BIOINFORMATICS BARCELONA

Provisional agenda

informàTICs Enginyers en informàtica de Catalunya

Day	Session	Time	Format	Topics*	Lecturer
1	Registration	08:30 - 09:00			
	Biology as a computing paradigm	09:00 - 10:15	Lecture	introduction to molecular biology with a focus on information processing, essential concepts in molecular biology, central dogma, evolution and information processing	
	Experimental methods in biomedical research	10:15 - 11:30	Lecture	experiment design, controls and replicates, molecular biology and high-throughput methods	
		11:30 - 11:45	*Coffee break*		
		11:45 - 13:00	Hands-on	critical reading of molecular biology manuscripts and team-based discussion; hypothesis, evidence and methods	
	Essential bioinformatics	13:00 - 14:00	*Lunch*		
		14:00 - 15:15	Lecture	genome assembly, alignment and sequence search; dynamic programming, computational issues and search strategies, multiple sequence alignment, parallelization	
		15:15 - 16:30	Hands-on	guided exercises on main bioinformatics repositories, BLAST flavors	
	Microbiome research	16:30 - 16:45	*Coffee break*		
		16:45 - 18:00	Lecture	microbiome and hologenome, bacteria in human health and the environment	
2	Microbiome research	09:00 - 10:15	Lecture	metagenomics, concepts and approaches, 16S and deep-sequencing, environmental human microbiome analysis, computational challenges	
		10:15 - 11:15	Hands-on	critical reading of microbiome analysis manuscripts; team-based discussion	
		11:15 - 11:30	*Coffee break*		
	Cancer biology	11:30 - 12:30	Hands-on	guided exercises on microbiome data analysis	
		12:30 - 13:45	Lecture	cancer as a disease, tumor stages, critical pathways, chemo-, radio- and immunotherapy, metastasis and resistance	
		13:45 - 14:45	*Lunch*		
		14:45 - 16:00	Lecture	bioinformatics approaches to cancer and therapy	
		16:00 - 17:00	Hands-on	critical reading of experimental cancer manuscripts using bioinformatics approaches; team-based discussion	
		17:00 - 17:15	*Coffee break*		
		17:15 - 18:00	Hands-on	guided exercises on cancer data analysis	

* Topic details are for reference only