

# Workshop in Omics Integration and Systems Biology

6 - 10 September  
Online





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# Instructions

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**Please remain muted**  
during lectures



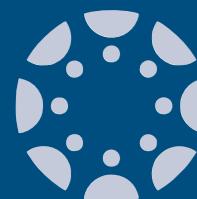
**Camera on**  
throughout, if possible



**Raise your hand**  
to ask questions



**Chat**  
Please do not use Zoom chat  
Use [HackMD](#)



**Important links**  
are on [canvas](#)

***Please note this session will be recorded***

# Mentimeter

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Go to

**<https://www.menti.com/x13m4v8fyx>**

Or **[www.menti.com](https://www.menti.com)** and use the code **1645 5389**

# Themes

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**Before the course**

Installation  
Data pre-processing



**Rui Benfeitas, NBIS**

**Day 1**

Machine learning view of integration

Unsupervised integration

MOFA and personalised medicine



**Nikolay Oskolkov, NBIS**



**Ricard Argelaguet**  
Babraham Institute, UK

**Day 2**

Supervised integration through Mixomics

Deep Learning for Integrative Omics  
Single-cell and UMAP



**Kim-Anh Lê Cao**  
Melbourne University, Australia



**Nikolay Oskolkov, NBIS**

# Themes

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**Day 3**

Biological network analysis



**Rui Benfeitas, NBIS**

Signalling networks and GWAS



**Pedro Beltrão**

EMBL-EBI, UK

**Day 4**

Network fusion

Non-negative matrix factorisation



**Sergiu Netotea**

NBIS, Gothenburg

Genome-scale metabolic modeling



**Nikolaus Sonnenschein**

DTU, Denmark

**Day 5**

Gene-set analysis and Reporter Features

Network meta-analysis



**Ashfaq Ali, NBIS**

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# Open seminars

# Invited seminars

Online Seminar



## Network based analysis of 1002 GWAS study defines a pleiotropy map of human cell biology

Dr. Pedro Beltrao, EMBL - EBI  
United Kingdom

September 8, 15:00-16:00  
Zoom and Youtube

Summary and online registration at  
[scilifelab.se/events](http://scilifelab.se/events)

Sign up and read more: [scilifelab.se/events](http://scilifelab.se/events)



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Online Seminar



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**Metabolic Atlas: genome-scale metabolic models for easy browsing and analysis**

**Mihail Anton, Metabolic Atlas,  
Chalmers Univ. Technology**

September 10, 13:00-13:55

Zoom and Youtube

Summary and online registration at  
[scilifelab.se/events](http://scilifelab.se/events)



# Invited seminars

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Online Seminar



## Network-based integration and visualization of large- scale data

**Dr. Lars Juhl Jensen, Novo Nordisk CPR  
Denmark**

September 10, 14:00-15:00

Zoom and Youtube

Summary and online registration at  
[scilifelab.se/events](http://scilifelab.se/events)

Sign up and read more: [scilifelab.se/events](http://scilifelab.se/events)



# Resources

All resources will be shared in the homepage

Lectures will be recorded

Slides and scripts: Schedule or Modules

Questions / Bugs?: HackMD

NBIS     ELIXIRSE\_OMICSINT\_H21 > Syllabus

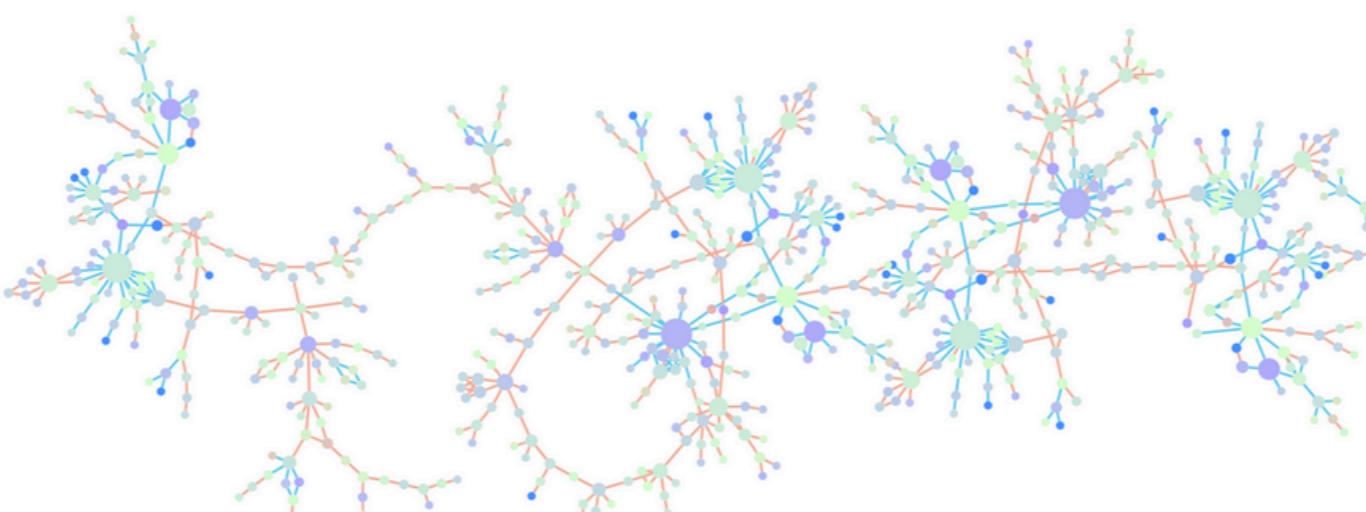
2021H     ELIXIR Omics Integration and Systems Biology

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DOI 10.5281/zenodo.4084627     Github repository     6 - 10 September 2021     Online

Connection details     Open seminars     Schedule     Start here



The aim of this workshop is to provide an integrated view of data-driven hypothesis generation through biological network analysis, constraint-based modelling, and supervised and unsupervised integration methods. A general description of different methods for analysing different omics data (e.g. transcriptomics and genomics) will be presented with some of the lectures discussing key methods and pitfalls in their integration. The techniques will be discussed in terms of their rationale and applicability.

# Organization

## Exercises & Assisted Exercises

## Attendance

## Feedback

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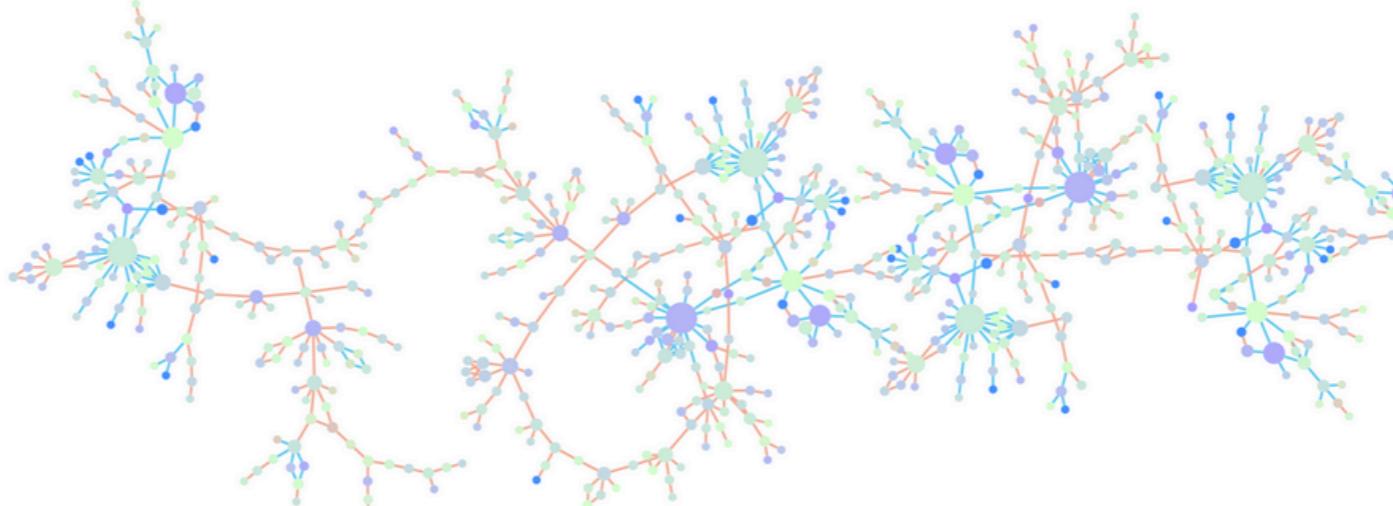
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