

hour slots / days	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	
8:00 - 8:30		Breakfast	Breakfast	Breakfast	Morning run	Morning run	Morning run	Morning run	Morning run	Morning run	
8:30 - 9:00					Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	
9:00 - 9:30			Recap	Recap							
9:30 - 10:00		Intro to light (Florin Albeanu)					Multiphoton microscopy (Mike Orger)	Light Sheet imaging (Mike Orger)	deformable mirrors(Benjamin Judkewitz)		
10:00 - 10:30			Resolution (Priyanka Gupta)	Detectors & Noise (Tobias Rose)							
10:30 - 11:00		Coffee Break									
11:00 - 11:30		Image formation (Fred Marbach)	Coffee Break	Coffee Break							
11:30 - 12:00			continue lecture	continue lecture							
12:00 - 12:30		Image formation (Fred Marbach)		Widefield Imaging (Tobias Rose)		Widefield build	What not to do with imaging data? (Sriram/Leo)	What to do with imaging data? (Sriram/Leo)	Make presentations	fJSI (Emilie Mace)	
12:30 - 13:00			Benchtop optics - image golgi slides								
13:00 - 14:00		Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	
14:00 - 15:00		Benchtop optics - Lenses	continue lab	continue lecture	Intrinsic imaging (Florin Albeanu)	Widefield build	AB: 2p build CD: scanning acq	CD: 2p build AB: scanning acq	TBD (Andreas Keller)		
15:00 - 15:30			Epifluorescence (Florin Albeanu)	Optics challenge + Make presentations	Widefield (noise) calculations					in vivo 2p demo / make presentations	
15:30 - 16:30											
16:30 - 16:45		Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break		
16:45 - 17:30		continue lab	Epifluorescence (Florin Albeanu)	Make presentations	Widefield (noise) calculations	Confocal Microscopy (Priyanka/Fred)	AB: 2p build CD: scanning acq	CD: 2p build AB: scanning acq	in vivo 2p demo / make presentations		
17:30 - 18:00			Benchtop optics - epifluorescence			Scanning Microscopy (Priyanka/Fred)					
18:00 - 19:00											
19:00 - 20:00	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	
20:00 - 20:30	Introduction to TENSS (Florin, Raul & Adam)	Koehler Illumination (Priyanka Gupta)	Tobias Rose (Chalk Talk)	Basic Optics Presentations	student chalk talks 5 students	Widefield: in vivo demo	Mike Orger (Chalk Talk)	Benjamin Judkewitz (Chalk Talk)	Final Optics presentations	LASERs (Florian Engert)	
20:30 - 21:00							student chalk talks 3 students	student chalk talks 3 students		student chalk talks 3 students	
21:00 - 21:30											
21:30 - 22:30											
22:30 - 24:00		Benchtop optics - set up Koehler	continue lab: image PSFs and brain samples				AB: continue 2p build	CD: continue 2p build			

hour slots / days	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17	Day 18	Day 19
8:00 - 8:30	Morning run	Morning run	Morning run	Morning run	Morning run	Morning run	Morning run	Morning run	Morning run	Morning run
8:30 - 9:00	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast
9:00 - 9:30										
9:30 - 10:00										
10:00 - 10:30	Electronics Intro: I.V.R (Jon Newman)	Electronics Lab II: Filter analog signal	Recap: Active circuits	Patch Clamp (Tomas Hromadka)	Processing extracellular ephys data: From traces to Spikes (Ashesh Dhawale)	Analyze Data I	Student Presentations	Xaq Pitkow (TBD)	Bence Olvezcky (TBD)	Project Presentations
10:30 - 11:00				Fourier analysis (Vlad Moca)						Coffee Break
11:00 - 11:30	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Project Presentations
11:30 - 12:00	Arduinos (Tomas Hromadka)	Active circuits: Op amps & Voltage buffers	Neurons as electrical devices (Upi Bhalla)	Fourier continued..	Reinforcement learning or why the mouse learnt to love the corner (Nao Uchida)	Lab in the Wild and Wilderness in the Lab (Nacho Sanguinetti)	Trip to Cluj	Projects	Projects	Feedback forms
12:00 - 12:30	Arduino Lab			A: Bonsai (Tracking) B: Rest C: EEG demo D: Patch clamp						
12:30 - 13:00										
13:00 - 14:00	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch		Lunch	Lunch	Lunch
14:00 - 15:00	Arduino Lab	Electronics Lab III: Voltage buffers	In vivo recordings (Jakob Voigts & Jon Newman)	B: Bonsai (Tracking) C: Rest D: EEG demo A: Patch clamp	A: Acute ephys demo BCD: Build ephys setup (shielding and synchronisation)	Get nicer data		Group Feedback		
15:00 - 15:30			Open Ephys Primer	C: Bonsai (Tracking) D: Rest A: EEG demo B: Patch clamp	B: Acute ephys demo ACD: Build ephys setup (shielding and synchronisation)	Analyze Data III				
15:30 - 16:30			Coffee Break	Coffee Break	Coffee Break	Coffee Break			Coffee Break	
16:30 - 16:45	Resistors, Capacitors (Ale Camera)	Electronics Lab IV: Instrumentation Amplifiers	Synchronization (Antonin Blot)	D: Bonsai (Tracking) A: Rest B: EEG demo C: Patch clamp	C: Acute ephys demo ABD: Get Data (record ephys + behavior)	Get even nicer data	Projects			
16:45 - 17:30	Electronics Lab I: Candle powered Resistors, Capacitors		Synchronization Lab (Led blink action movie)	The rig wasn't built in a day (Jakob Voigts)	D: Acute ephys demo ABC: Get Data (record ephys + behavior)	Analyze Data IV				
17:30 - 18:00										
18:00 - 19:00										
19:00 - 20:00	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	
20:00 - 20:45	Everything, everywhere, all at once? (Tom Mrisic Fogel)	Electronics Lab IV: continued	So you think the mice can dance? (Venki Murthy)	Botond Roska (Research Talk)	Mitsuko (Research Talk)	Scaling up: many brains, many neurons, many days (Ashesh Dhawale)				
20:45 - 21:00	Break	Break	Break	Break	Break	Break				
21:00 - 22:00	Sampling and Filtering signals	Electronics Lab V: Cockroach Recordings	Projects Planning I	Tracking and closed loop (stimulate when mouse is in a corner)	Projects Planning II	make presentations	Projects	Projects		
22:00 - 23:00	Electronics Lab II: Filter analog signal		Synchronization Lab continued .. (Analyze sync data)		Analysis tutorial: From spikes to PSTHs (Daniella Vallentin)					
23:00 - 24:00										