

TECHNIQUES AND METHODOLOGIES FOR BRAIN CIRCUIT-LEVEL ANALYSIS

April 20th – May 8th 2026

SCIENTIFIC PROGRAM

Module 1: Brain Anatomy – From Cells to Circuits

Day	Time	Session	Speaker	Room
DAY 1 20/04/2026	9:00 – 9:30	Check-in		G2.02
	9:30 – 10:00	Welcome message	Ana João Rodrigues	G2.02
	10:00 – 11:00	From brain cells to circuits to behavior	Ana João Rodrigues	G2.02
	<i>break</i>			
	11:30 – 12:30	Tracers and viral approaches to find and define cell-cell connections in the brain	Hugo Leite Almeida	G2.02
	<i>lunch</i>			
	14:00 – 17:30	How to design a tracing experiment to evaluate the connectivity between two brain regions	Ana João Rodrigues	G2.02
DAY 2 21/04/2026	9:30 – 10:15	How to perform intracranial injection for circuit analysis	Bárbara Coimbra	G2.02
	<i>break</i>			
	10:45 – 12:45	Intracranial viral vector injection - stereotaxic surgery - Group 1	Bárbara Coimbra, Ana V. Domingues, Nuno D. Alves	I2.04
	10:45 – 12:45	Define stereotaxic coordinates for a specific brain region - Group 2	Ana João Rodrigues	G2.02
	<i>lunch</i>			
14:30 – 16:30	Intracranial viral vector injection - stereotaxic surgery - Group 2	Bárbara Coimbra, Ana V. Domingues, Nuno D. Alves	I2.04	

	14:30 – 16:30	Define stereotaxic coordinates for a specific brain region - Group 1	Ana João Rodrigues	G2.02
DAY 3 22/04/2026	9:30 – 10:30	Neuron-glia interactions in the brain	João Oliveira	G2.02
	<i>break</i>			
	11:00 – 13:30	Cut brains in vibratome and cryostat and cryopreserve samples - Group 2	Daniela Campos, Ana V. Domingues, Carina Cunha	I2.04
	<i>lunch</i>			
	14:30 – 17:00	Cut brains in vibratome and cryostat and cryopreserve samples - Group 1	Daniela Campos, Ana V. Domingues, Carina Cunha	I2.04
DAY 4 23/04/2026	9:30 – 10:30	Methods to label and identify cells and circuits in the brain	Lúisa Pinto	G2.02
	<i>break</i>			
	11:00 – 13:00	Immunofluorescence and RNAscope - Group 1	Daniela Campos, Ana V. Domingues, Carina Cunha	I2.04
	<i>lunch</i>			
	14:00 – 15:00	How to take the most of public databases of gene expression and tracing	Ana João Rodrigues	G2.02
	<i>break</i>			
	15:30 – 17:30	Immunofluorescence and RNAscope - Group 2	Daniela Campos, Ana V. Domingues, Carina Cunha	I2.04

Module 2: Neuronal Activity and Neurotransmitter Dynamics

Day	Time	Session	Speaker	Room
DAY 5 24/04/2026	9:30 – 10:30	Introduction to calcium and neurotransmitter imaging	Carina Cunha	G2.02
	<i>break</i>			
	11:00 – 13:00	Stereotaxic surgery for optic fiber implantation - Group 2	Carina Cunha, Ana V. Domingues, Bárbara Coimbra, Nuno D. Alves	I2.04
	11:00 – 13:00	Design an imaging/photometry experiment - Group 1	Ana João Rodrigues	G2.02
	<i>lunch</i>			
	14:00 – 15:00	Novel calcium/voltage indicators and neurotransmitter sensors for the study of neurons	Lin Tian	G2.02
	15:30 – 17:30	Stereotaxic surgery for optic fiber implantation - Group 1	Carina Cunha, Ana V. Domingues, Bárbara Coimbra, Nuno D. Alves	I2.04

	15:30 – 17:30	Design an imaging/photometry experiment - Group 2	Ana João Rodrigues	G2.02
DAY 6 27/04/2026	9:30 – 12:00	Gradient Index Lens implant - Demo	Carina Cunha	I2.04
	<i>lunch</i>			
	14:00 – 15:00	Chemo and optogenetics to manipulate neuronal circuits	Jacques Barik	G2.02
	<i>break</i>			
	15:30 – 17:00	Synaptic circuit basis of behavior	João Peça	G2.02
DAY 7 28/04/2026	9:30 – 12:00	Fiber photometry data collection - Group 2	Ana V. Domingues, Carina Cunha	I2.04
	<i>lunch</i>			
	13:30 – 14:30	Neurobiological bases of addiction and depression	Jacques Barik	G2.02
	<i>break</i>			
	15:00 – 17:30	Fiber photometry data collection - Group 1	Ana V. Domingues, Carina Cunha	I2.04
DAY 8 29/04/2026	9:30 – 12:00	Calcium imaging with miniscopes data collection - Group 1	Ana V. Domingues, Carina Cunha	I2.04
	<i>lunch</i>			
	13:30 – 14:30	Circuits and Behavior in addiction and other disorders	Christian Lüscher	I2.04
	14:30 – 17:00	Calcium imaging with miniscopes data collection - Group 2	Ana V. Domingues, Carina Cunha	G2.02

Module 3: Calcium Imaging and Fiber Photometry Data Analysis for Neuroscience

Day	Time	Session	Speaker	Room
DAY 9 4/05/2026	9:00 – 13:00	Fiber photometry data analysis	Ana V. Domingues, Carina Cunha, Rafael Jungmann	G2.02
	<i>lunch</i>			
	14:00 – 17:00	Calcium imaging with miniscopes data analysis - Part 1	Ana V. Domingues, Carina Cunha, Rafael Jungmann	G2.02
DAY 10 5/04/2026	9:00 – 12:30	Calcium imaging with miniscopes data analysis - Part 2	Ana V. Domingues, Carina Cunha, Rafael Jungmann	G2.02
	<i>lunch</i>			

	14:00 – 17:00	Calcium imaging with miniscopes data analysis - Part 3	Ana V. Domingues, Carina Cunha, Rafael Jungmann	G2.02
DAY 11 6/04/2026	9:00 – 12:30	Calcium imaging with miniscopes data analysis - Part 4	Ana V. Domingues, Carina Cunha, Rafael Jungmann	G2.02
	<i>lunch</i>			
	14:00 – 17:00	Calcium imaging with miniscopes data analysis - Part 5	Rafael Jungmann	G2.02

For students / To obtain 5 ECTS

Day	Time	Session	Room
8/05/2026	14:00 – 17:00	Final Written exam	TBA