

16/11/2021 – 10/12/2021		
FUNDAMENTALS 3: Engineering cellular systems (top-down approaches)		
ASSEMBLY & SYNTHESIS (II) + TOOLS (II) + FRONTIERS		
Day	Lectures / Activities	Teachers
	Lectures ASSEMBLY & SYNTHESIS II (in black) Lectures TOOLS II (in blue)	
	L1 (10:00-11:00) L2 (11:15-12:15) L3 (12:30-13:30) L4 (afternoon sessions – OPTIONAL) F3 LECTURES WILL BE AT CNB (c/Darwin, 3 - Campus UAM-CSIC Cantoblanco) (*) Online	
16/11/21 Room B Hall CNB	10:00-11:00: Therapeutic bacteria: from probiotics to synthetic biology 11:15-12:15: Bacteria and immune system interface 12:30-13:30: Synbio of bacterial membrane	LA Fernández (CNB) E Veiga (CNB) D López (CNB)
17/11/21 Room B Hall CNB	10:00-11:00: Amyloids as constructive parts in SynBio 11:15-12:15: Optogenetics 12:30-13:30: Assembling structured microbial ecosystems	R Giraldo (CNB) R Giraldo (CNB) E Martínez (CNB)
18/11/21	10:00-11:00: An introduction to Biomolecular Networks in Synbio (I): from gene-regulatory networks to metabolic pathways. Introduction to Biocircuits (*) 11:15-12:15: Revisiting basic calculus tools: Introduction to ODEs (*) 12:30-13:30: An introduction to Biomolecular Networks in Synbio (II): from the reaction graph to dynamics (*)	I Otero-Muras (I2SysBio) J Buceta (I2SysBio) J Buceta (I2SysBio)
19/11/21		

Day	Lectures / Activities	Teachers
22/11/21		
23/11/21 Room 36 3 rd Floor CNB-annex	10:00-11:00: Analysis of Nonlinear ODEs (and implications in biological function): phase space analysis and bifurcations (I) (*) 11:15-12:15: Analysis of Nonlinear ODEs (and implications in biological function): phase space analysis and bifurcations (II) (*) 12:30-13:30: Analysis of biological networks: a complex-network approach (*)	J Buceta (I2SysBio) J Buceta (I2SysBio) F. Pazos (CNB)
24/11/21 Room 36 3 rd Floor CNB-annex	10:00-11:30: Making Biological Switches (*) (with on-site connection from CNB) 12:00-13:30: Clocks and rulers in life in the context of Synthetic Biology	I Otero (I2SysBio) S Ares (CNB)
25/11/21 Room 36 3 rd Floor CNB-annex	10:00-11:00: Introduction to Metabolic Network Analysis (*) (with on-site connection from CNB) 11:15-12:15: The SEVA project as a standardization approach 12:30-13:30: High-throughput pathway assembly and optimization	P Carbonell (I2SysBio) E. Martínez (CNB) Blas Blázquez (CNB)
26/11/21 Auditorium CIB-MS	12:00 - SEMINAR - Sebastian Maerkl (EPFL). Cell-free synthetic biology: bottom-up construction of complex molecular systems	S Maerkl (EPFL)

Day	Lectures / Activities	Teachers
29/11/21		
30/11/21 Room 36 3 rd Floor CNB-annex	10:00-11:00: Large-scale and high-throughput genome editing 11:15-12:15: Sequence-based assignment of protein functional sites 12:30-13:30: Genome-scale metabolic modeling	Tomás Aparicio (CNB) F. Pazos (CNB) J Nogales (CNB)
01/12/21 Room B hall CNB	10:00-11:30: Bottom up assembly of microbial ecosystem from metagenome data 12:00-13:30: Standards in synthetic biology (*) (with on-site connection from CNB)	J Tamames (CNB) M Porcar (I2SysBio)
02/12/21	Activities to be announced (Journal Club or FRONTIERS-SEMINAR)	
03/12/21		

Day	Lectures / Activities	Teachers
06/12/21	NON LECTIVE	
07/12/21	NON LECTIVE	
08/12/21	NON LECTIVE	
09/12/21	Activities to be announced (FRONTIERS-SEMINAR or Journal Club)	
10/12/21		
	EXAM WEEK (DATE TO BE DEFINED)	
13/12/21		
14/12/21		
15/12/21		
16/12/21		
17/12/21		