



Italian Society of Agricultural Genetics - SIGA

THEORETICAL-PRACTICAL COURSE 2026, February 2 – 6, Online

RNA sequencing in agriculture: from experimental setup and data analysis to biological insight

PROGRAMME

Monday 2nd February

9:00 – 9:30 - Introduction to the course and welcome address – Prof.ssa Stefania Masci, SIGA President

Theory

9:30-13:30 Dr. Cristian Forestan

- Introduction to Next-Generation Sequencing: short- and long-reads technologies
- Application of RNA-seq in agriculture
- How to plan an RNA-sequencing analysis: experimental setup and cost estimation

Tuesday 3rd February

Theory

9-13 Dr. Cristian Forestan

- Bioinformatics analysis of short reads data: from quality control to differentially expressed genes
- Introduction to Linux
- Retrieval and formatting of reference data
- Read Quality Control and Trimming of the reads (Illumina)

Wednesday 4th February

Practical Session

9-13 Dr. Cristian Forestan

- Read mapping and Quality Control
- Gene expression quantification
- Introduction to R

Thursday 5th February

Practical Session

9-13 Dr. Riccardo Aiese Cigliano

- Data import and exploration of expression data
- Quality Control and filtering of the data
- Differential expression analysis and graphical presentation of the results
- Gene Ontology Enrichment Analysis of differentially expressed genes using R

Friday 6th October

Advanced Case Studies

9-11 Dr. Cristian Forestan

- Bioinformatics approaches for the identification of splicing isoforms using long reads
- RNA-seq in the pangenomics era

Final Session

11-13 Dr. Cristian Forestan and Dr. Riccardo Aiese Cigliano

- General discussion
- Final test (optional, 1 hour)