

hour slots / days	Optics Module										
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	
8:00 - 9:00	Breakfast	Morning run	Morning run	Morning run	Morning run	Morning run	Morning run	Morning run	Morning run	Morning run	
9:00 - 10:00	Intro to the course (Florin/Adam/Raul)	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	
10:00 - 11:30	Intro to Light (Florin Albeanu)	Recap	Recap		Scanning and confocal (Adam Kampff)	Multiphoton microscopy (Ruben Portugues)	Functional ultrasound imaging (Emilie Mace)	3 photon microscopy (Chris Xu)	Shaping light (Na Ji)	Student presentations (widefield, 2p)	
11:30 - 11:45	Coffee Break	Coffee Break	Coffee Break		Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break		Coffee Break
11:45 - 13:00	Optical elements and image formation (Fred Marbach)	Resolution (Priyanka Gupta)	Benchtop optics: Measure noise		Intrinsic Imaging (Tobias Rose)	Freely moving 2p (Tobias Rose)	Light Sheet imaging (Ruben Portugues)	Hannah Monyer Wolf Singer	Adaptive optics (Benjamin Judkewitz)		
13:00 - 14:00	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	
14:00 - 16:30	continue lecture	Benchtop optics - image golgi slides	Optics Challenge + Make Presentations	AB: Intro to SLMs	AB: Setup Intrinsic and Widefield	AB: Walking the beam	AB: 2p building discussion	AB: 2p data analysis	AB: In vivo 2p		
	Benchtop optics - Lenses	Epifluorescence (Florin Albeanu)		CD: Intro to Arduinos	CD: Walking the beam	CD: Setup Intrinsic and Widefield	CD: 2p data analysis	CD: 2p building discussion	CD: Lightsheet		
16:30 - 16:45	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	
16:45 - 19:00	continue lab	Benchtop optics - epifluorescence	Make presentations	CD: Intro to SLMs	AB: Acquire Intrinsic and Widefield	AB: Scanning software	AB: 2p building practical	AB: Analysis (2p mock data + WF data)	AB: Lightsheet	Optics feedback	
			Basic Optics Presentations	AB: Intro to Arduinos	CD: Scanning software	CD: Acquire Intrinsic and Widefield	CD: Analysis (2p mock data + WF data)	CD: 2p building practical	CD: In vivo 2p		
19:00 - 20:00	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	
20:00 - 21:30	Koehler Illumination (Priyanka Gupta)	Noise & image sensors (Adam Kampff)	Student chalk talks	Student chalk talks	1p Patterned Stim (Florin Albeanu)	Petr Znamenskiy (Research talk)	AB: continue 2p build	AB: continue analysis	Benjamin Judkewitz (Research talk)		
21:30 - 24:00	Benchtop optics - set up Koehler	continue lab: image PSFs and brain samples			AB: Analyze Intrinsic and Widefield (mock data)	CD: Analyze Intrinsic and Widefield (mock data)	CD: continue analysis	CD: continue 2p build	Analysis: 2p TENSS Data		

hour slots / days	Ephys Module										
	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17	Day 18	Day 19	Day 20	Day 21
8:00 - 9:00	Breakfast	Morning run	Morning run	Morning run	Morning run	Morning run	Morning run	Morning run	Morning run	Morning run	Morning run
9:00 - 10:00		Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast
10:00 - 11:30		Recap / short biophysics lecture (Mitra)	Studying natural behaviors (Nacho Sanguinetti)	Patching (Tomas Hromadka)	Neuro AI (Alexei Koutrakov)	Psychophysics (Katharina Schmack)	Student presentations (behavior and ephys)	Research talk (Athena Akrami)			Student presentations (projects)
11:30 - 11:45	Electronics reminder + part 1 practical	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break
11:45 - 13:00		Freely moving Ephys/opto - Drives (Jakob)	Deep learning in Neuroscience (Fede Carnevale)	Ephys and Behavior Synchronization Primer	Research talk (Nao Uchida)	Research talk (Daniela Vallentin)					Feedback
13:00 - 14:00	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
14:00 - 15:15	Intro to extracellular ephys (Jakob)	Neuronal biophysics (Upi Bhalla)	Bonsai and Machine Vision Primer	Get Data (small groups patch)	Get Data	Bonus Data analysis: behavior + ephys		Projects	Projects	Projects	
15:15 - 16:30		Open Ephys Primer			Data analysis: behavior + ephys						
16:30 - 16:45	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break
16:45 - 19:00	Benchtop electrophysiology - amplifiers	Ephys signal processing & spikesorting + practical	Bonsai: Sensors and actuators	Get Data (small groups patch)	Data analysis: behavior + ephys	Make presentations		Projects	Projects	Projects	
19:00 - 20:00	Dinner	Dinner	Dinner	Dinner	Dinner /speed dating	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner
20:00 - 21:30	Benchtop electrophysiology - amplifiers	Long term, automated behavior and ephys (Ashesh Dhawale)	Research talk (Ann Clemens)	Spike Analysis (PSTH, STA) (Adriana Dabacan/Vlad)	Research talk (Georg Keller)			Projects	Projects	Projects	
21:30 - 22:45	Benchtop electrophysiology - insect brain	see OE system in groups, plug in mice	SETUP ASSEMBLY	GUIDED ANALYSIS TUTORIAL	Data analysis: behavior + ephys						