

The Live Cell Imaging Facility Microscopy course 29 Jan- 16 Feb 2024				Fa
Schedule subject to last minute changes. Always check the latest update on this page.				
In Blue: Lectures and demos that are publicly broadcasted, no registration needed (use Zoom link on the LCI website)				
	When	Who	What	
Week 1	<b>Mon 29/01</b>		<b>Module 1: Student Imaging Challenge Presentations</b>	
	09:00-09:20		Introduction	
	09:20-10:35		Student Imaging Challenge Presentations, Group 1	
	10:35-11:00		<i>Break and book group time</i>	
	11:00-12:15		Student Imaging Challenge Presentations, Group 2	
	12:15-13:15		<i>Lunch and Ibidi display</i>	
	13:15-14:30		Student Imaging Challenge Presentations, Group 3	
	14:30-15:30		<i>Break and guided tour of the LCI core facility</i>	
	15:30-16:45		Student Imaging Challenge Presentations, Group 4	
	16:45-17:10		Group discussion: Student Imaging Challenge	
	17:10-17:15		Questions	
	<b>Tues 30/01</b>		<b>Module 2: Working with light and fluorophores</b>	
	09:00-09:10		Feedback, questions, ILOs and portfolio	
	09:10-09:15	Sylvie Le Guyader	Lecture: Key concepts of light microscopy	
	09:15-09:45	Sylvie Le Guyader	Lecture: Nature of light	
	09:45-10:00		<i>Break</i>	
	10:00-10:25	Sylvie Le Guyader	Lecture: Basic optics for light microscopy	
	10:25-10:45	Sylvie Le Guyader	Lecture: Image formation	
	10:45-11:00	Sylvie Le Guyader	Lecture: Key concepts of light microscopy	
	11:00-11:30		Group quizzes: Basic optics and Image formation	F
	11:30-12:00		Group quizzes: Assessment of imaging efficiency and bleedthrough	F
	12:00-13:00		<i>Lunch</i>	
	13:00-15:00	Sylvie Le Guyader	Workshop: Assessment of imaging efficiency and bleedthrough	F
	15:00-15:15		<i>Break</i>	
	15:15-15:40	Sylvie Le Guyader	Lecture: Fluorescence and fluorophores	F
	15:40-16:55		Group quizzes: Fluorescence and fluorophores	F
	16:55-17:10		Group quiz: Assessing bleedthrough in already acquired images	F
	17:10-17:15		Questions	
<b>Wed 31/01</b>		<b>Module 3: Anatomy of a microscope</b>		
09:00-09:10		Feedback, questions, ILOs and portfolio		
09:10-10:10	Sylvie Le Guyader	Lecture: Anatomy of a microscope: architecture, transmitted light versus fluorescence	F	
10:10-10:20		Quizzes		
10:20-10:30		<i>Break</i>		
10:30-11:10	Sylvie Le Guyader	Lecture: Anatomy of a microscope: wide field and single point confocals	F	
11:10-11:25		Quizzes		
11:25-12:00	Sylvie Le Guyader	Lecture: Anatomy of a microscope: multipoint confocals and light sheet systems	F	
12:00-13:00		<i>Lunch</i>		
13:00-13:15		Group discussion	F	
13:15-14:15	Sylvie Le Guyader	Workshop: Anatomy of a microscope: video and survey demo	F	
14:15-14:30		<i>Break</i>		
14:30-16:30	Sylvie Le Guyader	Workshop: Anatomy of a microscope	F	
16:30-17:10		Quizzes	F	
17:10-17:15		Questions		
<b>Thurs 01/02</b>		<b>Module 4: Working with objectives</b>		
09:00-09:10		Feedback, questions, ILOs and portfolio		
09:10-10:10	Sylvie Le Guyader	Lecture: Objectives		
10:10-10:20		<i>Break</i>		
10:20-11:20		Group discussion: Choose the best objective for your experiment	F	
11:20-11:40	Sylvie Le Guyader	Lecture: Point Spread Function and resolution	F	
11:40-12:00		Quiz: Objectives, PSF and resolution		
12:00-13:00		<i>Lunch</i>		
13:00-13:25	Sylvie Le Guyader	Lecture: Refraction index mismatch and optical aberrations	F	
13:25-14:40	Jianjiang Hu	Workshop: Objectives and Refraction Index mismatch	F	
14:40-14:55		<i>Break</i>		
14:55-15:30	Sylvie Le Guyader	Lecture: Efficient strategies to find the area of interest: large FOV, tiling and autofocus	F	
15:30-16:00		Group discussion: Focus strategy	F	
16:00-17:10		Group discussion and quizzes	F	
17:10-17:15		Questions		
<b>Fri 02/02</b>		Assignments, Student Imaging Challenge Workshop		
<b>Mon 05/02</b>		Assignments, Student Imaging Challenge Workshop		
<b>Tues 06/02</b>		<b>Module 5: Sample preparation</b>		
09:00-09:20		Feedback, questions, ILOs and portfolio		
09:20-09:35		Discussion about the video Preparing and imaging live samples		
09:35-10:05	Sylvie Le Guyader	Teacher Imaging Challenge: What did I see in your samples this week?		
10:05-10:15		<i>Break</i>		
10:15-11:30	Gabriela Imreh	Lecture: Sample preparation tips	F	
11:30-12:00		Group discussion: How can you improve your sample preparation?	F	
12:00-13:00		<i>Lunch</i>		
13:00-14:30	Gabriela Imreh	Lecture: Immunostaining troubleshooting	F	
14:30-14:45		<i>Break</i>		
14:45-15:30	David Unnersjö-Jess	Lecture: Clearing and expansion microscopy	F	
15:30-16:30	Sylvie Le Guyader	Workshop: The art of bleaching the sample	F	
16:30-16:45		Group discussion: The perfect sample	F	

Week 2	16:45-17:10		Quizzes		F
	17:10-17:15		Questions		
	<b>Wed 07/02</b>		<b>Module 6: The digital image</b>		
	09:00-09:10		Feedback, questions, ILOs and portfolio		
	09:10-10:00	Sylvie Le Guyader	Lecture: Bridging concepts: Optical resolution, contrast and sampling		
	10:00-10:10		Break		
	10:10-11:10	Sylvie Le Guyader	Lecture: Bridging concepts: Optical resolution, contrast and sampling		F
	11:10-11:20		Group discussion: What is the pixel size in your images?		F
	11:20-12:00		Group discussion: Does the pixel size in your image fulfil the Nyquist theorem?		
	12:00-13:00		Lunch		
	13:00-13:15	Sylvie Le Guyader	Lecture: Sensors		
	13:15-14:00	Sylvie Le Guyader	Lecture: Signal, background and noise		F
	14:00-15:00	Sylvie Le Guyader	Group discussion: The signal to background (SBR) in your images		F
	15:00-15:15		Break		
	15:15-16:15		Group quizzes		F
	16:15-16:20		Questions		
<b>Thurs 08/02</b>		<b>Module 7: Capturing light</b>			
09:00-09:10		Feedback, questions, ILOs and portfolio			
09:10-09:50	Gabriela Imreh	Lecture: Imaging multiple colours at once		F	
09:50-10:10		Group quizzes			
10:10-10:20		Break			
10:20-12:00	Sylvie Le Guyader	Lecture: Saturation, under exposure, bit depth, dynamic range and image display		F	
12:00-13:00		Lunch			
13:00-13:35	Sylvie Le Guyader	Lecture: Workflow to set parameters on detector- and camera-based systems		F	
13:35-14:00		Group discussion: Choosing the imaging settings on your microscope		F	
14:00-14:45	Marie Andersson	Workshop: Camera		F	
14:45-15:00		Group quizzes		F	
15:00-15:15		Break			
15:15-16:00		Group discussion: Relationship between image analysis strategy and the scientific question		F	
16:00-17:10		Group quizzes		F	
17:10-17:15		Questions			
<b>Fri 09/02</b>		Assignments, Student Imaging Challenge Workshop			
<b>Mon 12/02</b>		Assignments, Student Imaging Challenge Workshop			
<b>Tues 13/02</b>		<b>Module 8: Off the beaten track</b>			
09:00-09:20		Feedback, questions, ILOs and portfolio			
09:20-10:00		Peer review of images acquired at Nyquist sampling		F	
10:00-10:30	Victoria Menendez Benito	Lecture: High throughput/content imaging			
10:30-10:40		Break			
10:40-12:00	Hans Blom	Lecture: Introduction to super resolution microscopy			
12:00-13:00		Lunch			
13:00-13:15	Erik Wernersson	Lecture: Introduction to deconvolution		F	
13:15-14:00	Erik Wernersson	Group assignment: Test 2D and 3D deconvolution			
14:00-14:30	Andrii Rogov	Lecture: Artificial Intelligence in light microscopy			
14:30-15:00		Teacher Imaging Challenge: What did I see in your samples this week?			
15:00-15:15		Break			
15:15-15:45		Group quizzes		F	
15:45-16:30	Jeremy Adler	Lecture: Colocalization			
16:30-17:10		Workshop: Colocalization			
17:10-17:15		Questions			
<b>Wed 14/02</b>		<b>Module 9: Publishing images</b>			
09:30-09:40		Feedback, questions, ILOs and portfolio			
09:40-10:00	Sylvie Le Guyader	Lecture: Introduction to Fourier transforms			
10:00-10:10		Break			
10:10-12:10	Petr Walczysko	Workshop: How to easily make figures for publication with Omero.figure			
12:10-13:10		Lunch			
13:10-14:10	Sylvie Le Guyader	Lecture: Publishing images		F	
14:10-15:00		Group discussion: Reverse-thinking your experiment			
15:00-15:15		Break			
15:15-16:15	Douglas Cromey	Lecture: Ethics in imaging			
16:15-16:30		Questions			
<b>Thurs 15/02</b>		<b>Module 10: Image analysis</b>			
09:00-09:10		Feedback, questions, ILOs and portfolio			
09:10-10:10	Gisele Miranda	Lecture: Introduction to Bioimage analysis			
10:10-10:20		Break			
10:20-12:20	G. Miranda/E. Ylipää/E. Balsever	Workshop: Image analysis			
12:20-13:20		Lunch			
13:20-15:20	G. Miranda/E. Ylipää/E. Balsever	Workshop: Image analysis			
15:20-15:30		Questions and feedback			
<b>Fri 16/02</b>		<b>Conclusions and future</b>			
09:30-11:30		Group presentation of a hot topic			
11:30-12:00		Microscope company role play			
12:00-13:00		Lunch			
13:00-13:30	Sylvie Le Guyader	Course conclusions: Key concepts of light microscopy		F	
13:30-14:00		Portfolio and feedback			
Evening		Alumni pub			
<b>After</b>		<b>Portfolio peer-review and submission</b>			