April 9 | Monday
9h - Structure of the course; Introduction of students and lecturers
9h15 - Neuronal migration: inter- and intracellular signaling - Ricardo Rodrigues
11h - Molecular triggers of synapse formation and maturation - Ramiro D. Almeida
12h30 - Lunch
14h - Electrophysiology: a primer (I) - João Peça
16h - Electrophysiology: a primer (II) - Paulo Pinheiro

April 10 | Tuesday
9h - Introduction to synapses: structure-function and molecular composition - Ana Luísa Carvalho
11h - Presynaptic function - Paulo Pinheiro
12h30 - Lunch
14h - Postsynaptic receptor function - Ana Luísa Carvalho
16h - Synaptic plasticity & molecular mechanisms - Ana Luísa Carvalho

April 11 | Wednesday
9h - Computational modelling of synaptic plasticity - Rui Ponte Costa
11h - Computational modelling of synaptic plasticity (practical session) - Rui Ponte Costa
12h30 - Lunch
14h - Molecular mechanisms in long-term memory formation – Ana Oliveira
15h30 - Synaptic sculpting by microglia in health and disease – Ana Luísa Cardoso

April 12 | Thursday
9h - Multi-photon microscopy: principles and applications; Live imaging of neurons and synapses in vivo - Luísa Cortes
10:30h - 17:30h: Practical sessions
(1) Electrophysiology - Measurement of synaptic parameters in rat hippocampal slices and in cultured rat hippocampal neurons - Paulo Pinheiro & João Peça/Joana Guedes
(2) Two-photon microscopy - Imaging spine dynamics in organotypic hippocampal slices - Luísa Cortes

April 13 | Friday
9h - The memory engram - Ana Oliveira
10h30 - Neuromodulation - Carlos Duarte
12h - Lunch
14h - "DNA methylation players in memory formation" - Seminar by Ana M.M. Oliveira
15h30 - "Principled views on synapses and circuits: statistical and deep learning" - Seminar by Rui Ponte Costa
17h - Time to meet with tutors for grant proposal

April 16 | Monday
9h30 - Introduction to the second week of the course and objectives – João Peça
10h - Optogenetics and tools for neuronal circuit dissection – João Peça
11h15 - Synaptic and circuitry mechanisms of basal ganglia dysfunction – Patricia Monteiro
12h15 - Lunch
14h - Lab talks (talks from senior Postdoc or Student)
15h - To be announced

April 17 | Tuesday
9.30h-16.30h - Practical sessions
(1) Electrophysiology - Measurement of synaptic parameters in rat hippocampal slices and in cultured rat hippocampal neurons - Paulo Pinheiro & João Peça/Joana Guedes
(2) Two-photon microscopy - Imaging spine dynamics in organotypic hippocampal slices - Luísa Cortes

April 18 | Wednesday
10h30 - Circuit dysfunction in post-lesional bipolar disorder: from lesions to circuits – Albino Maia
11h30 - Cortico-hippocampal neural circuits in memory-driven behaviors - Miguel Remondes
12h30 - Lunch
14h - Lab talks (talk from senior Postdoc or Student)
15h - "Toward a circuit level understanding of cognition" - Seminar by Joe Paton

April 19 | Thursday
9h30 - Synaptic dysfunction in neuropsychiatric disorders – Ana Luísa Carvalho
10h30 - Modulation of GABAergic inhibitory inputs in the hippocampus – Ana Sebastião
11h45 - Hypothalamic circuits – Susana Lima
12.45h - Prefrontal functional connectivity in animal models of chronic pain – Vasco Galhardo
13h45 - Lunch
15h - "Lessons from synaptic dysfunction in aging to model neurodegeneration" - Seminar by Luísa Lopes

April 20 | Friday
10h - Genetic dissection of autism spectrum disorders – João Peça
11h - Social Neuroscience - Rui Oliveira
12h30 - Lunch
14h - "Neurobiology of social behaviour in zebrafish" Seminar - Rui Oliveira