Scheduled Topics and Speakers

Day	Foundation Topics	Specific Topics	Mentors
Monday, May 30, 2022	Finite difference equations, phase resetting and phase locking Poincaré maps and introduction to ordinary differential equations	Perception, action, sensorimotor integration	Theory: Gil Bub, Leon Glass and Anmar Khadra Applications: Caroline Palmer
Tuesday, May 31, 2022	Ecology	Synchronization and group dynamics, coupled nonlinear oscillators, phase locking, phase transitions, population persistence and spread	Theory: Frédéric Guichard Applications: Timothée Poisot
Wednesday, June 1, 2022	Electrophysiological systems, excitable systems, bifurcation methods	Sensory transduction, neural excitability and perceptual binding	Theory: Michael Guevara and Edward Large Applications: Bernhard Ross
Thursday, June 2, 2022	Deterministic and stochastic models, reaction kinetics, biophysical models	Gene regulatory networks; neural dynamics	Theory: Paul Francois and Lea Popovic Applications: Andre Longtin
Friday, June 3, 2022	Infections and immunology	Epidemiology, within-host viral dynamics, immunological responses	Theory: Morgan Craig and Jacques Bélair Applications: Jane Heffernan
Monday, June 6, 2022	Mathematical oncology	Introduction to mathematical oncology, stochastic processes in cancer, PK/PD, mathematical oncology in industry	Theory: Samuel Bernard, **Jana Gevertz** Applications: Mahua Roy
Tuesday, June 7, 2022	Machine learning, feature extraction, neural networks, disrupted dynamics	Visual neuroscience and psychophysics; recurrence quantification	Theory: Pouya Bashivan and Erik Cook Applications: Paula Silva
Wednesday, June 8, 2022	Molecular dynamics, partial differential equations, well-mixed and reaction diffusion models	Protein-protein interactions, cell motility, axonal growths, cardiac modelling	Theory: Lisanne Rens and Anita Layton Applications: Claire Brown
Thursday, June 9, 2022	Trainee presentations (5-6 group projects / day)		
Friday, June 10, 2022			

Weekly Schedule of Events

Week 1					
Time	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
10:00-11:00	Speaker	Speaker	Speaker	Speaker	Speaker
11:00-11:15 Morning Break					
11:15-12:15	Speaker	Speaker	Speaker	Speaker	Speaker
12:15-1:00 Lunch break					
1:00-2:00	Applications Speaker				
2:00-2:30 Afternoon Break					
2:30-4:30	Computer and/or tutorials: Solving problems (including 15-minute break)				

Week 2					
Time	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
10:00-11:00	Speaker	Speaker	Speaker	Trainee presentations: Group1	Trainee presentations: Group7
11:00-11:15 Morning Break					
11:15-12:15	Speaker	Speaker	Speaker	Group2-3	Group8-9
12:15-1:00 Lunch Break					
1:00-2:00	Applications Speaker			Group4	Group10
2:00-2:30 Afternoon break					
2:30-4:30 Computer labs: Group project time (incl 15-minute break)				Group5-6	Group11-12; feedback