

The Live Cell Imaging Facility Microscopy course - 08 Jan- 19 Feb 2027

Schedule subject to last minute changes. Always check the latest update on this page.

In Blue: These activities are publicly broadcasted. No registration is needed. Zoom link on the LCI website.

	When	Who	What
	08/01 - 22/01		Preparation: own sample, presentation, survey, collecting information, etc
Week 1	Mon 25/01		Module 1: Student imaging challenges
	09:00-09:20		Introduction
	09:20-10:35		Student Imaging Challenge Presentations
	11:00-12:15		Student Imaging Challenge Presentations
	13:15-14:30		Student Imaging Challenge Presentations
	15:00-16:15		Student Imaging Challenge Presentations
	16:15-16:30		Group discussion: New ideas
	16:30-17:00		Group discussion: Which metrics does your scientific question require?
	17:00-17:15		Questions
	Tue 26/01		Assignments
	Wed 27/01		Module 2: Working with light and fluorophores
	09:00-09:10		Feedback, questions, Learning Objectives and portfolios
	09:10-09:15	Sylvie Le Guyader	Lecture: Key concepts of light microscopy 1
	09:15-09:40	Sylvie Le Guyader	Lecture: Nature of light
	09:40-10:05	Sylvie Le Guyader	Lecture: Basic optics for light microscopy
	10:15-10:30	Sylvie Le Guyader	Lecture: Image formation
	10:30-11:00		Group quizzes
	11:00-11:15	Sylvie Le Guyader	Lecture: Key concepts of light microscopy 2
	11:15-12:00	Sylvie Le Guyader	Lecture: Fluorescence and fluorophores
	13:00-15:00	Sylvie Le Guyader	Workshop: Imaging efficiency and bleedthrough
	15:15-17:15	Sylvie Le Guyader	Workshop: Imaging efficiency and bleedthrough peer review
	Thu 28/01		Assignments
	Fri 29/02		Module 3: Anatomy of a microscope
Week 2	09:00-09:10		Feedback, questions, Learning Objectives and portfolios
	09:10-10:05	Sylvie Le Guyader	Lecture: Anatomy of a microscope: architecture, transmitted light versus fluorescence
	10:05-10:20		Group quizzes
	10:30-11:15	Sylvie Le Guyader	Lecture: Anatomy of a microscope: wide field and single-point confocals
	11:15-11:30		Group quizzes
	11:30-12:00	Sylvie Le Guyader	Lecture: Anatomy of a microscope: multipoint confocals and light sheet systems
	13:00-13:40		Quizzes and group discussion
	13:40-14:40	Sylvie Le Guyader	Workshop: Anatomy of your microscope: video and survey demo
	14:55-17:15	Sylvie Le Guyader	Workshop: Anatomy of your microscope
	Mon 01/02		Assignments, Student Imaging Challenge Workshop
	Tue 02/02		Module 4: Working with objectives
	09:00-09:10		Feedback, questions, Learning Objectives and portfolios
	09:10-10:10	Sylvie Le Guyader	Lecture: Objectives
	10:20-10:50	Sylvie Le Guyader	Lecture: Point Spread Function and resolution
	10:50-11:20		Quiz: Objectives, PSF and resolution
	11:20-12:10		Group discussion: The optical resolution of the objectives on YOUR microscope
	13:10-13:50	Sylvie Le Guyader	Lecture: Refraction index mismatch and optical aberrations
	13:50-14:25	Jianjiang Hu	Workshop: Refraction Index mismatch
	14:25-15:00		Group quizzes
	15:15-15:50	Sylvie Le Guyader	Lecture: Efficient strategies to find the area of interest: large FOV, tiling and autofocus
	15:50-16:05		Questions
	16:05-16:35		Group discussion: Focus strategy
	16:35-17:15		Group quizzes
	Wed 03/02		Assignments, Student Imaging Challenge Workshop
	Thu 04/02		Module 5: Sample preparation
	09:00-09:15		Feedback, questions, Learning Objectives and portfolios
	09:15-09:40	Sylvie Le Guyader	Teacher Imaging Challenge: What did I see in your samples?
	09:40-10:30	Gabriela Imreh	Lecture: Sample preparation tips - part 1
	10:40-11:30	Gabriela Imreh	Lecture: Sample preparation tips - part 2
	11:30-12:00		Group discussion: How can you improve your sample preparation?
	13:00-13:45	David Unnersjö-Jess	Lecture: Clearing and expansion microscopy
	13:45-14:45	Sylvie Le Guyader	Workshop: The art of bleaching the sample
	14:45-15:30	Gabriela Imreh	Lecture: Immunostaining - part 1
	15:45-16:15	Gabriela Imreh	Lecture: Immunostaining - part 2
	16:15-16:35		Group discussion: How can you improve your immunostaining?
	16:35-17:10		Group discussion and quizzes: The ideal sample for light microscopy
	17:10-17:15		Questions
	Fri 05/02		Assignments, Student Imaging Challenge Workshop

Week 3	Mon 08/02 09:00-09:10 09:10-10:10 10:20-11:00 11:00-12:00 13:00-13:20 13:20-13:35 13:35-14:35 14:55-15:25 15:25-15:55 15:55-16:25 16:25-17:10 17:10-17:15	Sylvie Le Guyader Sylvie Le Guyader 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? Lecture: Sensors Group quizzes Lecture: Signal, background and noise Group discussion: How could you improve the SBR in your images? Workshop: Speed versus noise Group discussion: How could you improve the SNR in your images? Group quizzes Questions
	Tue 09/02		Assignments, Student Imaging Challenge Workshop
	Wed 10/02 09:00-09:10 09:10-10:05 10:15-10:35 10:35-11:30 11:30-12:00 13:00-13:45 13:45-14:00 14:00-15:00 15:15-15:40 15:40-16:10 16:10-17:10 17:10-17:15	Sylvie Le Guyader Sylvie Le Guyader Gabriela Imreh Marie Andersson Sylvie Le Guyader	Module 7: Capturing light Feedback, questions, Learning Objectives and portfolios Lecture: Saturation, under exposure, bit depth and image display Lecture: Saturation, under exposure, bit depth and image display Group discussion: What do you need to segment in your images? Group quizzes Lecture: Imaging multiple colours at once Group discussion: How to image multiple colours simultaneously? Workshop: Camera Lecture: Typical workflow to set imaging parameters Group discussion: Choosing the imaging settings on your microscope? Group quizzes Questions
	Thu 11/02		Assignments
	Fri 12/02		Assignments
Week 4	Mon 15/02 09:00-09:10 09:10-10:00 10:00-10:30 10:40-11:40 11:40-12:00 13:00-13:15 13:15-14:00 14:00-14:55 15:10-15:30 15:30-15:45 15:45-16:45 16:45-17:10 17:10-17:15	Andrii Rogov Hans Blom Erik Wernersson Erik Wernersson Sylvie Le Guyader Fabrice Cordelières	Module 8: Off the beaten track Feedback, questions, Learning Objectives and portfolios Teacher Imaging Challenge: What did I see in your samples? Lecture: Artificial Intelligence in light microscopy Lecture: Introduction to super resolution microscopy Quizzes Lecture: Introduction to 2D and 3D deconvolution Workshop: Test 2D deconvolution Quizzes Lecture: Introduction to Fourier transforms Group discussion: Ai and super resolution in your project Lecture: Colocalization Quizzes Questions
	Tue 16/02		Assignments
	Wed 17/02 09:00-09:10 09:10-09:25 09:25-09:50 10:00-12:00 13:00-14:10 14:10-15:00 15:15-15:35 15:35-16:15 16:15-16:30	Petr Walczysko/Will Moore Sylvie Le Guyader Douglas W. Cromey Douglas W. Cromey	Module 9: Publishing images Feedback, questions, Learning Objectives and portfolios Teacher Imaging Challenge: What did I see in your samples? Group discussion: Microscope company role play Workshop: How to easily make figures for publication with OMERO.figure Lecture: Publishing and managing images Quiz and Group discussion: Write your Material and Methods Lecture: Ethics in imaging Workshop: Ethics in imaging Questions
	Thu 18/02 09:00-10:00 10:10-12:10 13:10-15:10 15:10-15:35 Evening	Gisele Miranda Gisele Miranda Gisele Miranda Sylvie Le Guyader	Module 10: Image analysis and Course conclusions Lecture: Introduction to Bioimage analysis Workshop: Image analysis Workshop: Image analysis Course conclusions: Reminder of the key concepts of light microscopy Alumni pub
	Fri 19/02		Portfolio consolidation and final submission