



# Closing remarks!

NBIS Omics Integration and Systems Biology workshop  
Fall 2024, Lund University



**National Bioinformatics Infrastructure Sweden (NBIS)**  
**Science for Life Laboratory (SciLifeLab)**



## Using Scilifelab serve

- 2 weeks for all
- 4 weeks accounts associated with a Swedish university
- Potentially extendable if you need it (email/slack me)

## Run labs locally

- Pull images (instruction on pre-course material page)
- Build images by docker and run (instruction on pre-course material page)
- Error? Email/slack me and I will help with that: [rasools@chalmers.se](mailto:rasools@chalmers.se)

## Clone GitHub repo

- OMICINT\_H24 branch is for this iteration of the course

# Downloading files from Scilifelab serve



## Develop

	Type	Name	Created	Status	Tags	Actions
	Jupyter Lab	gem <a href="#">↗</a>	16/10/24 11:55	<span>Running</span> <span>project</span>		⋮
	RStudio	gsa <a href="#">↗</a>	17/10/24 13:23	<span>Running</span> <span>project</span>		⋮
	RStudio	single cell <a href="#">↗</a>	15/10/24 07:32	<span>Running</span> <span>project</span>		⋮
	RStudio	lab_unsupervised_omics_integration <a href="#">↗</a>	14/10/24 14:05	<span>Running</span> <span>project</span>		⋮

\*Note that all apps under Develop will be deleted 7 days after creation.

Jupyter Lab



Create

RStudio



Create

## Manage Files

No instances.

Note that the file manager will be deleted after 24 hours.

File Manager



Create



# Downloading files from Scilifelab serve



## Develop

	Type	Name	Created	Status	Tags	Actions
	Jupyter Lab	gem <a href="#">↗</a>	16/10/24 11:55	Running project		⋮
	RStudio	gsa <a href="#">↗</a>	17/10/24 13:23	Running project		⋮
	RStudio	single cell <a href="#">↗</a>	15/10/24 07:32	Running project		⋮
	RStudio	lab_unsupervised_omics_integration <a href="#">↗</a>	14/10/24 14:05	Running project		⋮

\*Note that all apps under Develop will be deleted 7 days after creation.

Jupyter Lab

Create

RStudio

Create

## Manage Files

	Type	Name	Created	Status	Tags	Actions
	File Manager	File Manager <a href="#">↗</a>	17/10/24 14:29	Running project		⋮

\*Note that the file manager will be deleted after 24 hours.

File Manager

Create

Note that the file manager will be deleted after 24 hours. If you don't download in 24 h you need to repeat the process!

# Downloading files from Scilifelab serve



A screenshot of the Scilifelab file manager interface. At the top left is the Scilifelab logo. To its right is a search bar with a magnifying glass icon and the text "Search...". Below the search bar is a navigation pane on the left with four items: "My files" (with a folder icon), "New folder" (with a plus icon), "New file" (with a plus icon and a document icon), and "Settings" (with a gear icon). To the right of the navigation pane is a main content area. At the top of this area is a home icon. Below it is a header "Name" with an upward arrow. The main content area contains a single folder entry named "project-vol" with a blue folder icon. A red arrow points from the "New file" option in the navigation pane to the "project-vol" folder entry.

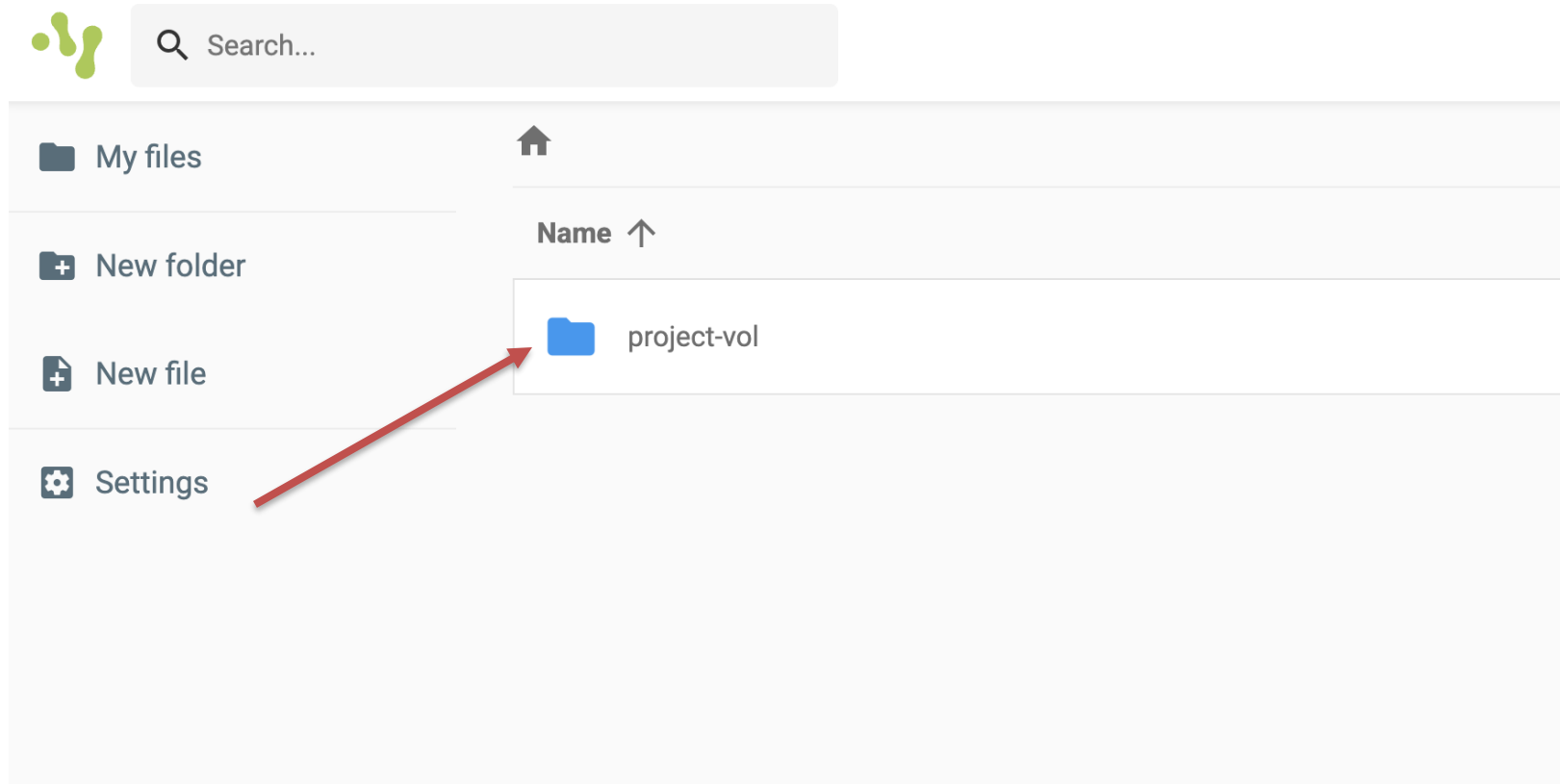
# Downloading files from Scilifelab serve



The screenshot shows the RStudio interface with a project named 'lab'. The 'Files' pane on the right shows a folder structure with 'project-vol' highlighted by a red arrow and labeled 'Project-vol'. The main editor shows R Markdown code for a document titled 'GEM-based gene set analysis'. The console shows the R environment with various installed packages.

Whatever you save on **Project-vol** will be saved on your folder and you can download it from there.

# Downloading files from Scilifelab serve



A screenshot of the Scilifelab file manager interface. At the top left is the Scilifelab logo. To its right is a search bar with a magnifying glass icon and the text "Search...". Below the search bar is a navigation pane on the left with the following items: "My files" (with a home icon), "New folder" (with a plus icon), "New file" (with a plus icon), and "Settings" (with a gear icon). The main area on the right shows a list of files and folders. At the top of this area is a home icon. Below it is a header "Name" with an upward arrow. The list contains one item: a blue folder icon followed by the text "project-vol". A red arrow points from the "New file" option in the left navigation pane to the "project-vol" folder in the main list.

# Downloading files from Scilifelab serve



Search...

My files

New folder

New file

Settings

Home > project-vol

Name ↑	Size	Last modified
test.txt	0 B	a few seconds ago

Download icon (1)



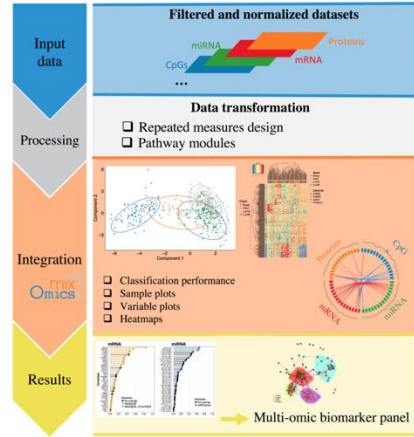
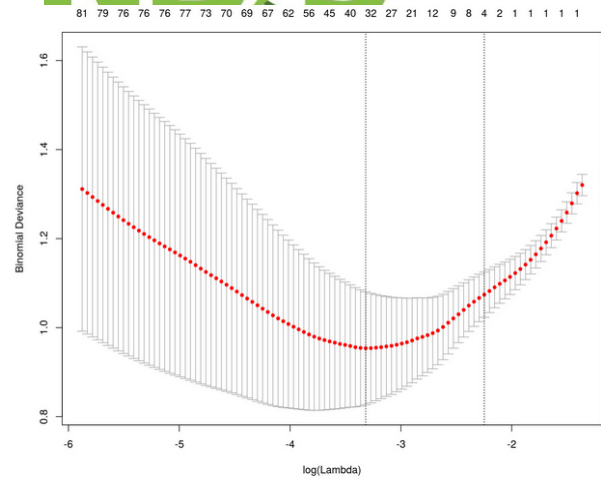
# Invited lecturers' videos



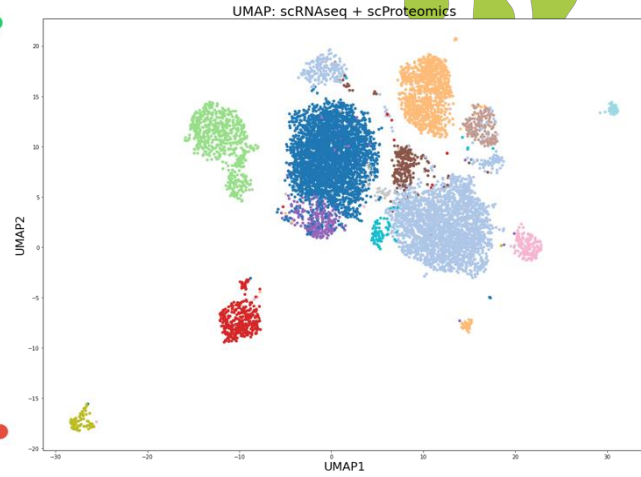
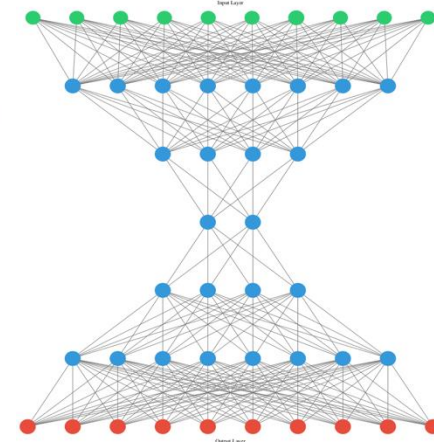
A screenshot of the SciLifeLab YouTube channel page. The page features a dark theme with a navigation sidebar on the left containing icons for Home, Shorts, Subscriptions, History, Playlists, Watch later, and Liked videos. The main content area shows a video thumbnail of a person in a lab coat handling a multi-well plate. Below the video is the channel's profile information, including the SciLifeLab logo, the name 'SciLifeLab', the handle '@SciLifeLabSweden', and statistics for 958 subscribers and 166 videos. A 'Subscribe' button is visible. At the bottom of the channel page, there are navigation tabs for Home, Videos, Live, and Playlists.

<https://www.youtube.com/@SciLifeLabSweden>

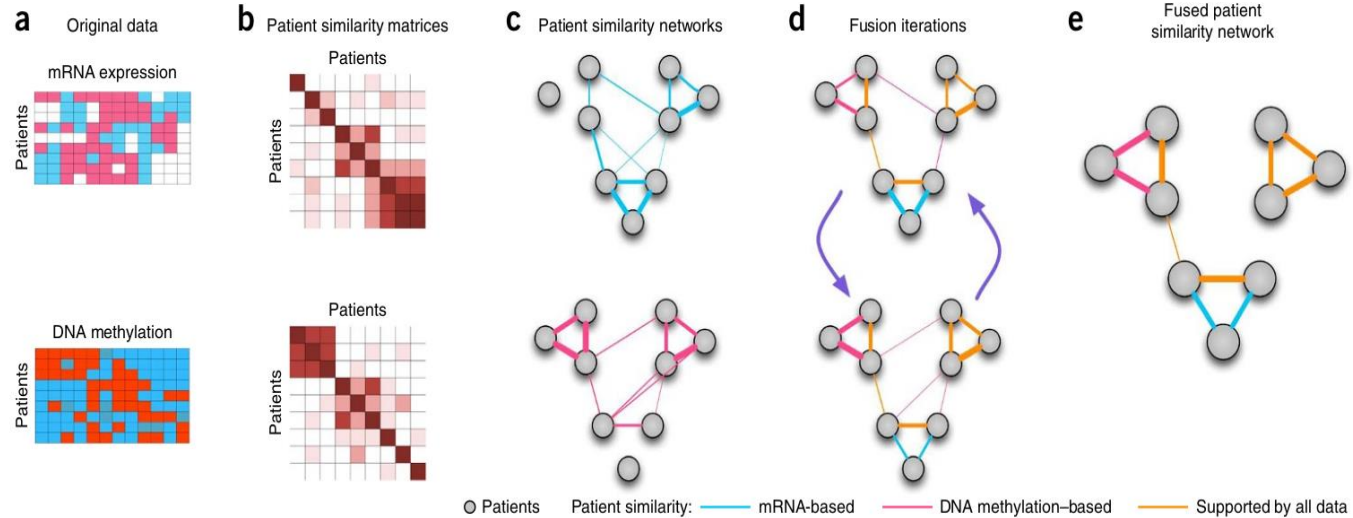
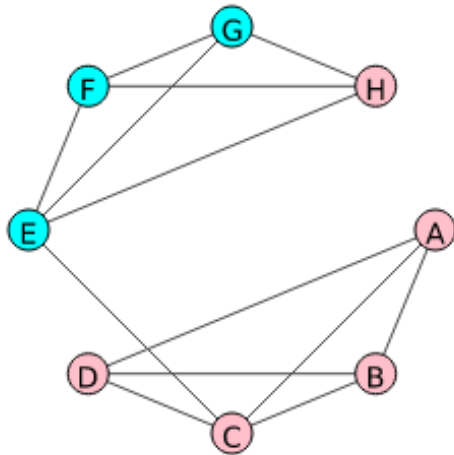
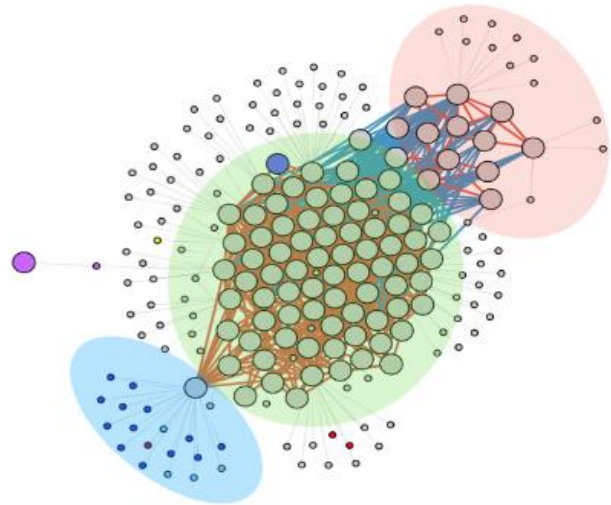
# 1) Machine learning, matrix algebra, feature selection



DIABLO

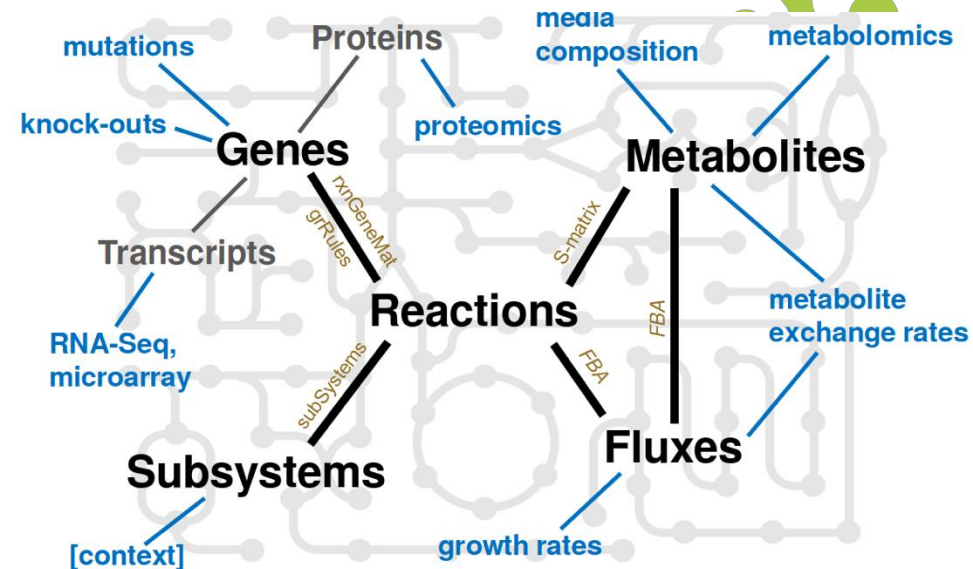


# 2) Graph theory, biological network topology

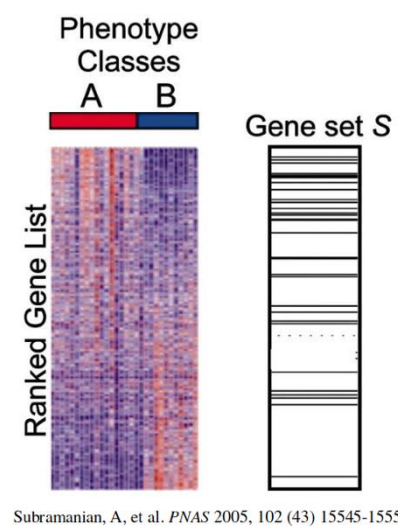
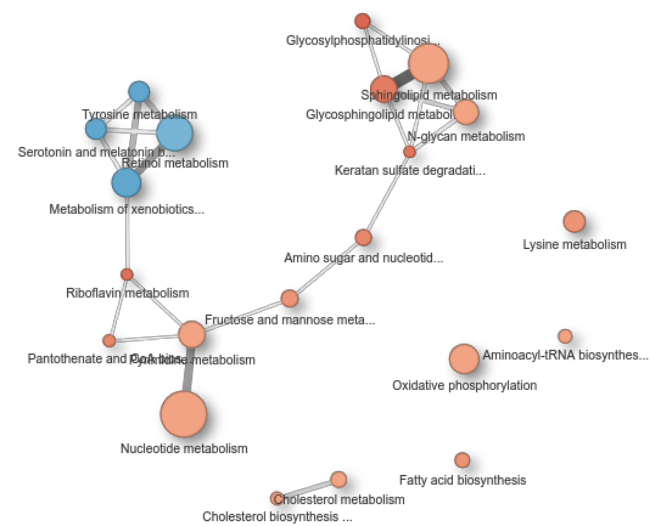
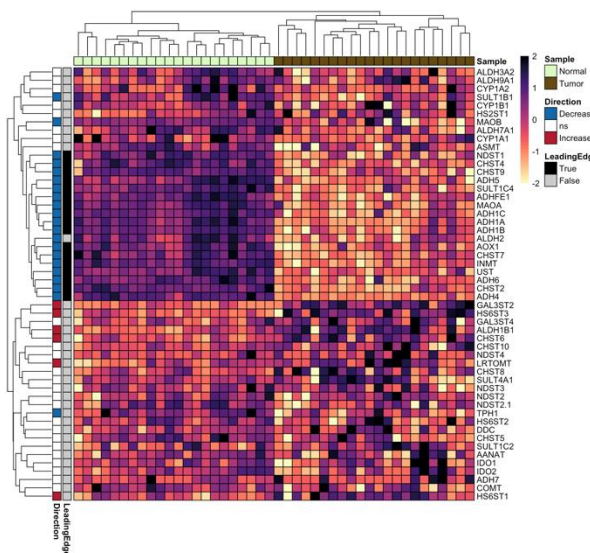


### 3) Genome-scale metabolic modeling, flux balance analysis

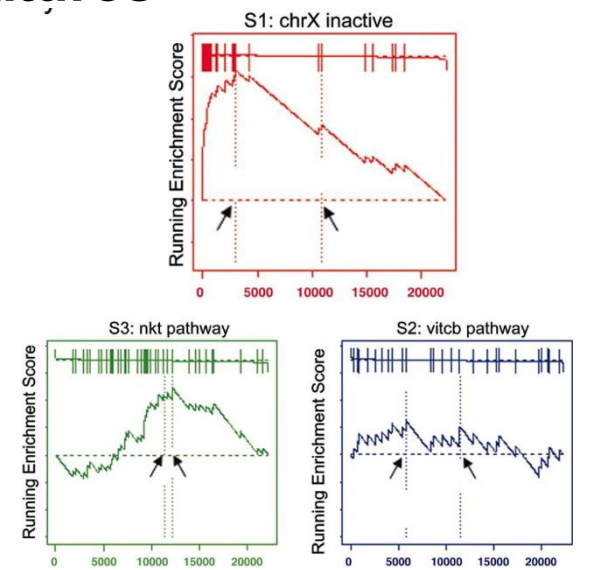
$$\begin{matrix}
 & r_1 & r_2 & r_3 & r_4 & r_5 & r_{in} & r_{out} \\
 \text{G6P} & -1 & 0 & 0 & 0 & 0 & 1 & 0 \\
 \text{F6P} & 1 & -1 & 1 & 0 & 0 & 0 & 0 \\
 \text{FBP} & 0 & 1 & -1 & -1 & 0 & 0 & 0 \\
 \text{DHAP} & 0 & 0 & 0 & 1 & -1 & 0 & 0 \\
 \text{G3P} & 0 & 0 & 0 & 1 & 1 & 0 & -1
 \end{matrix}
 \times
 \begin{pmatrix}
 V_1 \\
 V_2 \\
 V_3 \\
 V_4 \\
 V_5 \\
 V_{in} \\
 V_{out}
 \end{pmatrix}
 =
 \begin{pmatrix}
 d\text{G6P}/dt \\
 d\text{F6P}/dt \\
 d\text{FBP}/dt \\
 d\text{DHAP}/dt \\
 d\text{G3P}/dt
 \end{pmatrix}
 =
 \begin{pmatrix}
 0 \\
 0 \\
 0 \\
 0 \\
 0
 \end{pmatrix}$$



### 4) Interpretation, gene-set enrichment analysis, reporter features



Subramanian, A. et al. PNAS 2005, 102 (43) 15545-15550



# Upcoming NBIS courses



<https://nbis.se/training/future>

## Future courses at NBIS

See our [course catalogue](#) or the [SciLifeLab Training Portal](#) or [ELIXIR TeSS](#) for more training events across Europe.

### R Programming Foundations for Data Analysis

2024-10-28 to 2024-11-01 (5 days)      Deadline 2024-09-30

Uppsala and Lund

► [More info](#)

[Homepage](#)

[Apply](#)

### Python programming with applications to bioinformatics

2024-11-11 to 2024-11-15 (5 days)      Deadline 2024-09-24

Uppsala, Umeå, Lund

► [More info](#)

[Homepage](#)

[Apply](#)

### Programming Formalisms

2024-11-18 to 2024-11-22 (5 days)      Deadline 2024-11-15

Online

► [More info](#)

[Homepage](#)

[Apply](#)

### Introduction to Data Management Practices

2024-11-19 to 2024-11-21 (3 days)      Deadline 2024-10-13

Uppsala

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[Homepage](#)

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### Introduction to bioinformatics using NGS data

2024-11-25 to 2024-11-29 (5 days)      Deadline 2024-10-13

Linköping

► [More info](#)

[Homepage](#)

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### NBIS/ELIXIR-SE Tools for Reproducible research

2024-11-25 to 2024-11-29 (5 days)      Deadline 2024-10-18

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# Your inputs help us to improve!



[https://docs.google.com/forms/d/e/1FAIpQLSekELo0i71zPUpH-QYvi2TSFREIDH1g\\_y6qWZTII\\_owLiHdcA/viewform](https://docs.google.com/forms/d/e/1FAIpQLSekELo0i71zPUpH-QYvi2TSFREIDH1g_y6qWZTII_owLiHdcA/viewform)

Link in [#general](#) channel on slack  
or  
on schedule page

**NBS**  
NATIONAL BIOINFORMATICS  
INFRASTRUCTURE SWEDEN

## Omics Integration and Systems Biology, Lund, October 2024

Thank you for filling the questionnaire. It is really important to us in order to continually improve the course and the materials we deliver. In filling the questionnaire, please keep in mind that your comments - which are not mandatory - are especially precious. We may share anonymised information with course presenters and developers as well as for wider quality/impact analyses.

rasool.saghaleyni@scilifelab.se [Switch account](#)

Not shared

Next Clear form

# Thank you all!

