

Draft Programme - Systems Biology: From Large Datasets to Biological Insight 2019

Day 1. Monday 8th July

Introduction & Overview and Data reduction/integration session

8:00-8:30	– Registration (CC Foyer)	
8.30-8.45	– Transfer to EMBL-EBI training rooms	
8:45-9:00	– An introduction to EMBL-EBI	Alexandra Holinski
9:00-9:15	– Overview of course content	Evangelia Petsalaki
9:15-9:45	– Introduction to data reduction & integration methods	Evangelia Petsalaki
9:45-10:15	– Principal component analysis (PCA) for data reduction	Evangelia Petsalaki
10:15-10:45	– Tea/coffee break	
10:45-12:45	– Practical exercise using PCA for data reduction	Evangelia Petsalaki
12:45-13:45	– Lunch	
13:45-14:00	– Matrix factorization approaches for data integration	Ricard Argelaguet
14:00-15:45	– Practical exercise using MOFA for data integration	Ricard Argelaguet
15:45-16:15	– Tea/coffee break	
16:15-17:15	– Keynote	Oliver Stegle
17.15 - 18.30	– Practical on visualization and interpretation of data integration/reduction	Evangelia Petsalaki
19:00	– Dinner	

Day 2. Tuesday 9th July

Network Inference

9:00-9:30	– Introduction to network inference	Evangelia
9:30-11:00	– Protein interactions network inference	Javier De Las Rivas
11:00-11:30	– Tea/Coffee break	
11:30-12:00	– Introduction to team work projects 2 teams gene expression to gene regulatory networks 2 teams phosphoproteomics to signalling networks	Evangelia Petsalaki, Girolamo Guidice, Julio Saez-Rodriguez, Javier De Las Rivas
12:00-13:00	– Start of team work projects	
13:00-14:00	– Lunch	
14:00-16:00	– Continue team work projects and prepare presentations	Evangelia Petsalaki, Girolamo Guidice, Julio Saez-Rodriguez, Javier De Las Rivas
16:00-17:00	– Keynote: network inference and model parametrization	Jan Hasenauer
17:00-18:30	– Poster session with cheese and wine	
19:00	– Dinner	

Day 3. Wednesday 10th July

Signal propagation/modelling

9:00-12.45	modelling standards, tools and applications (including 0.5 h break)	Eva Geissen / Sheriff Rahuman / Sarah Keating / Nicolas Rodrigues
12:45-14:00	– Lunch	

14:00-16:15	– From data analysis to logic modelling (theory & practical)	Julio Saez-Rodriguez, Emanuel Gonclaves
16:15-16:45	– Tea/coffee break	
16:45-18:15	– 15 minute presentations from projects and discussions of Day 3	Evangelia, Julio, Javier
19:00	– Dinner	

Day 4. Thursday 11th July

Signal propagation/modelling ctnd & Machine learning

08:45-11:00	– Diffusion based approaches for signal propagation, Introduction and practical exercise	Evangelia Petsalaki
11:00-11:30	– Tea/coffee break	
11:30-12:30	– Keynote: mechanistic modelling	Jasmine Fisher
12:30-14:30	– Lunch	
14:30-15:15	– Introduction to supervised machine learning	Konrad Foerstner
15:15-16:00	– Introduction & practical exercise: classification and regression	Konrad Foerstner
16:00-16:30	– Tea/coffee break	
16:30-18:30	Practical exercise continued	Konrad Foerstner
19:00	Dinner	

Day 5. Friday 12th July

Deep learning

08:30	– Check out	
08:45-11:00	– Introduction to deep learning & Practical exercise	Leo Parts, Dmytro Fishman
11:00-11:30	– Tea/coffee break	
11:30-12:30	– Practical exercise continued	Leo Parts, Dmytro Fishman
12:30-13:15	– Keynote	<i>to be confirmed (keynote speaker 2)</i>
13:15-13:45	– Q&A, Course wrap up and feedback	Alexandra, Evangelia
13:45-14:30	– Lunch	
14:30	– Departures	