaging challenge
	Friday-Monday		**week 1 assignment**
Week 2	**Tues 29/01**		**Resolution and contrast**
	09:00-10:00	3	3 Student imaging challenges
	10:10-12:10	1	Lecture: Resolution, contrast, point spread function, Airy, Rayleight, Abbe, Nyquist and MTF curves
	13:00-15:00	2	Quiz and assignment discussion - week 1
	15:15-17:15	3	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**
	09:00-10:00	3	3 Student imaging challenges
	10:10-12:10	1	Lecture: Setting parameters on a confocal and a widefield system, saturation, bit depth
	13:00-14:25	1	Lecture: Scaling up and speeding up imaging: xyz automation, autofocus, fast imaging, high throughput imaging
	14:30-15:00	1	Lecture: High throughput screens
	15:15-17:15	3	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	3	3 Student imaging challenges
	10:10-11:35	1	Lecture: Volume imaging, multiphoton, super resolution
	11:40-12:10	1	Lecture: Clearing and expansion microscopy
	13:00-14:30	2	Workshop: Refraction index mismatch analysis
	14:30-14:45	2	Wrapping up week 2 and presenting assignments
	14:45-15:15	2	Workshop: Zen for confocal crash course (not mandatory, skipping coffee break)
	15:15-17:15	3	Workshop: High speed imaging or Primo or Student imaging challenge
	Friday-Monday		**week 2 assignment**
Week 3	**Tues 5/02**		**Quantitative imaging**
	09:00-10:00	3	3 Student imaging challenges
	10:10-12:10	1	Lecture: Quantitative imaging
	13:00-15:00	2	Quiz and assignment discussion - week 2
	15:15-17:15	3	Workshop: High speed imaging or WF vs confocal or Student imaging challenge
	Wed 6/02		**Data handling, processing and management, Fiji**
	09:00-10:00	3	3 Student imaging challenges
	10:10-12:10	1	Lecture: How to deal with images for publications, image formats, image/data management
	13:00-14:45	1	Lecture: ImageJ/FIJI. Sample and microscopy requirements for image analysis
	14:45-15:00	2	Wrapping up week 3 and presenting assignments
	15:15-17:15	3	Workshop: Light sheet or WF vs confocal or Student imaging challenge
	Thurs 7/02		**Image processing and quantitative analysis- Cell Profiler and Cell Profiler Analyst**
	09:00-09:20	3	1 Student imaging challenge
	09:20-10:00	2	Questions
	10:10-12:10	2	Workshop: ImageJ/FIJI workshop
	13:00-15:00	2	Workshop: Cell Profiler workshop
	15:15-17:15	3	Workshop: Light sheet or Student imaging challenge
	Fri 8/02		**Image processing and quantitative analysis- Cell Profiler and Cell Profiler Analyst**
	13:00-13:15	2	Conclusion and feedback
	13:15-...	2	Examination
	After		**week 3 assignment**

Lecturers	Affiliation
Charlotte Stadler	SciLive Lab/KTH
David Unnersjö-Jess	SciLive Lab/KTH
Eric Manders	Confocal.nl
Ilaria Testa	SciLive Lab/KTH
Jason Swedlow	University of Dundee, Scotland UK
Marc Tramier	University Rennes 1, France
Sylvie Le Guyader	LCI/KI
Victoria Menendez Benito	KI

Workshop leaders	Affiliation
Eric Manders	Confocal.nl
Gabriela Imreh	LCI/KI
Marie Andersson	Nikon/Bergman Labora
Mehmet Deniz Akyz	Alveole, France
Neveen Hosny	M-Squared Lasers, UK
Oliver Garner	Nikon/Bergman Labora
Petter Ranefall	SciLife Lab/Uppsala University
Rodrigo Lozano	KI
Sara Göransson	KI
Sylvie Le Guyader	LCI/KI
Tobias Nyberg	LCI/KTH