



International School on Statistical Inference from Biological Data

DESCRIPTION:

The last two decades have witnessed giant experimental breakthroughs in different areas of the life sciences, from genomics to epidemiology. Thanks to modern high-throughput techniques, biological systems across multiple scales—from single molecules up to entire populations—can now be probed quantitatively at high spatial and temporal resolutions. These data potentially encode a plethora of information about the functional constraints that govern its evolution and the physical constraints that limit its performance. Extracting this information is also crucial for applications ranging from the design of proteins with a desired functionality to the reconstruction of contacts during epidemics. Inverse statistical mechanics attempts to do it by inferring generative models from data using methods from the physics of disordered and random systems but more recently also exploring AI approaches. Specific characteristics of biological data however, like strong undersampling and heterogeneity, limit the effectiveness of these tools. The school will explore the opportunities and limits of statistical inference across biological systems and applications.

SPEAKERS:

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**Universidad de la Habana,
Havana, Cuba**



**Deadline:
1 December 2025**

DIRECTORS:

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LOCAL ORGANISER:

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FURTHER INFORMATION:

E-mail: smr4187@ictp.it
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Female scientists are encouraged to apply.



GRANTS:

A limited number of grants are available to support the attendance of selected participants, with priority given to participants from developing countries. There is no registration fee.

