

# Applications of Next-Generation Sequencing to the study of EMERGING AND NEGLECTED HUMAN AND ANIMAL DISEASES

**OCTOBER  
21-25th, 2019**

Buenos Aires - Argentina

## Overview

NGS technologies offer the possibility to reveal the diversity of microbial populations resulting from host and/or vector interactions in an unprecedented way. The Training will address the needs of young researchers to handle large volume of data in order to improve their ability to understand how microbes, pathogenic or not, are shaped by environmental variables and host and vector coevolution processes. Participating trainees will have the opportunity to receive up to date information in the area of genomics and bioinformatics, with a focus on emergent and neglected diseases that affect humans and animals in the framework of One Health. Lecturers are world-class experts in the areas of NGS data handling, microbial genomics and theoretical models for epidemiology. The program will include hands-on practical exercises with real data from sequencing projects on emergent and neglected microbial pathogens.

## Course Description

The lectures will cover the fields of: Microbial diversity; emergent and re-emergent pathogens and vector borne pathogens; host-pathogen interactions; vector-pathogen interactions; vector microbiome and endosymbionts; arthropod immune system. Amplicon and shotgun sequencing, Sequencing strategies, library types, pair-end reads; Sequence assembly; NGS Data Analysis; Workflow of genomic analysis: gene prediction, gene annotation, taxonomic analysis, comparative analysis; Complete genome and plasmids resolution with long reads; Insight into epidemiological models.

The practical sessions will cover the following topics: Introduction to Linux command-line; Basic management of NGS files; Tools for the assembly of NGS reads; Tools for sequence annotation and comparative analysis; Phylogenomics; Population epidemiology; Sequencing in MinION (demonstration).

## Audience

The training will be directed to young life science researchers in the field of microbial pathogens (virus, bacteria and protozoa) and bioinformatics, providing them with up to date training in NGS data analysis of microbial population dynamics and host and vector interactions.

## Organisers

Marisa Farber (Instituto de Biotecnología, INTA-CONICET)  
Andrea Puebla (Instituto de Biotecnología, INTA-CONICET)

## Keynotes speakers and Trainers

Sunetra Gupta (Department of Zoology, University of Oxford, UK)  
Jose Lourenço (Department of Zoology, University of Oxford, UK)  
Sirlei Daffre (Institute of Biomedical Sciences, University of São Paulo, Brazil)  
Andrea Fogaça (Institute of Biomedical Sciences, University of São Paulo, Brazil)  
Joao Marcelo Pereira Alves (Institute of Biomedical Sciences, USP, São Paulo, Brazil)  
Silvina Wilkowsky, (Instituto de Biotecnología, INTA-CONICET).

The language of the instruction will be English, Spanish and Portuguese.

## Travel and accommodation bursaries available

## Program and application form at:

<https://forms.gle/ZbiWjbX3LAwmH6eY8>

**Application deadline:** 02 September 2019

**Number of places:** 20

## For more information

[farber.marisa@inta.gob.ar](mailto:farber.marisa@inta.gob.ar); [puebla.andrea@inta.gob.ar](mailto:puebla.andrea@inta.gob.ar)