The Live Cell Imaging Facility Microscopy course 27 Jan- 14 Feb 2025			
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		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
	16:15-16:35		Group discussion: New ideas
	16:35-17:00		Group discussion: Which metrics does your scientific question require?
	17:00-17:10		Questions
	Tues 28/01		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
	09:15-09:45	Sylvie Le Guyader	Lecture: Nature of light
	09:45-10:15	Sylvie Le Guyader	Lecture: Basic optics for light microscopy
	10:45-11:00	Sylvie Le Guyader	Lecture: Image formation
	11:00-11:15	Sylvie Le Guyader	Lecture: Key concepts of light microscopy 2
	11:15-11:25		Group quiz: Image formation
	11:25-11:50	Sylvie Le Guyader	Lecture: Fluorescence and fluorophores
	11:50-12:00		Workshop: Imaging efficiency and bleedthrough
	13:00-15:00	Sylvie Le Guyader	Workshop: Imaging efficiency and bleedthrough
	15:15-17:10	Sylvie Le Guyader	Workshop: Imaging efficiency and bleedthrough peer review and quizzes
	17:10-17:15		Questions
	Wed 29/01		Module 3: Anatomy of a microscope
	09:00-09:10		Feedback, questions, Learning Objectives and portfolios
	09:10-10:10	Sylvie Le Guyader	Lecture: Anatomy of a microscope: architecture, transmitted light versus fluorescence
	10:10-10:20		Group quizzes
	10:30-11:10	Sylvie Le Guyader	Lecture: Anatomy of a microscope: wide field and single-point confocals
	11:10-11:30		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
	14:55-17:10	Sylvie Le Guyader	Workshop: Anatomy of your microscope
	17:10-17:15		Questions
	Thurs 30/01		Module 4: Working with objectives
	09:00-09:10		Feedback, questions, Learning Objectives and portfolios
	09:10-10:10	Sylvie Le Guyader	Lecture: Objectives
	10:20-10:40	Sylvie Le Guyader	Lecture: Point Spread Function and resolution
	10:40-11:00		Quiz: Objectives, PSF and resolution
	11:00-12:00		Group discussion: The optical resolution of the objectives on YOUR microscope
	13:00-13:25	Sylvie Le Guyader	Lecture: Refraction index mismatch and optical aberrations
	13:25-14:25	Jianjiang Hu	Workshop: Objectives and 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
	15:50-16:20		Group discussion: Focus strategy
	16:20-16:50		Group quizzes
	16:50-17:00		Questions
	Fri 31/01		Assignments, Student Imaging Challenge Workshop
	Mon 03/02		Assignments, Student Imaging Challenge Workshop
	Tues 04/02		Module 5: Sample preparation
	09:00-09:20		Feedback, questions, Learning Objectives and portfolios
	09:20-09:40		Group discussion: Preparing and imaging live samples
	09:40-10:05	Sylvie Le Guyader	Teacher Imaging Challenge: What did I see in your samples this week?
	10:15-11:30	Gabriela Imreh	Lecture: Sample preparation tips
	11:30-12:00		Group discussion: How can you improve your sample preparation?
	13:00-14:10	Gabriela Imreh	Lecture: Immunostaining troubleshooting
	14:10-14:40		Group discussion: How can you improve your immunostaining?

Week 2	14:40-15:25	David Unnersjö-Jess	Lecture: Clearing and expansion microscopy
	15:40-16:40	Sylvie Le Guyader	Workshop: The art of bleaching the sample
	16:40-17:10		Group discussion and quizzes: The perfect sample for light microscopy
	17:10-17:15		Questions
	Wed 05/02		**Module 6: The digital image**
	09:00-09:10		Feedback, questions, Learning Objectives and portfolios
	09:10-10:00	Sylvie Le Guyader	Lecture: Bridging concepts: optical and digital resolutions, contrast and sampling
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	10:50-11:50		Group discussion: Does the pixel size in your images fulfil the Nyquist sampling theorem?
	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?
	15:25-16:40		Group discussion: How could you improve the SBR in your images?
	16:40-17:10		Group quizzes
	17:10-17:15		Questions
	Thurs 06/02		**Module 7: Capturing light**
	09:00-09:10		Feedback, questions, Learning Objectives and portfolios
	09:10-10:00	Sylvie Le Guyader	Lecture: Saturation, under exposure, bit depth and image display
	10:10-11:00	Sylvie Le Guyader	Lecture: Saturation, under exposure, bit depth and image display
	11:00-12:00		Group discussion and quizzes: What do you need to segment in your images?
	13:00-13:30	Gabriela Imreh	Lecture: Imaging multiple colours at once
	13:30-14:00		Group discussion: How does your system image multiple colours?
	14:00-14:45	Marie Andersson	Workshop: Camera
	15:00-15:45	Sylvie Le Guyader	Lecture: Typical workflow to set imaging parameters
	15:45-16:15		Group discussion: How do you set the parameters on your microscope?
	16:15-17:10		Group 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 deconvolution
	14:00-15:00		Quizzes
	15:15-15:35	Sylvie Le Guyader	Lecture: Introduction to Fourier space and Fourier transforms
	15:35-15:45		Group discussion: Ai and super resolution in your project
	15:45-16:30	Fabrice Cordelières	Lecture: Colocalization
	16:30-17:10		Quizzes
	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
	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 consolidation and final submission**