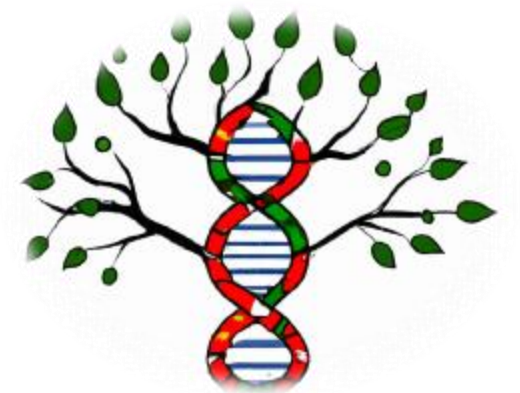


Biological Evolution Across Scales: Mathematical modelling and statistical inference

Apr 17-21, 2023



All the Bernoulli center is at your disposal!



Black boards, kitchen, coffee machine, break rooms, offices, and terrace.



You can wash your personalized mugs in the kitchen.
Please leave them in the trays overnight!



You can stay as long as you like, but someone has to open the door for you
from the inside **past 6 pm.**

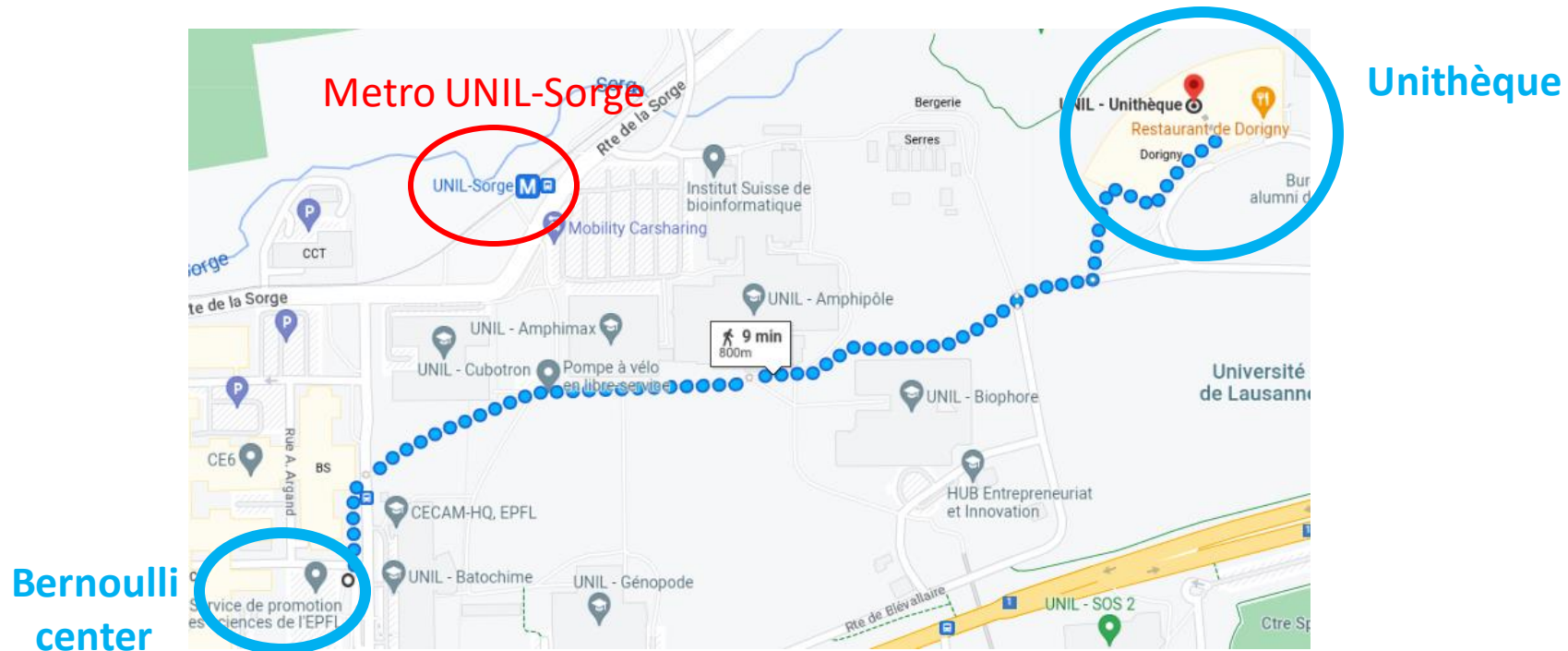


WiFi connection

You can use **eduroam**, or **freewifi-epfl** (requires a phone number to send you a code).
If this does not work, please ask us and we will provide another way.



Lunch vouchers are placed inside your welcome bags: one voucher of 20 CHF a day.
Lunch is at Unithèque - a nice 10 min walk from here.



The workshop dinner is [Wednesday at 7:30pm at Débarcadère at Saint-Sulpice.](#)



Monday		Tuesday	Wednesday	Thursday	Friday	
8h45 - 9h	Opening and welcome					
9h - 10h	Erik Aurell Statistical genetics and Direct Coupling Analysis in and out of quasi-linkage equilibrium	Paul Jenkins Some properties of the Wright-Fisher diffusion	Chaitanya Gokhale Ecological determinants of structure and function in living systems	Maria Anisimova Uncovering the potential of modeling indel evolution in genomic sequence analyses	Xiang-Yi Li Richter The evolutionary impact of sex-specific spatial scales of competition Sedigheh Yagoobi Fixation probability in network-structured metapopulations	9h - 10h30
10h - 10h30	Coffee break	Coffee break	Coffee break	Coffee break		
10h30 -12h	Florence Débarre Spatial spread of a gene drive Florence Bansept Evolution in biphasic life cycles	Cornelia Pokalyuk Fixation of slightly beneficial alleles from a backward and a forward perspective Carina Mugal Applications of stochastic reproduction-selection models for the study of non-equilibrium dynamics in molecular evolution	Giancarlo Croce Exploiting evolutionary patterns in homologous protein sequences to predict short-term polymorphisms Pierre Barrat-Charlaix Ecology of host and pathogen and limited predictability of evolution	Jens Lagergren VaiPhy – Variational Inference for Phylogeny Alexander Klug The effect of multi-nucleotide mutations on adaptive evolution	Coffee break	10h30 - 11h
					Pete Csuppon Within-host dynamics of antibiotic resistance Loïc Marrec Evolutionary rescue in a fluctuating environment	11h -12h30
12h - 13h30	Lunch break	Lunch break	Lunch break	Lunch break	Closing	
13h30 - 15h	Andreas Mayer Imprints of antigen-driven selection to immune repertoires Barbara Bravi Machine learning models for antigen immunogenicity and T-cell recognition	John Barton Using time series data to learn about evolution, from the lab to the globe Merlijn Staps The evolution of flexibility in task allocation systems	Frederic Alberti Labelled partitions in action: recombination, selection, mutation Anastasia Ignatieva Threading new data into reconstructed genealogies	Thibault Latrille A phylogenetic mutation-selection models predicts fitness effects of mutations in extant mammals Laurent Jacob Phyloformer: towards fast and accurate phylogeny estimation with self-attention networks		
15h - 15h30	Coffee break	Coffee break	Coffee break	Coffee break		
15h30 - 17h	Xiaowen Chen Generalized Glauber dynamics for inference of collective behavior Parul Johri The role of non-adaptive evolutionary processes in shaping genomic variation	Jérôme Tubiana Harnessing sequence generative models for inhibitory peptide design Christian Dallago Protein language models for protein science, design and engineering: overview and outlook	19h30: Dinner at Débarcadère	Charles Mullon The different paths to adaptive polymorphism in heterogeneous population Stephan Peischl Evolutionary dynamics in regions of low recombination		

EPFL

BEVAS

Thank you and enjoy the workshop!

