

The Live Cell Imaging Facility Microscopy course 27 Jan- 14 Feb 2025				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	
	Before the course		Preparation of own sample and presentation, survey, collecting information, etc	
Week 1	Mon 27/01 09:00-09:20 09:20-10:35 11:00-12:15 13:15-14:30 15:00-16:15 16:15-16:35 16:35-17:00 17:00-17:10		Module 1: Student imaging challenges Introduction Student Imaging Challenge Presentations Student Imaging Challenge Presentations Student Imaging Challenge Presentations Student Imaging Challenge Presentations Group discussion: New ideas Group discussion: Which metrics does your scientific question require? Questions	
	Tues 28/01 09:00-09:10 09:10-09:15 09:15-09:45 09:45-10:15 10:45-11:00 11:00-11:15 11:15-11:25 11:25-11:50 11:50-12:00 13:00-15:00 15:15-17:10 17:10-17:15	 Sylvie Le Guyader Sylvie Le Guyader Sylvie Le Guyader Sylvie Le Guyader Sylvie Le Guyader Sylvie Le Guyader Sylvie Le Guyader Sylvie Le Guyader	Module 2: Working with light and fluorophores Feedback, questions, Learning Objectives and portfolios Lecture: Key concepts of light microscopy 1 Lecture: Nature of light Lecture: Basic optics for light microscopy Lecture: Image formation Lecture: Key concepts of light microscopy 2 Group quiz: Image formation Lecture: Fluorescence and fluorophores Workshop: Imaging efficiency and bleedthrough Workshop: Imaging efficiency and bleedthrough Workshop: Imaging efficiency and bleedthrough peer review and quizzes Questions	F
	Wed 29/01 09:00-09:10 09:10-10:10 10:10-10:20 10:30-11:10 11:10-11:30 11:30-12:00 13:00-13:40 13:40-14:40 14:55-17:10 17:10-17:15	 Sylvie Le Guyader Sylvie Le Guyader Sylvie Le Guyader Sylvie Le Guyader Sylvie Le Guyader	Module 3: Anatomy of a microscope Feedback, questions, Learning Objectives and portfolios Lecture: Anatomy of a microscope: architecture, transmitted light versus fluorescence Group quizzes Lecture: Anatomy of a microscope: wide field and single-point confocals Group quizzes Lecture: Anatomy of a microscope: multipoint confocals and light sheet systems Quizzes and group discussion Workshop: Anatomy of your microscope: video and survey demo Workshop: Anatomy of your microscope Questions	
	Thurs 30/01 09:00-09:10 09:10-10:10 10:20-10:40 10:40-11:00 11:00-12:00 13:00-13:25 13:25-14:25 14:25-15:00 15:15-15:50 15:50-16:20 16:20-16:50 16:50-17:00	 Sylvie Le Guyader Sylvie Le Guyader Sylvie Le Guyader Jianjiang Hu Sylvie Le Guyader	Module 4: Working with objectives Feedback, questions, Learning Objectives and portfolios Lecture: Objectives Lecture: Point Spread Function and resolution Quiz: Objectives, PSF and resolution Group discussion: The optical resolution of the objectives on YOUR microscope Lecture: Refraction index mismatch and optical aberrations Workshop: Objectives and Refraction Index mismatch Group quizzes Lecture: Efficient strategies to find the area of interest: large FOV, tiling and autofocus Group discussion: Focus strategy Group quizzes Questions	F F
	Fri 31/01		Assignments, Student Imaging Challenge Workshop	
	Mon 03/02		Assignments, Student Imaging Challenge Workshop	
	Tues 04/02 09:00-09:20 09:20-09:40 09:40-10:05 10:15-11:30 11:30-12:00 13:00-14:10 14:10-14:40 14:40-15:25 15:40-16:40 16:40-17:10 17:10-17:15	 Sylvie Le Guyader Gabriela Imreh Gabriela Imreh David Unnersjö-Jess Sylvie Le Guyader	Module 5: Sample preparation Feedback, questions, Learning Objectives and portfolios Group discussion: Preparing and imaging live samples Teacher Imaging Challenge: What did I see in your samples this week? Lecture: Sample preparation tips Group discussion: How can you improve your sample preparation? Lecture: Immunostaining troubleshooting Group discussion: How can you improve your immunostaining? Lecture: Clearing and expansion microscopy Workshop: The art of bleaching the sample Group discussion and quizzes: The perfect sample for light microscopy Questions	F F F
	Wed 05/02 09:00-09:10 09:10-10:00 10:10-10:50 10:50-11:50	 Sylvie Le Guyader Sylvie Le Guyader	Module 6: The digital image Feedback, questions, Learning Objectives and portfolios Lecture: Bridging concepts: optical and digital resolutions, contrast and sampling Lecture: Bridging concepts: optical and digital resolutions, contrast and sampling Group discussion: Does the pixel size in your images fulfil the Nyquist sampling theorem?	F

Week 2	11:50-12:00		Group quiz	
	13:00-13:20	Sylvie Le Guyader	Lecture: Sensors	
	13:20-14:10	Sylvie Le Guyader	Lecture: Signal, background and noise	
	14:10-14:40		Workshop: Speed versus noise	
	14:40-15:10		Group discussion: How could you improve the SNR in your images?	F
	15:25-16:40		Group discussion: How could you improve the SBR in your images?	F
	16:40-17:10		Group quizzes	
	17:10-17:15		Questions	
	Thurs 06/02		Module 7: Capturing light	
	09:00-09:15		Feedback, questions, Learning Objectives and portfolios	
09:15-10:05	Sylvie Le Guyader	Lecture: Saturation, under exposure, bit depth, dynamic range and image display		
10:15-10:55	Sylvie Le Guyader	Lecture: Saturation, under exposure, bit depth, dynamic range and image display		
10:55-11:05		Group quizzes		
11:05-12:00		Group discussion: Saturation, bit depth and display for your images	F	
13:00-13:20	Gabriela Imreh	Lecture: Imaging multiple colours at once		
13:20-13:35		Group discussion: Imaging multiple colours at once	F	
13:35-14:00		Quizzes		
14:00-14:45	Marie Andersson	Workshop: Camera		
14:45-15:00		Group discussion: reverse-thinking your experiment		
15:15-16:00	Sylvie Le Guyader	Lecture: Typical workflow to set imaging parameters		
16:00-16:45		Group discussion: How do you set the parameters on your microscope?	F	
16:45-17:10		Week 2 quizzes		
17:10-17:15		Questions		
Fri 07/02		Assignments, Student Imaging Challenge Workshop		
Week 3	Mon 10/02		Assignments, Student Imaging Challenge Workshop	
	Tues 11/02		Module 8: Off the beaten track	
	09:00-09:20		Feedback, questions, Learning Objectives and portfolios	
	09:20-10:00		Teacher Imaging Challenge: What did I see in your samples this week?	
	10:00-10:30	Andrii Rogov	Lecture: Artificial Intelligence in light microscopy	
	10:40-11:40	Hans Blom	Lecture: Introduction to super resolution microscopy	
	11:40-12:00		Quizzes	
	13:00-13:15	Erik Wernersson	Lecture: Introduction to 2D and 3D deconvolution	
	13:15-14:00	Erik Wernersson	Workshop: Test 2D and 3D deconvolution	F
	14:00-15:00		Quizzes or discussion: how could Ai, super resolution or deconvolution help your project?	
	15:15-15:35	Sylvie Le Guyader	Lecture: Introduction to Fourier space and Fourier transforms	
	15:35-15:45		Group quizzes	F
	15:45-16:30	Fabrice Cordelières	Lecture: Colocalization	
	16:30-17:10		Group discussion: Relationship between image analysis strategy and the scientific question	F
	17:10-17:15		Questions	
	Wed 12/02		Module 9: Publishing images	
	09:10-09:50		Group discussion: Microscope company role play	
	10:00-12:00	Petr Walczysko	Workshop: How to easily make figures for publication with OMERO.figure	
	13:00-14:00	Sylvie Le Guyader	Lecture: Publishing images	
	14:00-15:00		Group discussion: Write your Material and Methods and scientific question metrics	F
15:15-15:35	Douglas Cromey	Lecture: Ethics in imaging		
15:35-16:15	Douglas Cromey	Workshop: Ethics in imaging		
16:15-16:20		Questions		
Thurs 13/02		Module 10: Image analysis and Course conclusions		
09:00-09:10		Feedback, questions, Learning Objectives and portfolios		
09:10-10:10	Agustin Corbat	Lecture: Introduction to Bioimage analysis		
10:20-12:20	Agustin Corbat	Workshop: Image analysis		
13:20-15:20	Agustin Corbat	Workshop: Image analysis		
15:35-16:00	Sylvie Le Guyader	Course conclusions: Reminder of the key concepts of light microscopy		
Evening		Alumni pub		
Fri 14/02		Portfolio peer-review and final submission		
10:00-12:00		Portfolio peer-review and questions		
13:00-15:00		Final portfolio submission		