

Preparing the next generation of scientists

A CORE FOUNDATION AND THE OPTION TO SPECIALIZE

This 50-hour training program required for all Institut Pasteur PhD students begins with a group of common core courses including a knowledge base in reproducible research, R Programming and Statistics. Each student then chooses a track of additional modules—Bioinformatics or Image Analysis—according to their background and field of research. Students already proficient in R programming and statistics can skip certain modules or the entire track.

INSTITUTIONAL RECOGNITION

This PhD program has been acknowledged by the doctoral schools at the Sorbonne Bio, CDV, Ecole doctorale interdisciplinaire européenne Frontières du Vivant, and ED-SDSV.



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A TARGETED CURRICULUM DEVELOPED BY THE COMPUTATIONAL BIOLOGY DEPARTMENT

In accordance with a request in 2016 from the former General Board of Directors, the Computational Biology Department has developed this training program dedicated to Institut Pasteur PhD students. Each and every student at the institute must attend at least 50 hours of training. At the minimum, he or she is required to validate the statistical modules (which, depending on their background, some students may skip), and possibly choose additional modules according to his or her background and field of research.

MORE INFORMATION

Visit the training page of the Institut Pasteur Department of Computational Biology website:
<https://c3bi.pasteur.fr/trainings/>

Contact the Institut Pasteur Department of Computational Biology about education and training at: C3BI-teaching@pasteur.fr



The Bioinformatics program for PhD students was made possible by a grant from the INCEPTION program: <https://www.inception-program.fr/en>



Institut Pasteur

Bioinformatics program for PhD students

ACADEMIC YEAR 2019-2020

The Department of Computational Biology

Mandatory common core (6h)

This one-day course is required for all PhD students.

Jacques Monod Amphitheatre
9am-12pm, 1:30-4:30pm

- Introduction to the course/Department of Computational Biology/Hub
- Computer science 101
- Experimental design
- Good practices and reproducibility
- + Assessment to determine appropriate track

SESSION 1: November 12, 2019

SESSION 2: January 8, 2020

V. Guillemot, N. Maillet, F. Lemoine

R Programming and Statistics

Knowledge of R programming and Statistics is mandatory for all Pasteur PhD students. Students already proficient in any one of these topics can skip any or all modules in this track.

Yersin Building Ground Floor teaching room
9am-12pm, 1:30-4:30pm

Introduction to R and statistics (18h)

SESSION 1: December 3-5, 2019

SESSION 2: March 3-5, 2020

B. Li, E. Kornobis

Hypothesis testing (12h)

SESSION 1: December 11-12, 2019

SESSION 2: March 10-11, 2020

S. Volant, P. Campagne

Linear models (12h)

SESSION 1: January 7-8, 2020

SESSION 2: March 17-18, 2020

A. Biton, H. Varet

Multivariate analyses (12h)

SESSION 1: January 14-15, 2020

SESSION 2: March 24-25, 2020

H. Julienne, V. Saint-André

Bioinformatics

The first four modules of this track are independent whereas the last four modules require completion of "Basic concepts in NGS data analysis".

Yersin Building Ground Floor teaching room
9am-12pm, 1:30-4:30pm

Unix basic commands (12h)

SESSION 1: January 21-22, 2020

N. Maillet, J. Guglielmini

Introduction to sequence analysis (12h)

SESSION 1: January 28-29, 2020

T. Bigot

Proteomics data analysis (12h)

SESSION 1: January 30-31, 2020

Q. Gai Gianetto

Basic concepts in NGS data analysis (6h)

SESSION 1: February 3, 2020

C. Chica

Expression, quantification, differential analysis (6h)

SESSION 1: February 4, 2020

R. Legendre

Variant calling (6h)

SESSION 1: February 5, 2020

A. Pain, P. Campagne

ChIP-seq data analysis (6h)

SESSION 1: February 6, 2020

V. Saint-André

Functional analysis (6h)

SESSION 1: February 7, 2020

N. Pietrosemoli, E. Perthame

Image Analysis

This track serves as a practical introduction to the common tools of BioImage Analysis. It is designed for students with no prior knowledge in image analysis.

Yersin Building Ground Floor teaching room
9am-12pm, 1:30-4:30pm

Getting started in BioImage Analysis with Fiji (6h)

SESSION 1: February 18, 2020

J.-Y. Tinevez

Using Icy for BioImage Analysis (3h)

SESSION 1: February 19, 2020 - morning

S. Rigaud

Advanced Icy features: scripting and protocols (3h)

SESSION 1: February 19, 2020 - afternoon

S. Rigaud

Reconstruction of super-resolution images (3h)

SESSION 1: February 20, 2020 - morning

B. Lelandais

Using Machine Learning for BioImage analysis (3h)

SESSION 1: February 20, 2020 - afternoon

D. Ershov

