

Lifelong learning

Training portfolio

Presented by VIB Training & Conferences



Your growth, our mission

VIB is strongly committed to fostering the growth and development of scientists and research supporting staff. As part of its lifelong learning culture, VIB Training & Conferences provides an extensive range of workshops that enables professionals to thrive at all career stages. The portfolio is designed for everyone who wants to develop their knowledge and skills, whether they are scientists, technical experts, or supporting staff.



vibtrainingandconferences.be

What you'll find inside

This brochure brings our full offering together in a clear, interactive format so you can quickly navigate opportunities that match your role and growth stage.

The trainings are organized into two main categories: **Science & technology** and **Personal development**. Per category, you'll find:

- > A *training overview*, allowing you to easily browse our portfolio by domain. This makes it simple to find opportunities that match your interests and professional needs, independent of your job profile.
 - Science & technology ([p.2](#))
 - Personal development ([p.4](#))
- > *Learning paths* that show the recommended sequence of training courses over time or for mastering a particular scientific skill.
 - Science & technology ([p.6](#))
 - Personal development ([p.60](#))
- > *Training descriptions* that include details such as format, duration, target audience, and trainers, making it easy to compare options at a glance.
 - Science & technology ([p.16](#))
 - Personal development ([p.62](#))

The brochure features [hyperlinks](#), allowing you to easily navigate between different sections and quickly find the information you need.

For the latest training schedules and logistical details, simply scan the QR code or [click this link](#) to explore the VIB Training & Conferences website, where you can instantly check which trainings are currently available and plan your learning journey with ease. If you have questions about our portfolio, or your personal development plan, don't hesitate to contact the Training & Conferences team at trainingandconferences@vib.be.

Science & technology

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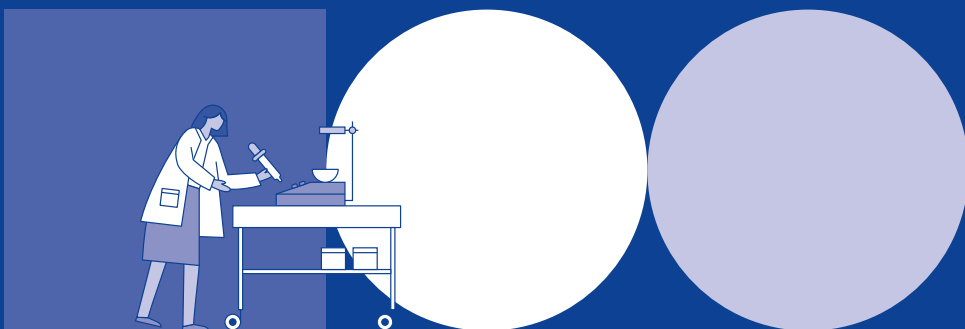
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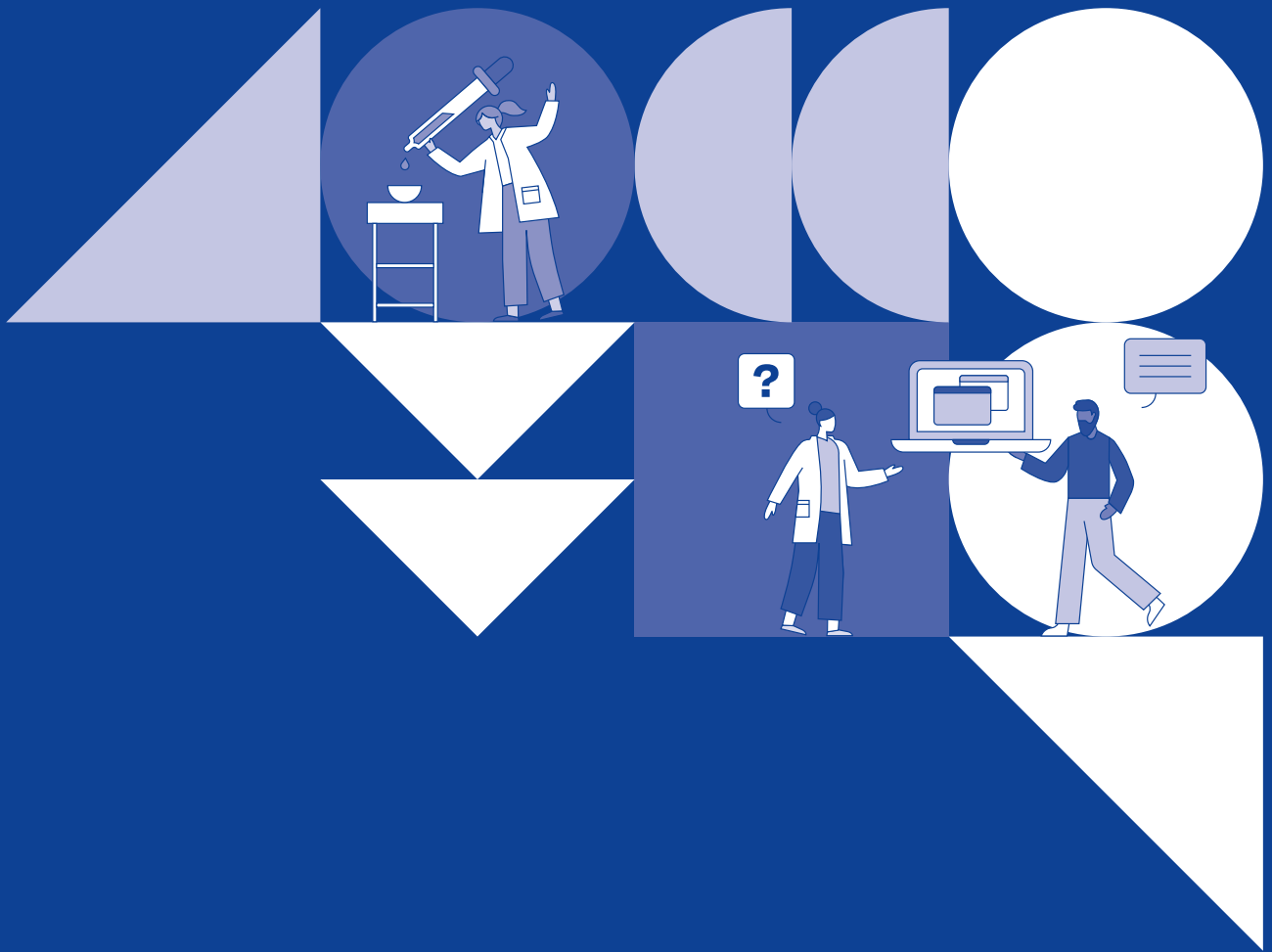
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Science & Technology

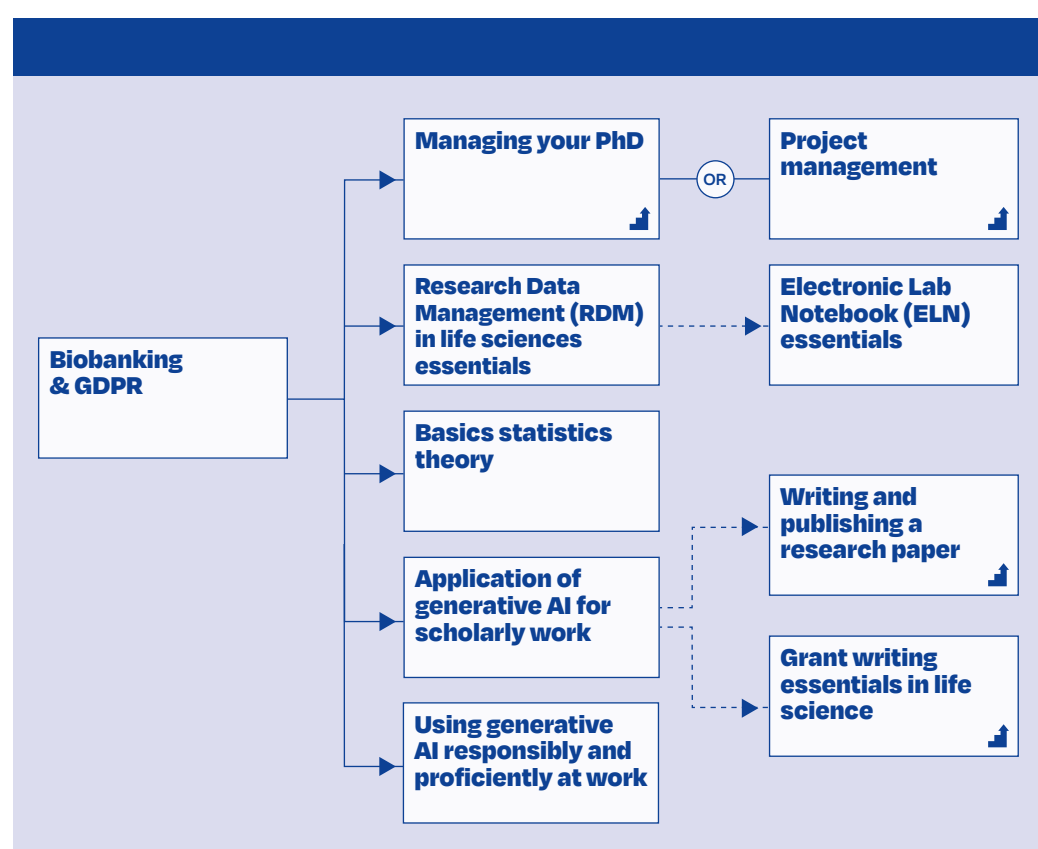




Learning paths

The learning paths are a recommended sequence of training courses for mastering a particular scientific skill. These paths are suggestions rather than exhaustive lists of our portfolio; they serve as a roadmap to help you plan your growth based on your starting level and academic goals. Click on a course for more information.

Basic research essentials



☀ Summer school

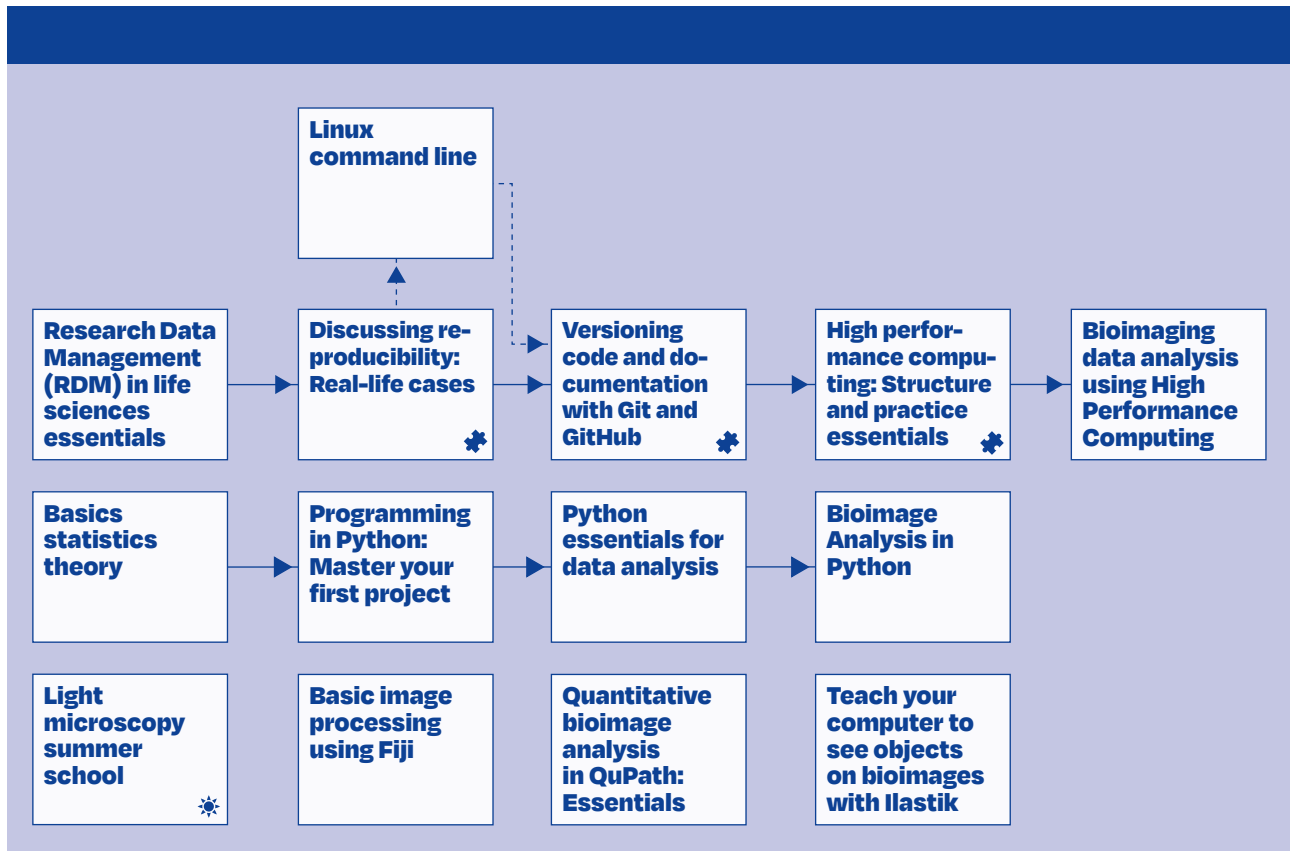
⚙ Part of 'Reproducible data analysis' micro-credential

📈 Part of personal development portfolio

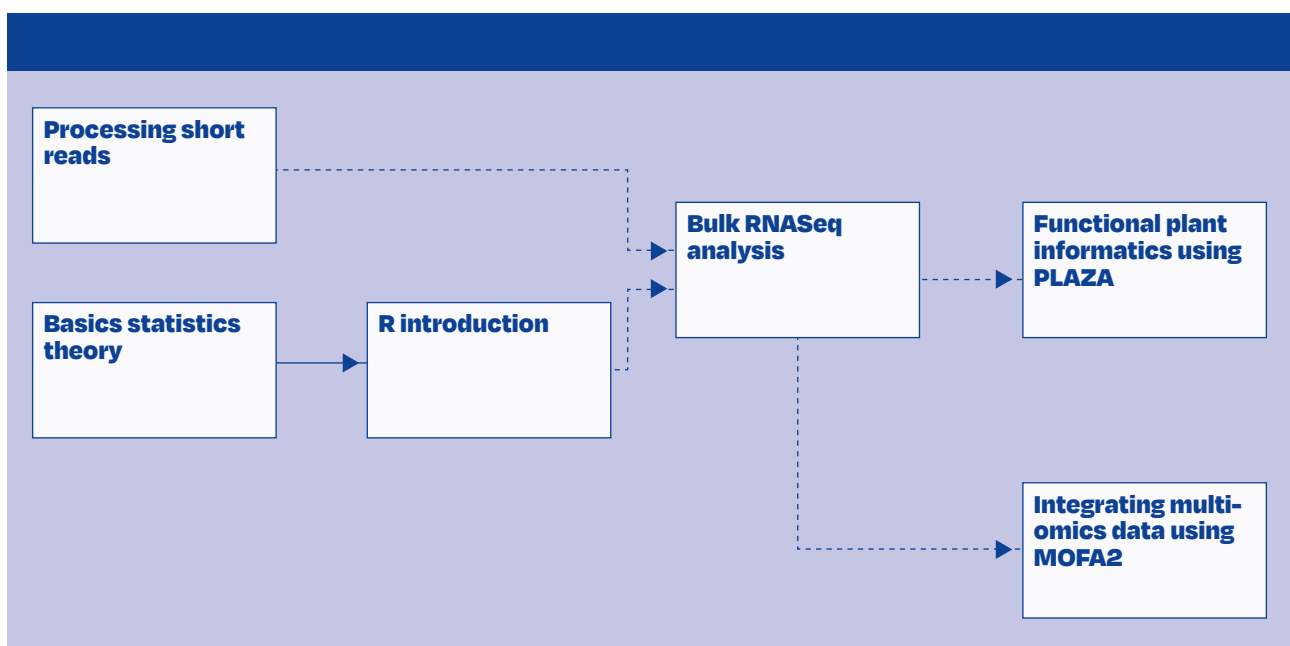
→ Necessary preliminary step

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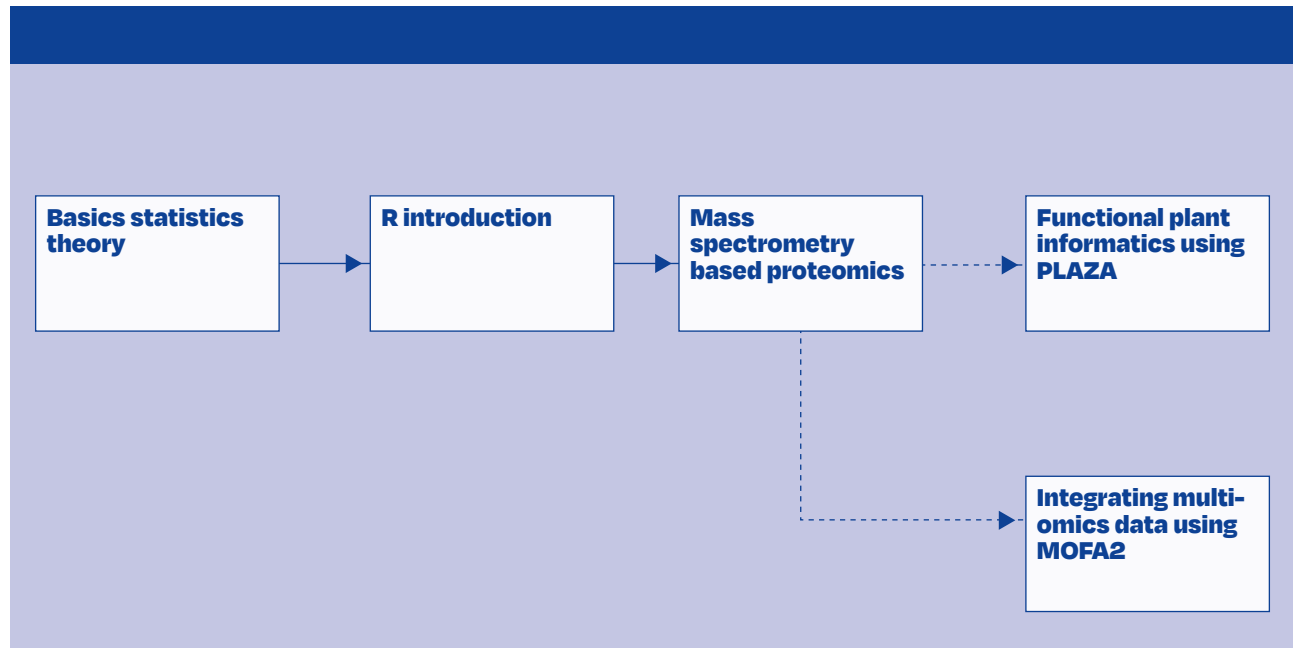
Bioimaging



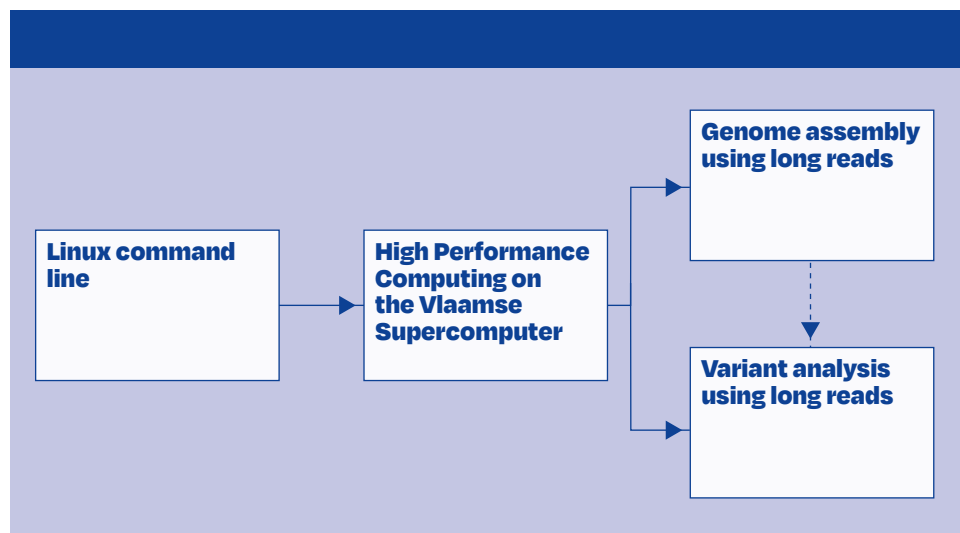
Bulk RNA-seq data



Bulk proteomics data



Bulk long-reads for assembly or variants



☀ Summer school

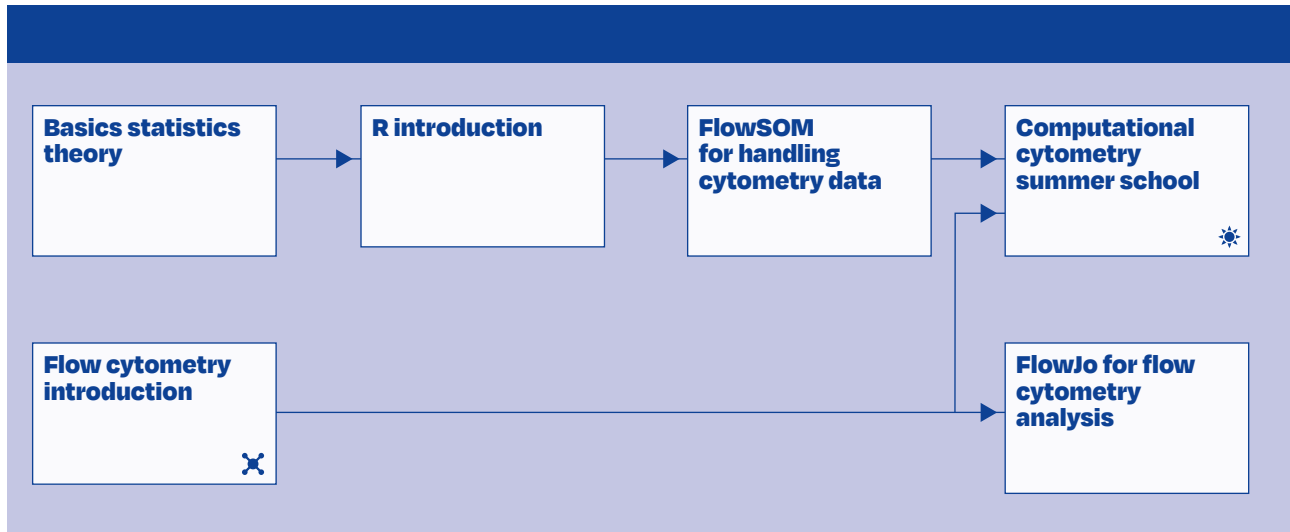
⚙ Part of 'Reproducible data analysis' micro-credential

✂ Currently part of Computational cytometry summer school

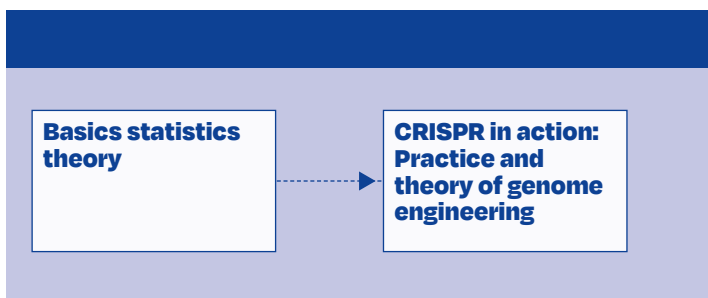
→ Necessary preliminary step

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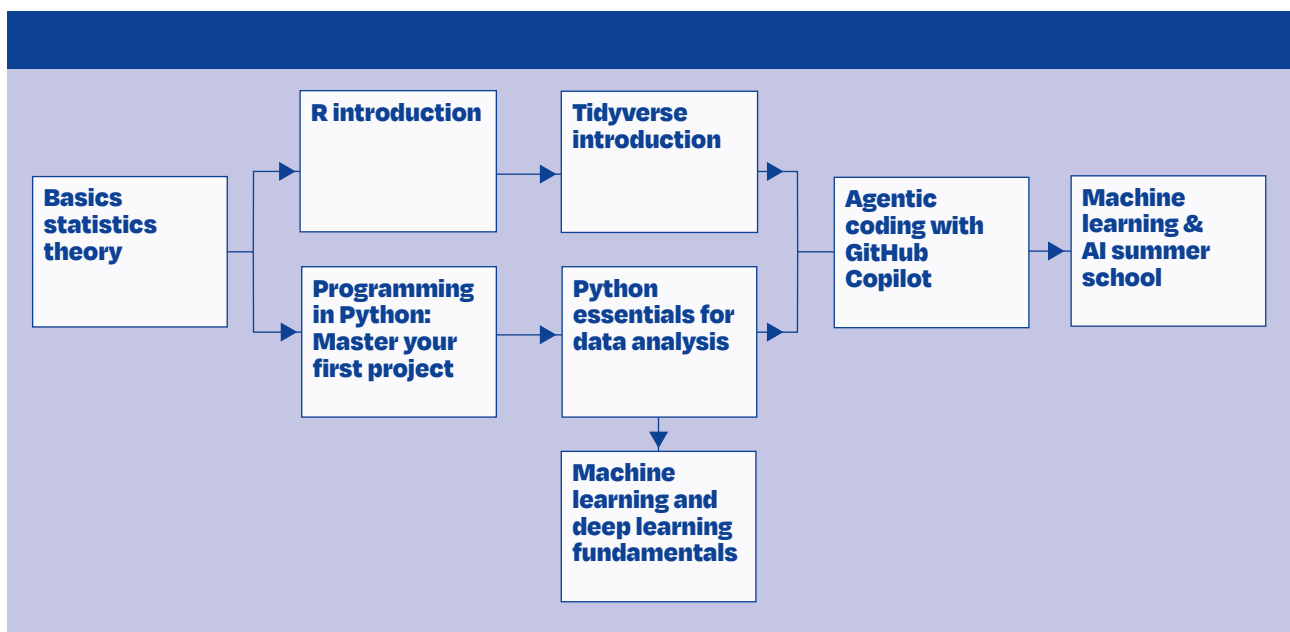
Flow cytometry data



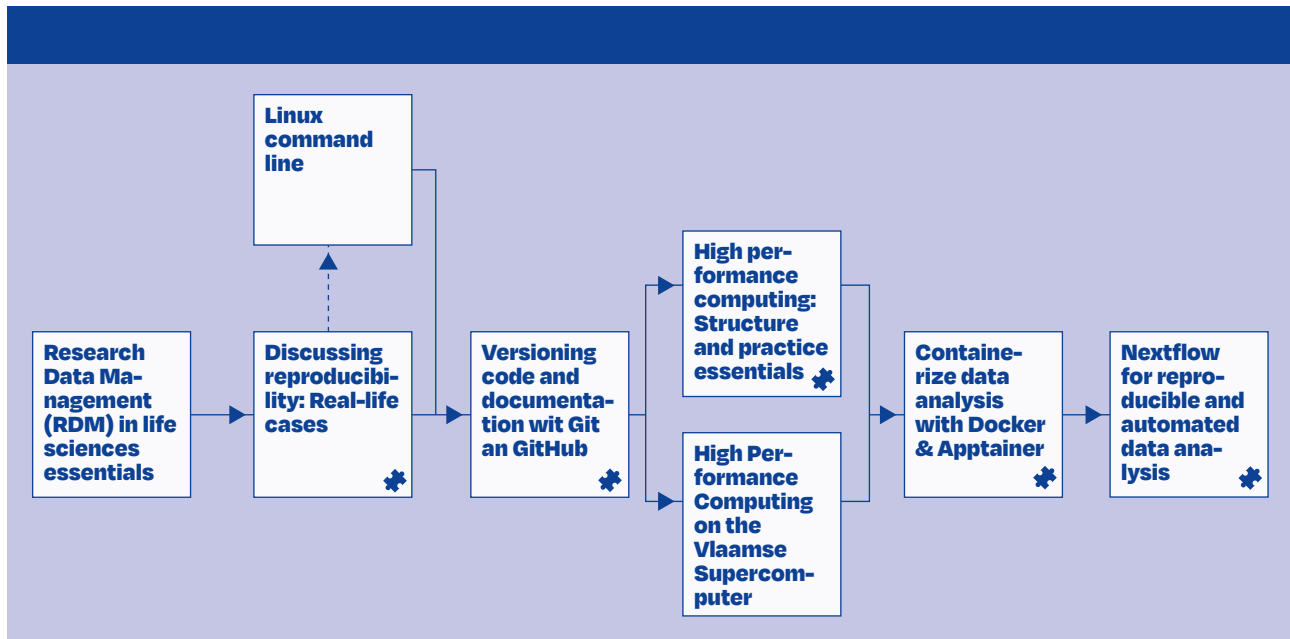
Genome engineering



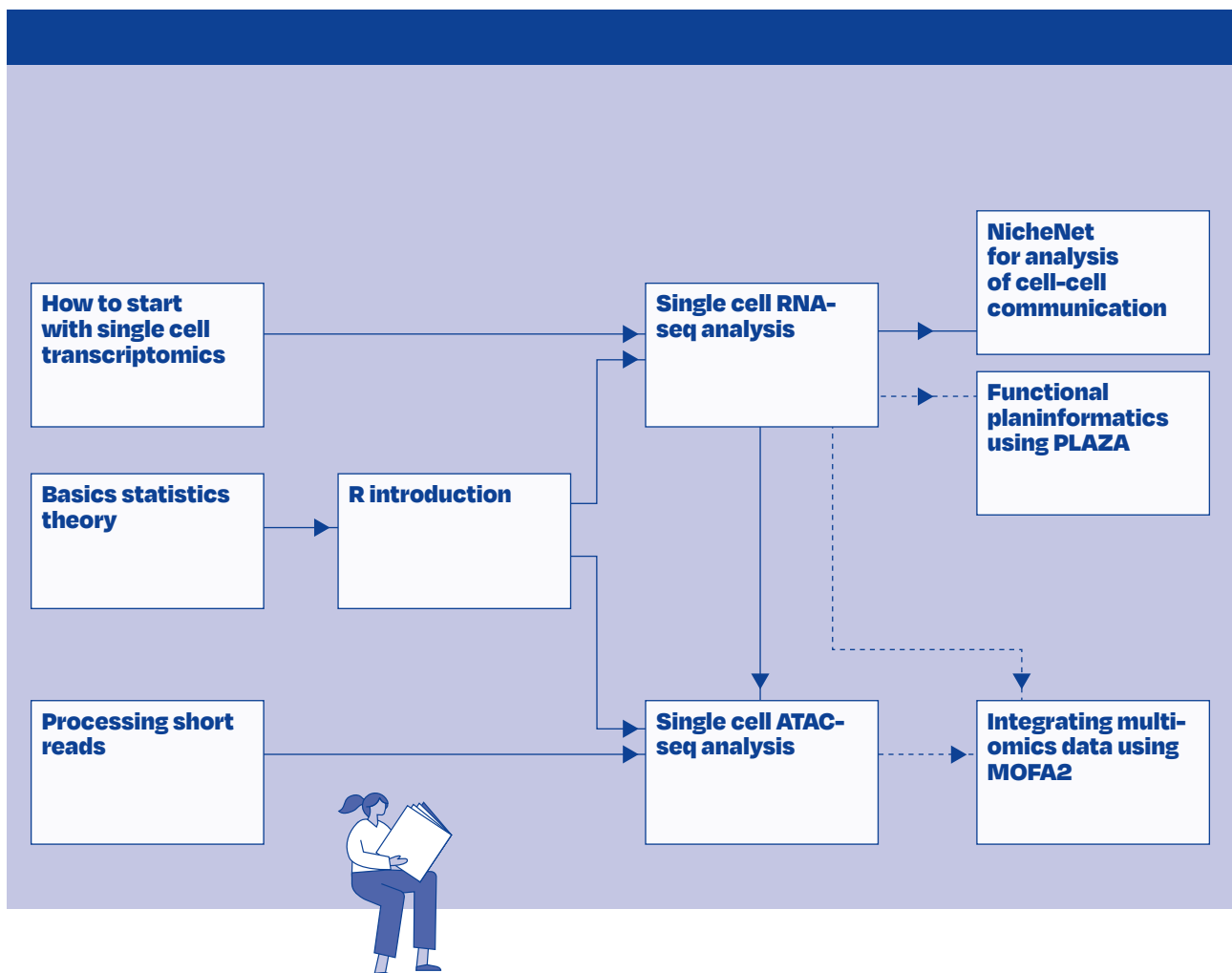
Machine learning



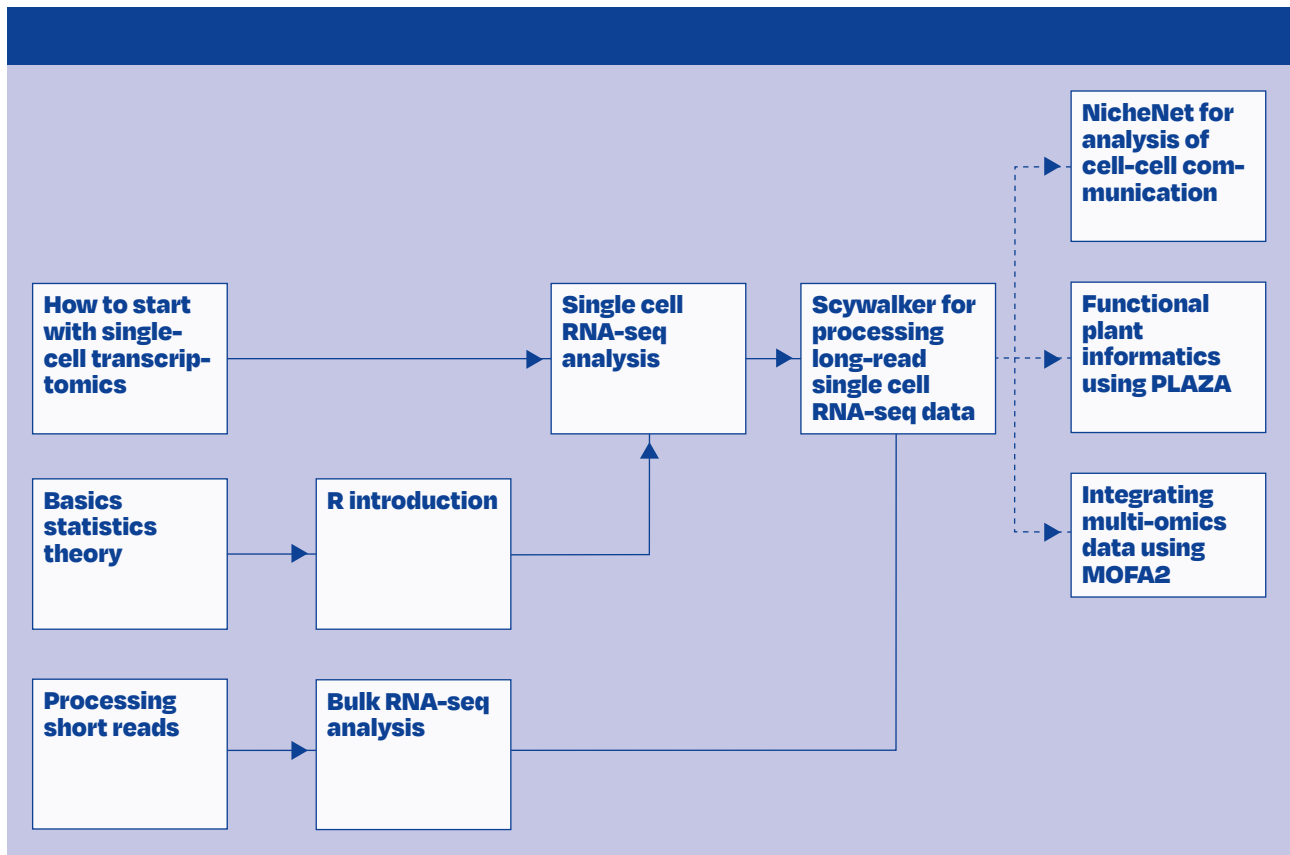
Reproducible data analysis



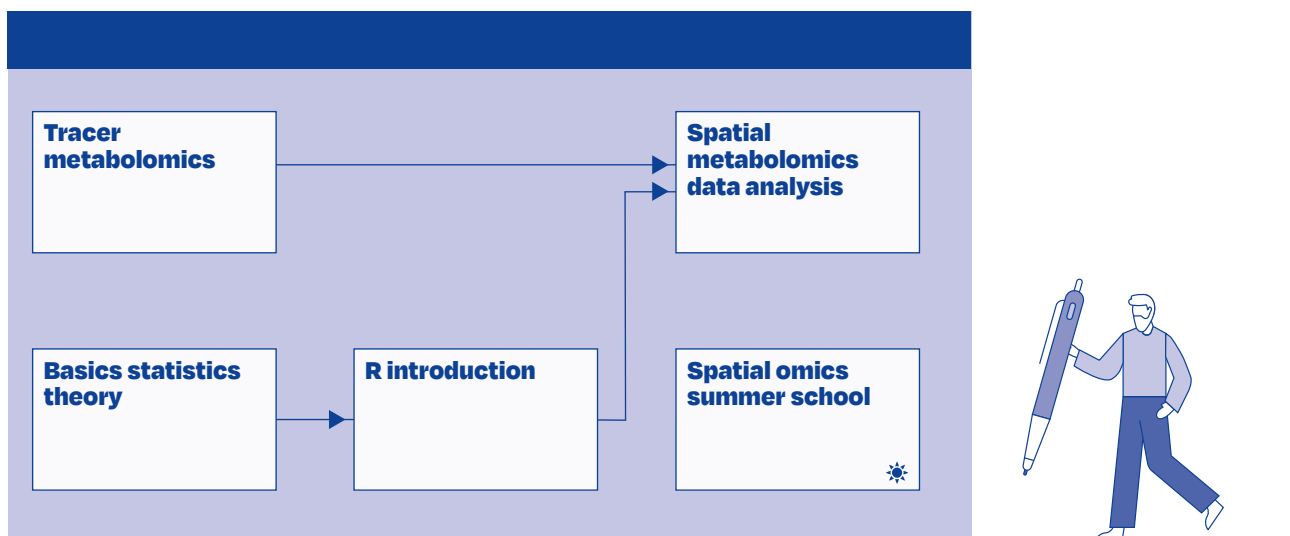
Single cell data short-reads



Single cell data long-reads



Spatial metabolomics data



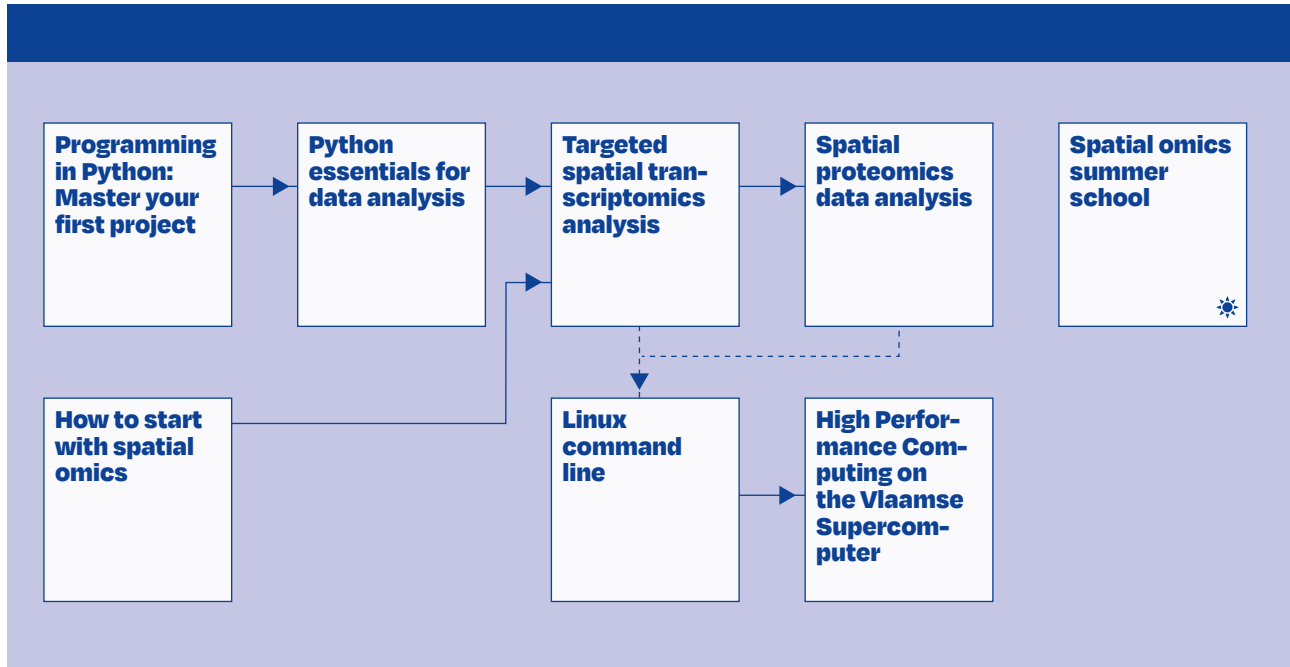
☀ Summer school

⚙ Part of 'Reproducible data analysis' micro-credential

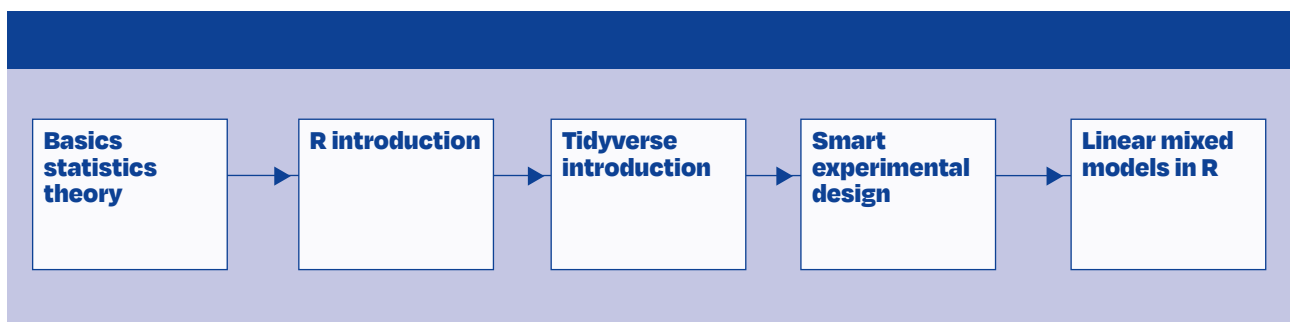
➡ Necessary preliminary step

--- ➡ Optional preliminary step

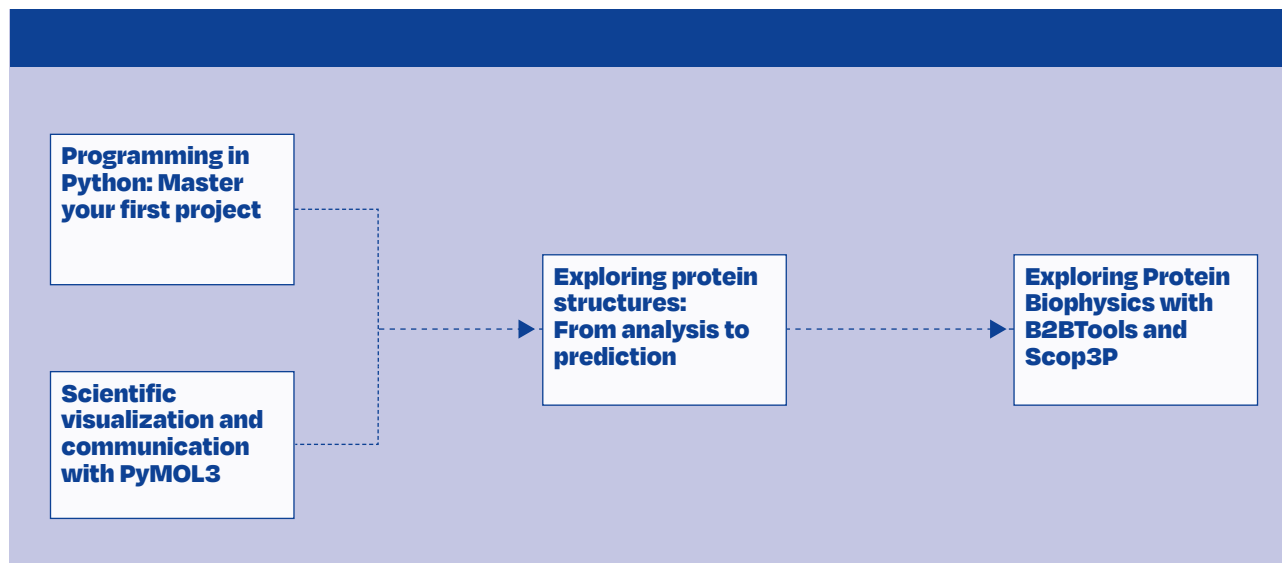
Spatial targeted transcriptomics and/or proteomics data



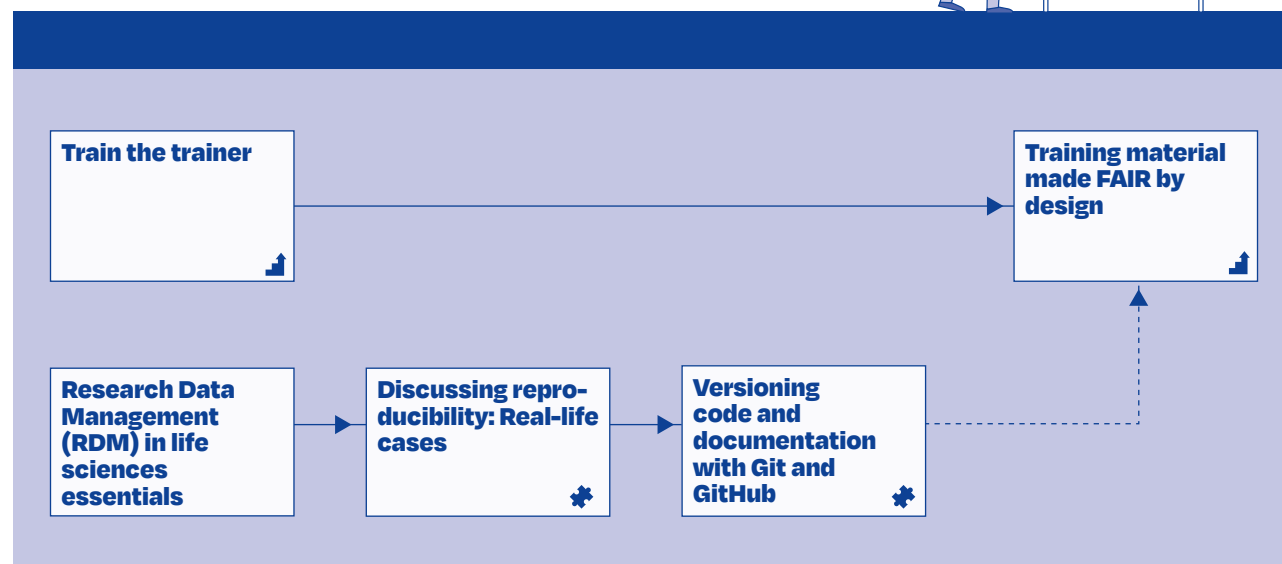
Statistics



Structural biology



Teaching and instruction



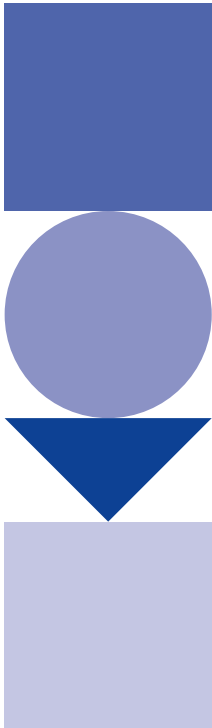
☀ Summer school

⚙ Part of 'Reproducible data analysis' micro-credential

📈 Part of personal development portfolio

➡ Necessary preliminary step

- - - ➡ Optional preliminary step



Artificial intelligence

Agentic coding with GitHub Copilot

Are you ready to go beyond simple chat-based coding and unlock the power of structured, agentic workflows? In this hands-on workshop, you'll learn how to move beyond chat-based coding and design structured, agentic coding workflows. Using GitHub Copilot, you will learn to write effective prompts, leverage LLMs for multi-file coding tasks, and design workflows that plan, act, and iterate safely. You'll also explore how to evaluate agent outputs, implement guardrails, and address important risks and governance issues. By the end of the training, you'll be able to use LLMs for structured coding tasks, design robust agentic workflows, and enhance productivity in your own projects.

Learning outcomes

- > Explain key concepts and terminology related to agentic coding (agents, planning loops, tools, guardrails).
- > Describe the agent loop (goal -> plan -> act -> observe -> revise) and its implications for software development.
- > Summarize common failure modes and risks of coding agents.
- > Write effective prompts and task descriptions that guide agent behavior.
- > Critically review agent-generated code for correctness, maintainability, and security.
- > Design an end-to-end agentic workflow for a realistic coding scenario.

Approach

The course features a mix of explanations, live demonstrations, and hands-on exercises, giving you the opportunity to apply LLMs to real-world coding challenges.

This course is part of a learning path:
Machine learning.

 In person

 8 hours

 PhD student, Postdoc, Staff scientist, Group leader, Technical support, Industry professional

 Jolan Heyse, Bruna Piereck

Application of generative AI for scholarly work

Generative AI is becoming a key tool in research, supporting tasks like literature review, summarization, drafting, and visualization. During this training, you will explore different AI tools to support tasks from literature reviews to content drafting, summarization, and visualization. We will also show how you can leverage AI agents to execute actions based on predefined context and instructions. You will learn how to design effective prompts to generate high-quality outputs and critically assess the reliability of AI-generated content. We will also address ethical considerations, including authorship, ownership, and copyright, making sure you can leverage generative AI tools to improve your productivity while maintaining academic integrity.

Learning outcomes

By the end of this training, you will be able to:

- > Explain generative AI principles and relevance to research.
- > Identify capabilities and limitations of key tools.
- > Apply prompt engineering for scholarly tasks.
- > Use AI tools for literature reviews, drafting, and visualization.
- > Discuss ethics, authorship, and copyright.
- > Plan research workflows integrating generative AI.

Approach

This training blends conceptual introductions with hands-on demonstrations. You will experiment with generative AI platforms and AI agents in guided exercises and practice designing effective prompts in real academic scenarios.

This course is part of a learning path:
Basic research essentials.

 In person

 8 hours

 PhD student, Postdoc, Staff scientist, Group leader, Technical support, Industry professional

 Bruna Piereck, Jolan Heyse



Machine learning and AI summer school

 Summer school

Given the rapid advancements in AI, driven by increased data availability, computing power, and new methodologies, this training is more relevant than ever. The development of foundation models and the accessibility of vast omics data have highlighted the need for sophisticated analysis techniques beyond classical statistics.

Recognizing the importance of equipping researchers with the necessary knowledge and skills to leverage these technologies, our week-long training will cover foundational concepts, deep learning, and generative AI techniques.

Learning outcomes

- > Understand the core principles of machine learning and deep learning in the context of life sciences.
- > Apply generative AI approaches and other advanced methods to real-world biological data.
- > Develop solutions through a hackathon-style format, gaining hands-on experience with practical workflows and tools.
- > Interpret and evaluate the outputs of AI models for omics and biomedical datasets.

Approach

The summer school follows a hackathon format, where experts will guide around 4 diverse groups of 8-10 participants. You will have around 20 contact hours dedicated to hands-on training and collaborative problem solving. In addition to group work, we have planned inspiring lectures on the latest advancements in Machine learning and AI in life sciences.

This course is part of a learning path:
Machine learning.

 In person

 40 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Various experts

 I developed many new competencies from scratch in a cutting-edge topic in a very short time. The summer school was far more than useful, and I also had the opportunity to network with many inspiring researchers.

— Aldo Pastore, **Attendee of 'Machine learning and AI summer school'** —

Machine learning and deep learning fundamentals

Machine learning and deep learning are transforming research by enabling data-driven discoveries and predictive modeling. For many researchers, these techniques can unlock new insights from complex datasets, but getting started can feel overwhelming.

This two-day workshop is designed for researchers with little or no prior experience in machine learning who want to apply these methods in their own work.

Learning outcomes

By the end of this training, you will be able to:

- > Explain the fundamental concepts of machine learning and deep learning.
- > Apply data preprocessing techniques such as handling missing values, scaling features, and splitting datasets.
- > Implement regression and classification models with scikit-learn and evaluate their performance using appropriate metrics.
- > Construct simple neural networks and convolutional neural networks with PyTorch framework.
- > Identify issues with model behavior, like overfitting, and adopt solutions such as regularization or dropout.
- > Interpret the results of machine learning and deep learning models to make informed decisions for research applications.

Approach

Through a mix of clear explanations and hands-on exercises in Jupyter notebooks, you will learn how to process data, build regression and classification models, and train neural networks and convolutional neural networks.

This course is part of a learning path:
Machine learning.

 In person

 16 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Jolan Heyse

Using generative AI responsibly and proficiently at work

Generative AI is reshaping how you work, create, and communicate. This training will strengthen your AI literacy and help you confidently and responsibly use tools like Copilot and other LLM-based chatbots in professional contexts. You will learn practical prompting techniques to make these tools support brainstorming, tone and style adjustments, content drafting, summarization, and even generating visual ideas. The session also covers ethical considerations such as ownership, copyright, and bias, ensuring you can use AI technologies effectively while maintaining integrity.

Learning outcomes

By the end of this training, you will be able to:

- > Describe strengths, weaknesses, and best practices in the use of LLM.
- > Apply good practices to minimize biases and hallucinations in LLMs.
- > Use and adapt prompting strategies for brainstorming, steering writing styles, defining language complexity, content drafting and summarization
- > Discuss ethical implications, ownership and copyright of AI-generated content.
- > Evaluate quality and reliability of AI-generated content.
- > Create illustrations with generative AI tools.

Approach

Through interactive discussions and practical exercises, you will explore the main strengths, limitations, and best practices for working with generative AI. This includes experimenting with AI tools, practicing effective prompt design, and evaluating generated content for quality and trustworthiness.

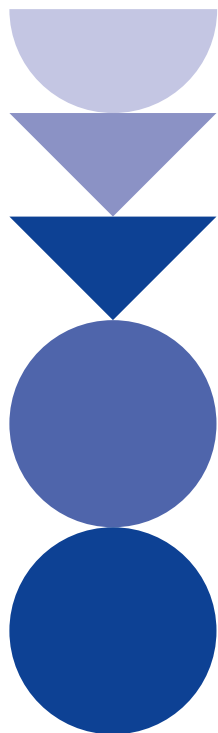
This course is part of a learning path:
Basic research essentials.

 In person

 4 hours

 Administrative support, Technical support, Industry professional

 Bruna Piereck, Jolan Heyse



computational biology

Functional plant informatics using PLAZA

Understanding plant genome organization and gene function is essential for modern plant biology research. During this one-day workshop, we will introduce the basic concepts of comparative and functional-omics data analysis in plants through short kick-start lectures and practical hands-on sessions.

Plant biologists and geneticists interested in bioinformatics and data analysis are encouraged to attend this training. After this workshop, you will have a good understanding of the organization of plant genomes, the evolution of plant gene families, orthologs and (in)paralogs, and the different systems used to describe gene functions. In addition, you will know how to extract relevant biological information from -omics gene sets using the PLAZA Workbench.

Learning outcomes

- > Identify gene families, orthologs, and paralogs in the context of your plant of interest.
- > Infer gene collinearity and synteny relationships to study genome evolution.
- > Perform functional annotation using GO, InterPro, and MapMan using PLAZA tools.
- > Execute functional and comparative analysis for different plant -omics gene sets.

Approach

The training starts with an overview of the PLAZA platform and combines short theoretical sessions with hands-on exercises in plant genomics datasets. Active participation is expected during the practical sessions, where attendees explore the tools, perform analyses, and interpret results.

This course is part of multiple learning paths.

 In person

 16 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Klaas Vandepoele, Michel Van Bel, Sander Thierens

Integrating multi-omics data using MOFA2

Every biological system is shaped by the interplay of multiple molecular layers, yet understanding how these layers work together remains one of the biggest challenges in modern omics research. As multi-omics technologies generate increasingly complex datasets, researchers need robust approaches to uncover the shared patterns and biological drivers hidden across different data modalities.

This training introduces you to Multi-Omics Factor Analysis (MOFA2), a statistical framework for the unsupervised integration of multiple omics datasets (Argelaguet et al., 2020).

Through this course, you will learn how to run MOFA2 on bulk and single cell multi-omics data, interpret the factors driving variation across modalities, and apply the results to downstream analyses such as clustering, regression, and classification.

Learning outcomes

- > Prepare and preprocess data for MOFA2 analysis.
- > Interpret MOFA2 factors and assess their biological relevance.
- > Apply MOFA2 results to downstream tasks such as clustering, regression, and classification.
- > Explore options for handling missing values and comparing multiple model fits.

Approach

The course consists of an online demo and hands-on session, followed by an interactive Q&A session.

This course is part of multiple learning paths.

 Online

 4 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Ricardo Omar Ramirez Flores

NicheNet for analysis of cell-cell communication

Today it is possible to obtain genome-wide transcriptome data from single cells using high-throughput sequencing (scRNA-seq). These scRNA-seq datasets can provide information about which cell types are present within a tissue and about how they may potentially interact with each other.

However, deciphering cell-cell communication from these datasets requires dedicated computational methods like NicheNet.

Learning outcomes

In this training, we will:

- > Discuss how to analyze cell-cell communication from scRNA-seq data via the NicheNet analysis framework.
- > Highlight the benefits and limitations of NicheNet compared to other approaches, and guide you in applying NicheNet to your datasets.
- > Cover the most recent analysis features from NicheNet-v2.
- > Show how to analyze intercellular communication in multi-sample, multi-condition scRNA-seq datasets with MultiNicheNet.

Approach

The training combines demonstrations and hands-on exercises in R. You will practice NicheNet analysis on an example dataset.

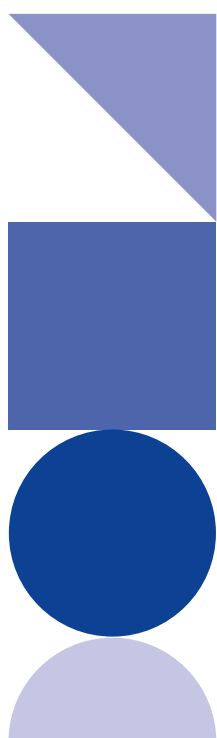
This course is part of the learning paths on Single cell data short reads and Single cell data long reads.

 In person

 8 hours

 PhD student, Postdoc, Staff scientist, Group leader, Technical support, Industry professional

 Robin Browaeys, Marlies Brouckaert, Diane Piuttari, Chananchida Sang-aram, Ruth Seurinck



Flow cytometry

Computational cytometry summer school

 Summer school

As cytometry experiments grow in complexity—measuring up to 40 markers, millions of cells per sample, and thousands of samples—manual gating becomes impractical. This hands-on summer school provides a comprehensive introduction to computational pipelines for cytometry data in R.

Before the course, you can join two online preparatory tracks: an R introduction for those from a cytometry background and a cytometry introduction for those with a computational background. During the summer school, you will learn to handle and clean cytometry data, identify cell populations, correct batch effects, and perform downstream analyses to extract meaningful insights.

Learning outcomes

By the end of this course, you will be able to:

- > Import and manage cytometry datasets in R.
- > Perform quality control and batch effect correction.
- > Apply clustering methods to identify cell populations.
- > Conduct statistical comparisons across samples and conditions.
- > Generate clear, publication-ready visualizations.

Approach

The summer school combines theoretical lectures with extensive hands-on sessions. You will practice each step of the computational cytometry pipeline in R and apply methods to your own data under expert guidance. There's also time dedicated to exploring your own FCS files.

This course is part of the learning path Flow cytometry data.

 In person

 40 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Various experts

// I found this to be a very complete course in computational cytometry and really enjoyed it. It helped me build solid skills for applying proper analysis criteria in my day-to-day work and opened up many new possibilities beyond the usual flow cytometry software I was using.

— Sara Monreal, attendee of 'Computational cytometry summer school' —

FlowJo for flow cytometry analysis

Are you a researcher working with flow cytometry data? This introductory FlowJo course is designed to help you get started with one of the most widely used analysis tools in the field. With the release of FlowJo Version 11—now available on Windows, macOS—users benefit from a streamlined, intuitive interface that simplifies complex data analysis. This training will guide you through the core functionalities of the software, helping you build confidence in gating strategies, population analysis, and data visualization.

By the end of the session, you'll be equipped to independently analyze your own datasets and integrate FlowJo into your research workflow.

Learning outcomes

- > Identify the main components of the FlowJo Version 11 interface and describe their functions.
- > Import and organize flow cytometry data files within FlowJo for efficient analysis.
- > Apply basic gating strategies to define and analyze cell populations.
- > Interpret graphical outputs such as histograms and dot plots to conclude cytometry data.
- > Demonstrate the ability to save, export, and document analysis results for reporting and collaboration.

Approach

The course combines short theoretical lectures and hands-on analysis of an example data set in FlowJo.

This course is part of the learning path
Flow cytometry data.

 In person

 8 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Gert Van Isterdael, Sofie Van Gassen

FlowSOM for handling cytometry data

As cytometry experiments measure increasing numbers of markers, cells, and samples, traditional manual gating becomes time-consuming and subjective. Automated approaches provide a robust alternative, improving speed, reproducibility, and scalability.

This workshop introduces handling cytometry data in R using automated workflows, with a special focus on the FlowSOM clustering algorithm. You will learn practical strategies to streamline data quality control, visualization, and clustering for high-dimensional cytometry datasets.

Learning outcomes

- > Import and manage cytometry data in R.
- > Perform quality control and data cleaning steps.
- > Apply visualization techniques to cytometry datasets.
- > Use the FlowSOM clustering algorithm for automated analysis.
- > Compare and interpret clustering results across samples.

Approach

The workshop combines demonstrations and hands-on exercises in R. You will practice using FlowSOM on an example dataset and are encouraged to bring your own FCS files to explore during the session.

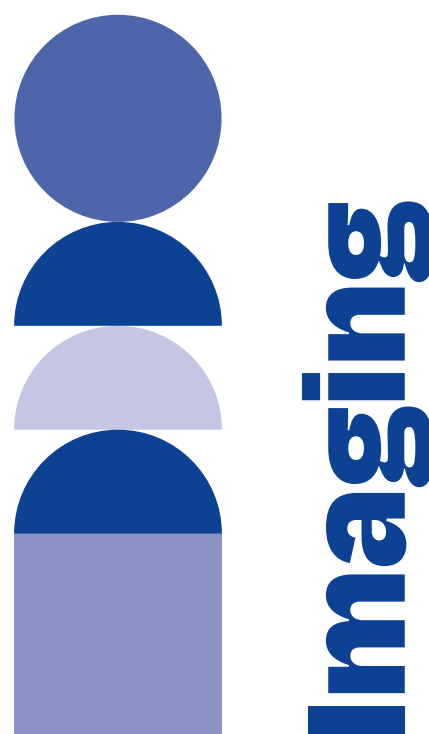
This course is part of the learning path
Flow cytometry data.

 In person

 8 hours

 PhD student, Postdoc, Staff scientist, Group leader, Technical support

 Sofie Van Gassen



Basic image processing using Fiji

As microscopy has become central to life science research, the ability to process and analyze image data is essential for PhD students, postdocs, and technical staff working with biological images. This introductory training offers a hands-on approach to image processing with Fiji, an open-source platform based on ImageJ.

You will learn to perform basic image processing tasks, apply filters, and use plugins for biological image quantification. This includes using built-in machine learning and neural network methods for image segmentation tasks. The course also covers automating repetitive tasks with macros, enabling more efficient and reproducible workflows. By the end of the session, you will have the practical skills to analyze microscopy images and develop simple analysis pipelines for your research.

Learning outcomes

- > Identify core Fiji interface components and describe their functions in image analysis.
- > Apply standard image processing operations (e.g., filtering, thresholding, segmentation).
- > Use key Fiji plugins for common life science image analysis tasks.
- > Evaluate image analysis quality and accuracy by comparing processed and raw data.
- > Create simple image analysis workflows and build a Fiji macro for batch processing.
- > Modify existing macro scripts to specific experimental needs.

Approach

This course uses a strong hands-on approach with guided exercises in Fiji.

This course is part of the learning path [Bioimaging](#).

 In person

 8 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Benjamin Pavie, Amanda Gonçalves

Bioimage analysis in Python

Microscopy generates complex, multi-dimensional image data that requires efficient analysis to extract meaningful biological insights. This hands-on training teaches you practical skills for handling and processing microscopy images using Python.

You will learn to visualize, manipulate, and analyze image data using tools such as Napari, allowing you to explore 2D and 3D datasets interactively. With build-in tools like Cellpose and Noise2Void, you will learn to leverage deep learning methods for bioimage analysis tasks like image segmentation and quantitative analysis.

Learning outcomes

- > Navigate the Napari interface to visualize and interact with multi-dimensional microscopy images.
- > Import and export image data using Napari and Python libraries (e.g., bioio, NumPy) while preserving metadata.
- > Apply basic image processing techniques (e.g., filtering, intensity adjustment) within Napari.
- > Compute and plot quantitative descriptors (e.g., intensity histograms, object counts) for segmented images to support data analysis.
- > Segment microscopy images using both classical approaches and automated tools to identify biological objects.
- > Generate simple animations to communicate image analysis results.

Approach

This course uses a strong hands-on approach with guided exercises in Napari. We install and use Napari plugins to extend functionality for segmentation and analysis tasks.

This course is part of the learning path [Bioimaging](#).

 In person

 16 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Nicolas Peredo, Benjamin Pavie

Bioimaging data analysis using High Performance Computing

As datasets grow in size and complexity, traditional desktop tools often fall short. This introductory training shows you how to leverage the Vlaamse Supercomputer Center (VSC) infrastructure for efficient and reproducible image analysis. It is intended for scientists who work with microscopy or bioimage data and want to scale up their analysis using high-performance computing (HPC).

You will learn to access HPC resources via the Open OnDemand portal, run GUI-based tools (like napari or Fiji), and adapt existing pipelines (e.g., from ZeroCostDL4Mic or the BioImage Model Zoo) in a Jupyter notebook environment.

Learning outcomes

- > Transfer and organize microscopy data on the HPC system to prepare scalable analysis workflows.
- > Execute pre-installed bioimage analysis tools (e.g., Ilastik, Fiji, Napari) on the VSC for tasks such as segmentation and denoising.
- > Run image analysis pipelines using a Jupyter notebook.
- > Adapt existing image analysis pipelines (e.g., from ZeroCostDL4Mic or BioImage Model Zoo) to run efficiently on the HPC infrastructure.
- > Evaluate the reproducibility of bioimage analysis workflows and propose improvements using HPC-based solutions.

Approach

This course combines short lectures with guided hands-on exercises on the HPC.

This course is part of the learning path [Bioimaging](#).

 In person

 12 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Sebastian Munck, Benjamin Pavie

Light microscopy summer school

 Summer school

Whether you are starting out or looking to expand your imaging skills, this course provides a practical introduction to modern light microscopy. You will learn everything from core optics principles to advanced techniques such as super-resolution and functional imaging.

Through interactive lectures and hands-on sessions, you will not only understand the theory but also apply it immediately using high-end microscopes and real biological samples. By the end of the course, you will be equipped to choose the right imaging approach for your research and perform acquisition and processing with confidence.

Learning outcomes

By the end of this course, you will be able to:

- > Explain and apply the principles of light microscopy, including optics, diffraction, and Köhler illumination.
- > Perform and interpret confocal, live-cell, and multiphoton imaging experiments.
- > Explore specialized applications such as plant imaging, multiplexing with OPALs and RNAscope multiplexing, and correlative light and electron microscopy (CLEM).
- > Use image processing tools effectively while adhering to best practices and ethical standards.
- > Interpret functional imaging results from experiments using FRAP, FRET, and FLIM.

Approach

This course combines interactive lectures with extended practical sessions.

This course is part of the learning path [Bioimaging](#).

 In person

 32 hours

 PhD student, Postdoc, Group leader, Industry professional

 Various experts

Quantitative bioimage analysis in QuPath: Essentials

As high-throughput imaging becomes increasingly central to biomedical research, the ability to efficiently analyze whole slide images is essential. This training provides a hands-on introduction to QuPath, a powerful open-source platform for bioimage analysis.

Learn how to navigate the software and leverage built-in machine learning algorithms (including Random Forest and neural networks) to perform cell segmentation, classify pixels and objects, and extract quantitative features. We will introduce basic scripting for batch processing, enabling scalable workflows.

Learning outcomes

- › Identify the core functionalities of QuPath, incl. image management, annotation tools, and project organization.
- › Apply cell segmentation techniques to detect and quantify cellular structures in whole slide images.
- › Classify tissue regions using pixel classification tools based on staining patterns and morphological features.
- › Extract quantitative features from annotated regions to support downstream statistical analysis.
- › Differentiate between object classification strategies and apply them to label biological structures.
- › Execute basic QuPath scripts to batch process multiple images.

Approach

This course uses a strong hands-on approach with guided exercises in QuPath.

This course is part of the learning path [Bioimaging](#).

 In person

 8 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Benjamin Pavie, Amanda Gonçalves, Nicolas Peredo

Teach your computer to see objects on bioimages with Ilastik

Many experimental biologists and imaging facility users need to perform sophisticated segmentation of microscopy images, such as distinguishing between different cell structures or quantifying objects in dense, noisy backgrounds. Classical methods (thresholding, watershed, and manual annotation) often struggle with the variability and complexity of bioimage datasets.

Ilastik provides an accessible machine-learning-based solution, allowing pixel- and object-level classification and integrates seamlessly with Fiji for downstream image processing, quantitative analysis, and batch processing across multiple images.

Learning outcomes

- › Explain the principles of supervised machine learning for pixel and object classification in microscopy images.
- › Create and annotate pixel and object classifiers in Ilastik for simple segmentation and classification tasks.
- › Export Ilastik probability maps and segmentations for further analysis in Fiji.
- › Set up and use the Ilastik Fiji plugin for batch processing and automating pipelines for multi-image datasets.
- › Apply pre-trained models from the BioImage Model Zoo and adapt them to their data.

Approach

This course uses a strong hands-on approach with guided exercises in Ilastik and Fiji.

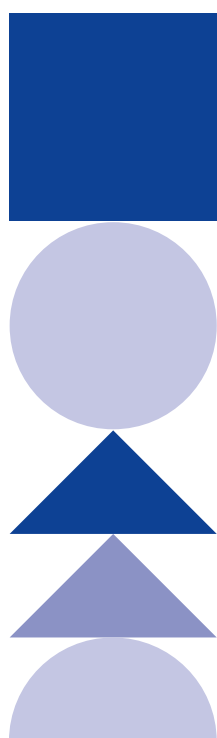
This course is part of the learning path [Bioimaging](#).

 In person

 8 hours

 PhD student, Postdoc, Staff scientist, Group leader, Technical support, Industry professional

 Benjamin Pavie, Nicolas Peredo



Metabolomics

Spatial metabolomics data analysis

Understanding the spatial distribution of metabolites, lipids, and proteins is key to uncovering complex biological processes. Mass spectrometry imaging (MSI) makes this possible by enabling direct detection of metabolites, lipids, and proteins from tissue surfaces. In this course, you will learn the different steps required to analyze spatial metabolomics data obtained with MSI. During the exercise sessions, you will apply these steps in practice, analyzing real MSI datasets with tools such as the Cardinal package in R and IsoScope. By the end of the course, you will be able to explore, process, visualize, and interpret spatial (including tracer) metabolomics data and apply these skills to your research.

Learning outcomes

- > Explain the fundamentals of mass spectrometry imaging (MSI) and its relation to (tracer) metabolomics.
- > Describe MS imaging data formats and how to import them into R.
- > Apply preprocessing techniques to MSI data using the Cardinal package in R.
- > Use Cardinal and IsoScope to visualize spatial metabolomics data and perform statistical analyses to detect meaningful patterns.
- > Export processed data for downstream analysis.
- > Interpret the results from MSI-based models.

Approach

This course combines short lectures with hands-on exercises using real MS imaging datasets. Participants are expected to actively engage with data, follow guided tutorials in R, and contribute to group discussions on data interpretation and analysis.

This course is part of the learning path Spatial metabolomics data.

 In person

 8 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Marco Giampà

Tracer metabolomics

Understanding metabolic fluxes is essential for uncovering biochemical mechanisms behind diseases, drug responses, and genetic variations. Tracer metabolomics offers a unique window into these dynamic processes by tracking labeled substrates through metabolic pathways. However, interpreting tracer metabolomics data is technically challenging, as it requires the integrated analysis of metabolite levels, isotopic tracer incorporation patterns, and their specific localization within metabolic pathways.

In this three-day course, you will build a solid foundation in tracer metabolomics. You will learn the key principles, how to design an experiment, and how to interpret analysis results with confidence.

Learning outcomes

- > Explain the core principles and concepts of tracer metabolomics and its role in studying metabolic fluxes.
- > Plan and design tracer metabolomics experiments with best practices in mind.
- > Prepare samples according to high-quality standards for tracer-based studies.
- > Demonstrate computational tools employed by the Metabolomics Core to analyze tracer metabolomics.
- > Interpret and evaluate the results of tracer metabolomics analyses generated by the Metabolomics Core.

Approach

This training combines lectures with demo sessions to provide both theoretical and practical background in tracer metabolomics. A guided tour of the VIB Metabolomics Core facility will offer insights into technologies and workflows used in real-world applications, including hands-on sample preparation in the lab.

This course is part of the learning path Spatial metabolomics data.

 In person

 24 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Bart Ghesquière, Camila Takeno Cologna, Marco Giampà, Sam De Craemer, Shauni Loopmans

 I highly recommend this training to people interested in understanding metabolomics, and especially in learning how to properly prepare samples for metabolomics studies and how to further analyze the resulting data.

— Alexandra Bacquelaine Veloso, Attendee of 'Tracer metabolomics' —



Programming

High performance computing on the Vlaamse Supercomputer

Large-scale data analysis and complex computations often exceed the limits of standard computing resources. This introductory training equips you with the fundamental skills needed to work on the High Performance Computing (HPC) cluster of the Vlaamse Supercomputer Center (VSC).

You will learn how to efficiently access and utilize HPC environments for data-intensive tasks, enabling you to take full advantage of advanced computing resources. By the end, you will be confident in navigating HPC systems and running jobs on the cluster.

Learning outcomes

- > Access existing HPC infrastructures in Flanders.
- > Transfer data to and from the compute cluster.
- > Submit jobs to run software and scripts (e.g. python scripts) on the compute cluster.
- > Set up a software environment on the compute cluster.

Approach

The training combines short explanations with hands-on exercises on accessing, uploading data and submitting jobs on the VSC. As an example analysis, you will use Slurm to BLAST protein sequences on VSC Leuven.

This course is part of multiple learning paths.

 In person

 4 hours

 PhD student, Postdoc, Group leader, Technical support

 Janick Mathys

High Performance Computing: Structure and practice essentials

 Part of 'Reproducible data analysis' micro-credential

Large-scale data analysis and complex computations often exceed the limits of standard computing resources. This half-day course provides researchers and professionals with essential knowledge to confidently work with High Performance Computing (HPC) environments. During the session, you will explore the structure of HPC systems, understand available resources, and learn practical techniques for navigating and using these environments effectively. The course highlights the differences and similarities among the VSC instances in Ghent and Leuven and the VIB Data Core.

Learning outcomes

- > Identify differences and similarities among different HPC instances.
- > Access existing HPC infrastructures in Flanders, including VSC and VIB Data Core.
- > Navigate and use different HPC environments (storage, analysis, and debug).
- > Query and manage specific modules on the HPC.
- > Submit jobs to run software and scripts on the compute cluster.
- > Monitor and check information about submitted jobs.

Approach

This course is part of a micro-credential track that helps you strengthen the reproducibility of your research. Find out more on page 40.

We combine theoretical sections with demos and hands-on activities.

This course is part of the learning paths on Bioimaging and Reproducible data analysis.

 In person

 4 hours

 PhD student, Postdoc, Group leader, Administrative support, Technical support, Industry professional

 Bruna Piereck, Boris Depoortere

Linux command line

Many research projects and data-driven tasks require working with Linux environments to manage files, run software, and automate processes. Learning to use the Linux command line is essential for working efficiently and independently in these settings.

This introductory training covers the fundamentals needed to navigate the Linux file system, manage files and directories, and execute simple scripts.

Learning outcomes

- > Identify the structure and key components of the Linux file system (e.g., root directory, home directories, and system folders).
- > Navigate directories and files using basic command-line commands.
- > Manipulate files and folders by performing essential operations such as copying, moving, and deleting.
- > Create simple Bash scripts to automate routine tasks.

Approach

The training combines short explanations with hands-on exercises on using command line and writing bash scripts on the VSC.

This course is part of multiple learning paths.

 In person

 3 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Janick Mathys

Programming in Python: Master your first project

Do you want to learn programming skills that will boost your research? In this course, we introduce you to the Python programming language, starting from the very basics. You will explore core programming concepts through a mix of live online sessions, guided practical afternoons, and self-paced exercises.

We emphasize hands-on learning in a supportive environment where you can ask plenty of questions. By the end of the course, you will be able to read, modify, and write Python programs and feel confident continuing to continue with more advanced programming topics.

Learning outcomes

- > Understand core programming concepts including functions and values.
- > Analyze programs written by peers to understand their structure and logic.
- > Modify existing programs to improve functionality or adapt them to new tasks.
- > Develop new programs to solve practical problems.
- > Apply techniques to detect errors and fix problems in code.

Approach

This training combines self-paced learning with interactive sessions to support your progress:

- > You will receive a welcome email before the course opens. This email will contain all of the information you need to get started
- > During the kick-off meeting, you will meet the trainers and your fellow students. You'll have the opportunity to ask questions and set out your goals and expectations.

This course is part of multiple learning paths.

 Online

 24 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Jolan Heyse, Bruna Piereck

Python essentials for data analysis

Turn basic Python knowledge into powerful data analysis skills. This training is designed to bridge the gap between knowing Python syntax and using Python effectively for data analysis in scientific workflows.

Throughout the course, you will work with Jupyter Notebooks, manage environments with uv and explore essential libraries such as Pandas, NumPy, and Matplotlib. These skills will prepare you to understand and adapt Python scripts commonly used in data analysis, giving you the confidence to tailor workflows to your research needs.

Learning outcomes

- > Create software environments including Python packages.
- > Work with Jupyter Notebooks to write, run, and document Python code.
- > Build and manipulate Pandas DataFrames for tabular data analysis.
- > Generate and handle NumPy arrays for tabular and image data.
- > Use Matplotlib and Pandas to create visual representations of image data.

Approach

Through guided exercises and demonstrations, participants are expected to follow along in Jupyter notebooks, explore basic manipulations and practice modifying simple scripts.

This course is part of the learning paths on Machine learning and Spatial targeted transcriptomics and/or proteomics data.

 In person

 8 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Janick Mathys

Python introduction light

This training is designed for researchers and support staff who are new to Python and need a gentle introduction before attending more advanced courses, such as Python for spatial data analysis. It addresses the common challenge of navigating Python-based workflows without prior coding experience.

You will gain practical familiarity with Python environments, syntax, and basic operations, enabling them to understand and adapt existing scripts used in research contexts. While it won't teach you to write Python code from scratch, it will equip you with the foundational knowledge needed to follow and modify scripts in future training events. For those seeking to develop full scripting skills, we recommend the Programming in Python: master your own project course.

Learning outcomes

- > Identify basic Python data types such as lists, tuples, and dictionaries.
- > Use Jupyter notebooks to run and modify existing Python code cells.
- > Set up a Python environment and install packages relevant to data analysis workflows.
- > Explain the purpose and structure of Python functions, including arguments and return values.
- > Apply conditional statements to control the flow of simple Python scripts.
- > Modify existing Python scripts to adapt them to specific research needs.

Approach

This online training introduces participants to the basics of Python in a research context. Through guided exercises and demonstrations, participants are expected to follow along in Jupyter notebooks, explore Python syntax, and practice modifying simple scripts.

 In person

 8 hours

 PhD student, Postdoc, Group leader, Technical support

 Janick Mathys



R introduction

Data processing, visualization, and statistical basics are essential for anyone working with data. This beginner-friendly training introduces you to the R software environment, a powerful open-source tool for data analysis and visualization. Participants will learn how to manage and visualize data, apply basic statistical techniques in R such as t-tests, ANOVA, and non-parametric counterparts.

By the end of the training, you will be able to generate publication-ready plots and perform simple statistical comparisons on your data. This course lays the groundwork for following more advanced statistical modeling and data analysis training sessions.

Learning outcomes

- > Recognize the purpose and basic functionalities of R and RStudio to use the software effectively
- > Import, format, and export datasets in R to prepare data for analysis.
- > Create a range of visualizations (e.g., bar charts, boxplots, violin plots, scatter plots, PCA plots, heat maps) to explore and communicate data insights.
- > Apply basic statistical tests in R (e.g., t-tests, Wilcoxon tests, one-way ANOVA, Kruskal-Wallis tests, correlations, survival analysis) to analyze data appropriately.
- > Write and execute R scripts to document and reproduce data analysis workflows.

Approach

The course will consist of:

- > A theoretical e-learning course to explain the statistics behind the analysis in R (not mandatory, but recommended for those with no statistical background).
- > E-learning, where you will watch parts of the theory upfront.
- > Demo and exercise sessions on YouTube, where your questions will be answered, and where you can apply the theory to real-life example data.

This course is part of multiple learning paths.

 Online

 32 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Janick Mathys

Tidyverse introduction

The tidyverse ecosystem offers a powerful, user-friendly approach to working with data in R. Mastering these tools can greatly improve your ability to handle, transform, and interpret complex datasets efficiently.

In this course, you will explore core tidyverse components beyond ggplot2, including tibble, dplyr, and tidyr. These packages will help you write cleaner, more readable code and streamline your data workflows, which will help you to move from basic R usage to robust, reproducible data analysis.

Learning outcomes

- > Use the dplyr package to filter, arrange, and summarize data tables efficiently.
- > Apply the tidyr package to reshape and tidy datasets for easier analysis.
- > Combine functions with the pipe operator (%>%) to write cleaner and more readable R code.
- > Work with tibbles, understanding their structure and how they integrate into tidyverse workflows.

Approach

The course consists of an e-learning part where you will watch parts of the theory upfront, and an exercise session on YouTube where you can ask questions and apply the theory to real-life example data.

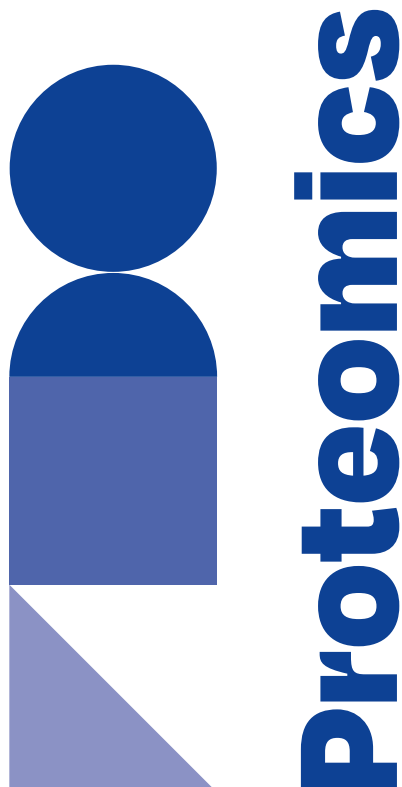
This course is part of the learning path Statistics.

 Online

 4 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Janick Mathys



Mass spectrometry-based proteomics

This introductory course helps you get familiar with the principles and workflows of mass spectrometry-based proteomics. Designed for researchers new to the field, the training covers the complete pipeline—from experimental design and sample preparation to data analysis and basic data interpretation.

You will gain practical experience with essential techniques such as protein extraction, digestion, and peptide cleanup, and learn to analyze proteomics datasets using standard bioinformatics tools.

Learning outcomes

- > Describe key concepts and fundamental principles of mass spectrometry-based proteomics.
- > Explain the rationale behind sample preparation methods and protocol choices.
- > Perform protein extraction, digestion, and peptide clean-up using standard workflows.
- > Analyze example datasets for protein identification and quality assessment using basic bioinformatics tools.
- > Assess the suitability of proteomics approaches for different research questions.

Approach

The training combines theoretical sessions with hands-on lab work and guided data analysis demonstrations. Participants will begin with an introduction to basic proteomics concepts and principles, followed by practical sessions. In addition, participants will tour the VIB Proteomics Core facility and learn best practices in experimental design and workflow planning.

This course is part of the learning path **Bulk proteomics data**.

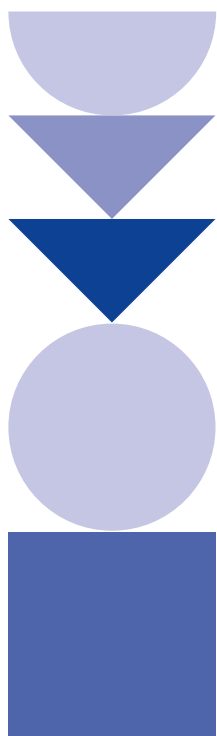
 In person

 16 hours

 VIB only

 PhD student, Postdoc, Group leader, Technical support

 An Staes, Delphi Van Haver, Evy Timmerman, Katie Boucher, Sara Dufour, Teresa Maia



Research data management

Biobanking & GDPR

Research involving human body materials and human data triggers complex legal and ethical issues. The material itself triggers the biobanking legislation, and the accompanying data about the donor triggers the GDPR.

Genetic data that are generated may also constitute personal data in themselves. This has important consequences for the way we get access to such material and data and how we should handle them. Taking these matters into account from the moment a new research project is conceived will help to prevent difficulties in later phases when you want to publish data, upload data in a repository, or share them with third parties.

Learning outcomes

- > Explain the key obligations under biobank legislation and GDPR.
- > Identify where genetic and other research data qualify as personal data.
- > Apply best practices for compliant data sharing and publication.
- > Recognize common compliance risks during project planning and execution.

Approach

In the course, the theoretical concepts of biobanking and GDPR will be explained along reflection activities.

This course is part of the learning path Basic research essentials.

 E-learning / in person

 2.5 hours / 4 hours

 VIB only

 All VIB staff

 René Custers

Containerize data analysis with Docker & Apptainer

Part of 'Reproducible data analysis' micro-credential

In this workshop, you will dive into container technologies—Docker and Apptainer—that enhance portability and reproducibility of analysis workflows. You'll learn how to create containers from scratch, share them with others, and reuse or adapt existing ones. After an in-depth introduction to Docker, we will also explore Apptainer (formerly Singularity) and its application in High Performance Computing (HPC) environments.

Learning outcomes

After this course, you will be able to:

- > Run Docker containers using volumes and ports.
- > Write Docker recipes and build Docker images.
- > Explain key differences between Docker and Apptainer.
- > Convert and use Docker images as Apptainer images.
- > Run Apptainer containers in an HPC environment.

Approach

This course is part of a micro-credential track that helps you strengthen the reproducibility of your research. Find out more on page 40.

We combine theoretical sections with demos and hands-on activities.

If you have no experience with command line, you can follow the Linux initiation training first.

This course is part of the learning path Reproducible data analysis.

 In person

 16 hours

 PhD student, Postdoc, Group leader, Administrative support, Technical support, Industry professional

 Alexander Botzki, Bruna Piereck

Discussing reproducibility: Real-life cases

Part of 'Reproducible data analysis' micro-credential

Reproducibility is at the heart of trustworthy research—but achieving it can be challenging. This interactive session invites you to explore the challenges of data analysis reproducibility and discover practical solutions through collaboration. The session combines brainstorming and problem-solving activities with expert insights, offering a unique opportunity to broaden your perspective, enhance your critical thinking, and reflect on practical strategies for improving research reproducibility.

Learning outcomes

- > Identify common challenges in ensuring reproducibility in data analysis.
- > Apply problem-solving strategies to real-life reproducibility cases.
- > Enhance critical thinking through collaborative discussion.
- > Increase awareness of reproducibility in data analysis.
- > Build professional connections through interactive networking.

Approach

This course is part of a micro-credential track that helps you strengthen the reproducibility of your research. Find out more on page 40.

You will work in groups to tackle real-life cases, exchange ideas, and develop creative approaches together with peers and experts.

This course is part of multiple learning paths.

 In person

 8 hours

 PhD student, Postdoc, Group leader, Administrative support, Technical support, Industry professional

 Bruna Piereck, Alexander Botzki, Bart Mesuere & other experts



Electronic Lab Notebook (ELN) essentials

Efficient documentation and collaboration are essential in any research environment. The eLabJournal serves as the central platform for managing experimental workflows, samples, and team communication. This introductory training offers a practical overview of how to use the Electronic Lab Notebook (ELN) to streamline daily lab operations.

You will explore the platform's core features — from documenting experiments and organizing samples to facilitating collaboration across research teams. The training is hands-on and designed to help you quickly become confident in navigating the system, improving productivity while ensuring compliance with research standards (e.g. FAIR principles).

Learning outcomes

- > Explain the importance of the ELNs in research projects.
- > Differentiate the three core components of eLabJournal: inventory, protocols, and journal.
- > Create and organize experiments, experiment templates, and protocols.
- > Track samples, supplies, and equipment bookings.
- > Search and retrieve inventory and journal entries efficiently.
- > Use collaborative features such as sharing experiments and adding collaborators.

Approach

The training combines theoretical instruction with hands-on activities. Participants receive a platform overview, followed by guided exercises to practice key functionalities. The session concludes with best practices for structuring research data in eLabJournal.

This course is part of the learning path Basic research essentials.

 In person

 4 hours

 VIB only

 PhD student, Postdoc, Group leader, Technical support

 Matheus Lourenço, Liesbeth De Milde

Nextflow for reproducible and automated data analysis

 Part of 'Reproducible data analysis' micro-credential

This course introduces the principles and practice of building scalable and reproducible data analysis pipelines using Nextflow. As bioinformatics data volumes increase and analyses become more complex, workflow management tools play a key role in ensuring reproducibility and efficiency.

During the training, you will learn to develop and run pipelines on local machines, HPC clusters, and cloud platforms. Starting with the basics, the course guides you through creating a simple pipeline and enhancing it with Nextflow's modern DSL2 syntax.

Learning outcomes

- > Describe the core components of Nextflow (e.g., channels, processes, modules, workflows)
- > Explain their roles of each component in the pipeline development and reproducibility aspect.
- > Construct a basic Nextflow pipeline using DSL2 syntax and execute it on a local machine.
- > Modify configuration files to adapt pipeline parameters for different computing environments (e.g., local, cluster, cloud).
- > Debug and refactor a simple pipeline to improve clarity, modularity, and performance.

Approach

This course is part of a micro-credential track that helps you strengthen the reproducibility of your research. Find out more on page 40.

The training combines theoretical sessions with hands-on activities.

This course is part of the learning path Reproducible data analysis.

 In person

 16 hours

 PhD student, Postdoc, Group leader, Administrative support, Technical support, Industry professional

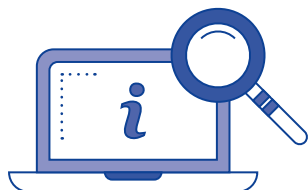
 Kobe Lavaerts, Nicolas Vannieuwerkerke

 The course was very interactive and we could ask a lot of questions about our own projects. The trainers have a good understanding of Nextflow principles.

— Attendee of 'Nextflow for reproducible and automated data analysis' —

// I really liked learning from experts with hands-on experience. The course was open and interactive, with practical examples and exercises that I could directly apply. Being able to ask questions along the way made the learning really accessible. Overall, I found it very valuable and practical.

— Attendee of 'Reproducible data analysis' —



For the latest course schedules and logistical details, simply scan the QR code or [click this link](#).

Reproducible data analysis

The scientific method is historically linked to the possibility that other researchers can replicate and verify its results. As scientific analysis becomes more complex and interdisciplinary, ensuring reproducibility becomes more challenging, especially in fields that combine different expertise. To promote transparency, consistency, and robustness in science, journals, funders, and institutions encourage using tools and practices that enhance reproducibility. Learn about version control, containers, pipelines, and data reproducibility. This will steer you towards the reproducibility of your research and the impact and reliability of research findings and methods.

Learning outcomes

- > Use Git and GitHub for version control, reproducible, and easy-to-share code, text documents, and other appropriate data for this context.
- > Differentiate between Docker and Apptainer images to select the appropriate tool for various computing environments.
- > Develop and adapt container recipes for use both locally and on supercomputers, considering system-specific requirements.
- > Run and modify Nextflow pipelines using best practices such as configuration files and modular components.
- > Explain how containerization and version control contribute to reproducibility and shareability in computational research.

Approach

The micro-credential is composed of 6 sub-modules, each of them with theoretical and practical sessions followed by a project evaluation and an oral assessment.

At the end of the micro-credential, an overarching challenge invites you to apply all learned skills.

 In person

 85 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Bruna Piereck, Alexander Botzki, Kobe Lavaerts, Nicolas Vannieuwkerke, Bart Mesuere

Research Data Management (RDM) in life sciences essentials

Effective research data management (RDM) is more than just a compliance requirement - it's a practical tool that simplifies your workflow, strengthens your research, and enhances the impact of your publications. This training is designed to help researchers embed RDM practices into their projects from the very beginning, always keeping the publication process in focus. You will explore key concepts such as FAIR data, open data, and data documentation, while gaining hands-on experience in organizing, describing, and sharing data effectively. The course also addresses practical elements including metadata standards, Data Management Plans, and selecting suitable repositories.

Learning outcomes

- › Define key research data management (RDM) concepts, including FAIR and open data principles.
- › Identify institutional resources and reliable sources that support effective data management.
- › Evaluate the relevance of Data Management Plan (DMP) elements and apply them to research projects.
- › Organize research data and documentation using standardized formats and appropriate metadata.
- › Explain ethical and legal considerations, including handling of personal/sensitive data and GDPR compliance.
- › Select suitable repositories for data sharing, distinguishing between general and discipline-specific options.

Approach

The training combines short lectures with interactive discussions and exercises, allowing participants to apply concepts to practical scenarios.

This course is part of multiple learning paths.

 In person

 8 hours

 Academic, Industry professional, PhD student, Postdoc

 Matheus Lourenço & other experts



Versioning code and documentation with Git and GitHub

 Part of 'Reproducible data analysis' micro-credential

This hands-on course introduces Git and GitHub to researchers, trainers, support staff, and anyone interested in version control. Git and GitHub are essential tools for ensuring reproducibility and efficient collaboration in computational projects. You will learn how to configure Git, manage project history, and work with local and remote repositories. Through practical exercises, you will gain confidence in creating and managing repositories, applying core Git operations, and collaborating through branching and pull requests.

Learning outcomes

By the end of this course, participants will be able to:

- > Create and manage repositories to track changes and maintain project history.
- > Apply essential Git operations (staging, committing, pushing) for effective workflow locally and remotely.
- > Connect and synchronize local repositories with GitHub.
- > Implement branching and pull request workflows for collaborative development.
- > Interpret Git history and logs to monitor project evolution and resolve issues.
- > Troubleshoot common version control problems using basic debugging techniques.

Approach

This is a highly interactive, hands-on course designed to take participants from zero to using Git confidently. Through guided demonstrations and practical exercises, you will work with real examples to learn how to manage version control, track project changes, and collaborate effectively using Git and GitHub.

This course is part of multiple learning paths.

 In person

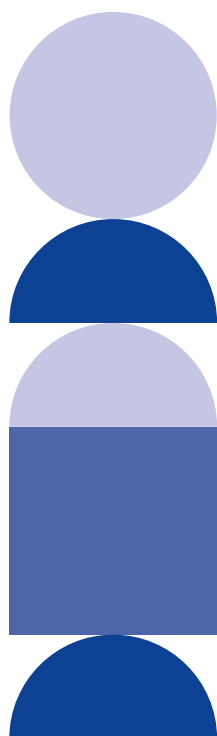
 16 hours

 PhD student, Postdoc, Group leader, Administrative support, Technical support, Industry professional

 Bruna Piereck

 This was a very interactive course. Really appreciated that even people with zero knowledge of Git and GitHub were able to follow and learn to work with it!

— Kirsten De Ridder, attendee of 'Versioning code and documentation with Git and GitHub' —



Sequencing technologies

Bulk RNA-seq analysis

Understanding differential gene expression is essential for interpreting RNA sequencing data in modern life sciences. This introductory course is designed for researchers who work with bulk RNA-Seq data and need to move from raw counts to meaningful biological insights.

Through hands-on sessions, you will learn how to process count files, apply statistical methods in R, and troubleshoot common issues. By the end of the training, you will be equipped to identify differentially expressed genes and confidently analyze your own datasets using widely adopted tools and workflows.

Learning outcomes

- > Explain the principles of bulk RNA-Seq data processing and differential expression analysis.
- > Identify appropriate tools for generating count files, starting from FASTQ files.
- > Perform differential expression analysis in R using count data from different quantification tools.
- > Interpret output tables and plots to draw biologically meaningful conclusions from differential expression results.
- > Troubleshoot common issues encountered during RNASeq data analysis workflows.

Approach

The course blends short lectures with hands-on exercises using Galaxy to process raw reads into count files and R to identify differentially expressed genes. Both single-end and paired-end example datasets are provided. Participants complete a homework assignment on either example or personal data, with results and questions reviewed during the final session.

This course is part of the learning paths on Bulk RNA-seq data and Single cell data long reads.

 In person

 20 hours

 PhD student, Postdoc, Group leader, Industry professional

 Janick Mathys



CRISPR in action: Practice and theory of genome engineering

CRISPR technology has revolutionized genome editing, making precise genetic modifications with unprecedented speed and accessibility. For anyone working in molecular biology or genetics, a solid understanding of CRISPR is no longer optional—it's essential. You will learn how to design gRNAs, build CRISPR vectors, perform genome edits, and evaluate editing outcomes. By the end of the course, you will have the knowledge and practical skills to confidently design and execute your own CRISPR experiments, bridging the gap between concept and real-world application.

Learning outcomes

- > Design gRNAs using efficiency prediction principles and assess off-target risks.
- > Construct CRISPR vectors applying appropriate cloning strategies and component selection.
- > Optimize HDR donor templates for precise genome edits according to design criteria.
- > Perform genome editing, conduct genotyping analysis with Sanger sequencing.
- > Interpret editing results.
- > Explain different approaches to analyzing CRISPR experiments.
- > Analyze CRISPR experiments using bioinformatics tools and evaluate data quality.
- > Identify potential experimental pitfalls and propose improvements to CRISPR workflows.

Approach

Through interactive lectures and guided laboratory sessions, this hands-on training combines theory and practice to give you a comprehensive introduction to CRISPR-based genome engineering.

This course is part of the learning path **Genome engineering**.

 In person

 40 hours

 PhD student, Postdoc, Group leader, Industry professional

 Sibylle Vonesch, Ruben Vazquez Uribe & other experts

Genome assembly using long reads

High-quality genome assemblies are essential for understanding the biology, evolution, and functional genomics of organisms. Advances in long-read sequencing technologies, such as Oxford Nanopore, now make it possible to generate highly accurate reference genomes, even for complex or repetitive regions.

This hands-on training introduces you to the principles and practical steps of genome assembly with long-read data. You will learn how to design efficient sequencing strategies, process and assess raw reads, execute assembly workflows, and evaluate the quality of the final genome. By the end of the training, you will have the knowledge and skills to make informed decisions throughout an assembly project and prepare a robust foundation for downstream analyses.

Learning outcomes

- > Describe the main steps of a genome assembly pipeline.
- > Apply quality control procedures to filter and assess raw sequencing reads.
- > Execute genome assembly using selected tools and adjust parameters.
- > Evaluate the quality and completeness of a genome assembly.
- > Reflect on potential next steps and downstream applications.

Approach

This training combines practical exercises with expert guidance. You will have the opportunity to work with the demonstrated tools and can choose to use your own datasets. An optional follow-up Q&A session is scheduled to address questions related to tools, parameter choices, and interpretation of results.

This course is part of the learning path
Bulk long reads for assembly or variants.

 In person

 8 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Stephane Rombauts

Processing short reads

Understanding how to handle and interpret Next Generation Sequencing (NGS) data is essential for researchers working with high-throughput omics. This introductory course is designed for researchers who are new to NGS analysis. It provides all the background knowledge required to successfully complete advanced NGS analysis training.

The course goes through the analysis pipeline of NGS data, starting from FASTQ files with raw reads to BAM files with reads aligned to a reference. Participants will gain a practical understanding of how NGS data is generated, formatted, and processed, including hands-on experience with quality control and mapping workflows. The course also introduces key tools and platforms, such as Galaxy, to support reproducible and accessible analysis.

Learning outcomes

- > Describe the basic principles of the AVITI and Illumina sequencing platforms and their role in NGS workflows.
- > Identify common NGS file formats (e.g., FASTQ, BAM) and demonstrate basic file handling operations.
- > Perform quality control checks on raw NGS data using standard tools and interpret the results.
- > Execute a basic mapping workflow for NGS data and explain the purpose of each step.
- > Navigate the Galaxy platform to run simple NGS analysis tasks in a reproducible environment.

Approach

This is an e-learning course that involves analyzing an example NGS data set.

This course is part of multiple learning paths.

 E-learning

 12 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Janick Mathys

Variant analysis using long reads

Understanding genomic variation is essential for uncovering the genetic basis of disease, evolution, and phenotypic traits. While short-read sequencing has long been the standard, long-read technologies now offer superior resolution for detecting structural variants and phasing complex regions.

This course is designed for researchers working with genomic data who want to explore the potential of long-read sequencing in variant analysis. You will gain hands-on experience using the GenomeComb package to process long-read (and short-read) data, perform variant and structural variant calling, and annotate results.

Learning outcomes

- > Prepare long-read sequencing data by performing adapter clipping and aligning reads to a reference genome.
- > Identify single-nucleotide variants and structural variants from aligned long-read data.
- > Compare variant calling results across multiple samples and sequencing methods by generating and interpreting multisample files.
- > Annotate detected variants with genomic location, predicted functional impact, and potential phenotypic associations.
- > Filter variant datasets based on quality metrics and functional relevance to refine analysis results.

Approach

You have the opportunity to explore the tools using your own data. Questions that arise during this process (about the tools, the parameters, or the interpretation of the results) will be answered during the Q&A session.

This course is part of the learning path
Bulk long reads for assembly or variants.

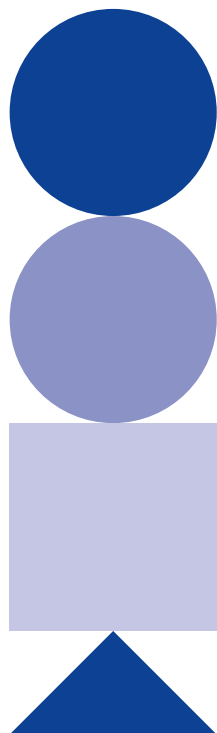
 In person

 8 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Peter De Rijk





Single cell technology

How to start with single cell transcriptomics

Single-cell transcriptomics is transforming the way you study cellular diversity and function, making it an essential tool in genomics, molecular biology, and biomedical research. If you are new to the field and want to build a strong foundation before starting your own experiments, this course is for you. You will learn the key concepts, explore the technologies that power single cell studies, and discover the latest developments in the field.

Learning outcomes

- > Describe the principles and applications of major single cell transcriptomics platforms (e.g., 10X Genomics, BD Rhapsody, plate-based systems).
- > Differentiate between sample preparation methods for fresh, frozen, and fixed tissues, including single-nuclei sequencing approaches.
- > Apply basic criteria to design a single cell transcriptomics experiment, considering platform choice, sample type, and research question.
- > Explain the steps involved in library preparation and sequencing workflows used in core facilities.
- > Interpret example datasets to identify key quality control metrics and common data artifacts in single cell transcriptomics.
- > Evaluate the advantages and limitations of emerging technologies such as long-read single cell sequencing.

Approach

This beginner-friendly course introduces the fundamentals of single cell transcriptomics, guiding you through key technologies, experimental design, sample preparation, and basic data quality interpretation to confidently start your own projects.

This course is part of the learning paths on Single cell data short reads and Single cell data long reads.

 In person

 8 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Robin Boiy, Jordy De Coninck, Thomas Eekhout, Kobe Lavaerts, Ria Roelandt, Jana Roels, Isabelle Scheyltjens, Niels Vandamme

Scywalker for processing long-read single cell RNASeq data

Understanding transcript diversity at the single cell level is key when you study gene regulation, cell identity, or disease mechanisms. Traditional short-read sequencing limits your ability to capture isoform variation, which is widespread in complex eukaryotes.

You will learn how to interpret the results of Scywalker, a tool designed for processing long-read single cell RNA-Seq data (e.g., ONT or PacBio) to enable full-length transcript analysis. You will follow a step-by-step walkthrough of the Scywalker pipeline to generate gene and transcript count matrices for downstream comparisons of gene and isoform expression across samples and cell types.

Learning outcomes

- > Describe each step of the Scywalker pipeline used for processing long-read single cell RNASeq data.
- > Explain the content and purpose of each output file generated by Scywalker.
- > Recognize the advantages of long-read sequencing technologies (e.g., ONT, PacBio) in capturing isoform diversity.
- > Interpret Scywalker output to identify gene and isoform expression patterns across samples and cell types.
- > Assess the suitability of Scywalker for your own single cell transcriptomics projects.

Approach

The session will include practical instructions on understanding the tools outputs, and discussing how to integrate Scywalker results into your single cell analysis workflows.

This course is part of the learning path
Single cell data long reads.

 In person

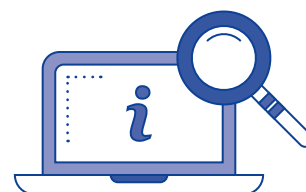
 4 hours

 PhD student, Postdoc, Group leader, Industry professional

 Peter De Rijk

I really liked the clear theoretical background and useful resources. Everything was well organised, and having the computing cluster and packages ready made it easy to get started. The practical sessions covered a lot, with clear scripts that were easy to follow.

— Attendee of 'Single cell ATAC-seq analysis' —



For the latest course schedules and logistical details, simply scan the QR code or [click this link](#).

Single cell ATAC-seq analysis

This course introduces how to analyze and gain insights from scATAC-seq (Single-cell Assay for Transposase-Accessible Chromatin with sequencing) data. Unlike bulk ATAC-seq, scATAC-seq provides cell-type-specific insights into chromatin accessibility, enabling a deeper understanding of regulatory landscapes at single cell resolution.

During the course, you will learn how the ArchR tool can be used to identify cell populations and regulatory patterns. The course will also highlight how scATAC-seq data can be integrated with single cell RNA sequencing (scRNA-seq) to uncover gene regulatory mechanisms.

Learning Outcomes

- > Understand the principles and data structure of scATAC-seq experiments.
- > Interpret results generated by Cell Ranger ATAC.
- > Perform bioinformatics analysis of scATAC-seq data in R using the ArchR package.
- > Explore strategies for integrating scATAC-seq data with scRNA-seq to gain insights into gene regulatory networks.
- > Apply the acquired skills to analyze and interpret your own single cell chromatin accessibility datasets.

Approach

The course combines theoretical lectures with hands-on practice in R using ArchR. Participants will apply the learned methods to real scATAC-seq data, including their own datasets.

This course is part of the learning path
Single cell data short reads.

 In person

 16 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Vanessa Vermeirssen, Vittorio Zanzani



Single cell RNA-seq analysis

Single cell RNA sequencing (scRNA-seq) has revolutionized transcriptomics by allowing researchers to study gene expression at single cell resolution. This level of detail is crucial for exploring cellular heterogeneity, discovering novel cell types, and investigating dynamic biological processes such as development and disease progression.

You will acquire the skills to analyze and interpret short-read scRNA-seq datasets. Through a combination of theory and hands-on exercises, we will guide you through the complete analysis pipeline from quality control and normalization to clustering, visualization, and differential expression analysis.

Learning outcomes

- › Perform quality control and filtering at the cell level to ensure data reliability.
- › Apply normalization and noise-reduction techniques to enhance signal quality in scRNA-seq datasets.
- › Cluster cells based on gene expression profiles and visualize results using dimensionality reduction methods (e.g., UMAP).
- › Identify marker genes for specific clusters to characterize distinct cell populations.
- › Analyze differential gene expression between experimental conditions to uncover biologically relevant changes.
- › Evaluate the effectiveness of preprocessing and clustering methods in revealing biological insights.

Approach

The training combines theoretical instruction with hands-on activities. On the second day, participants are encouraged to bring their own datasets for practical application and feedback.

This course is part of the learning path
Single cell data short reads.

 In person

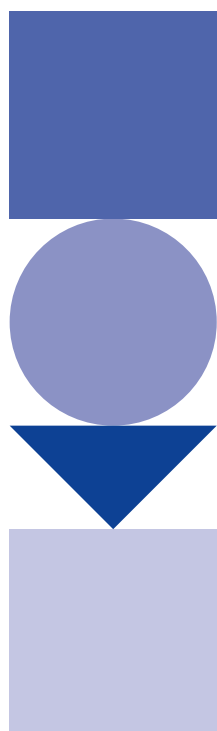
 18 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Janick Mathys

 The data analysis pipeline was explained clearly step by step, with enough theory to understand each stage. Instructions were clear, there was ample time for questions, and the instructor was approachable and helpful with specific problems.

— Attendee of 'Single cell RNA-seq analysis' —



Spatial omics

How to start with spatial omics

Spatial omics technologies provide detailed maps of transcripts, proteins, and metabolites within tissues, opening new possibilities for studying complex biological systems. Navigating the rapidly evolving landscape of spatial omics platforms and deciding where to begin can, however, be challenging.

This introductory course offers a clear, structured pathway into spatial omics for anyone planning their first experiments. You will gain a clear overview of available spatial omics platforms, their underlying principles, and how they compare in terms of strengths and limitations. We will also address practical aspects, including sample preparation, experimental design, access to infrastructure, and associated costs.

Learning outcomes

- > Describe the principles and technologies underlying key spatial omics platforms.
- > Compare the capabilities and limitations of different spatial omics approaches for specific research questions.
- > Identify appropriate spatial omics platforms for a given experimental objective, considering technical and practical constraints.
- > Explain the essential steps in sample preparation and experimental design for spatial omics studies.
- > Locate available spatial omics infrastructure and resources within VIB and outline the process for assessing them.
- > Formulate initial strategies to apply spatial omics methods to their research questions, including selecting relevant targets (genes/proteins/metabolites).

Approach

The training combines expert lectures and informal discussions, creating opportunities for both learning and interactive exchange.

This course is part of the learning path Spatial targeted transcriptomics and/or proteomics data.

 In person

 8 hours

 PhD student, Postdoc, Group leader, Technical support

 Evelien Van Hamme & other experts.

Spatial omics summer school



Summer school

In recent years, spatial omics technologies have become increasingly accessible, thanks to the emergence of a diverse set of commercially available platforms. These technologies are revolutionizing our understanding of biological systems, but the resulting data sets are often complex, and answering research questions requires a solid understanding of spatial data analysis and the use of dedicated tools.

Learning outcomes

- > A solid understanding of the principles, platforms, and applications of spatial omics.
- > Practical experience with tools and pipelines to analyze spatial transcriptomics, proteomics, and metabolomics data.
- > Learned strategies to extract meaningful biological insights from spatial datasets.
- > Explored integration approaches for combining multiple omics modalities.

Approach

This summer school offers a comprehensive journey into the world of spatially resolved targeted transcriptomics, proteomics, and metabolomics. We start with a comparative overview of the current spatial omics platforms, followed by a hands-on training in the analysis of targeted spatial transcriptomics, proteomics and metabolomics data using the SPArROW/Harpy pipeline and the Cardinal package.

On the last day, we explore multi-omics integration strategies to combine the different spatial omics data.

This course is part of the learning paths on Spatial metabolomics data and Spatial targeted transcriptomics and/or proteomics data.

 In person

 40 hours

 PhD student, Postdoc, Technical support, Industry professional

 Various experts

Spatial proteomics data analysis

Imaging-based spatial proteomics technologies are increasingly used to study tissue organization and protein expression within spatial contexts. These methods enable high-dimensional characterization of proteins across tissue sections using platforms such as MACSima (Miltényi Biotec), COMET (Lunaphore), and PhenoCycler Fusion (Akoya Biosciences). However, handling and analyzing the resulting data can be challenging, requiring specialized workflows.

This course serves as a follow-up to the “Hands-on introduction to targeted spatial transcriptomics data analysis” training and focuses on the Harpy pipeline for spatial proteomics analysis. This includes cell segmentation, feature extraction, and unsupervised clustering of cells or pixels to support cell-type annotation. You will learn to process, visualize, and interpret data from multiplex imaging platforms efficiently and reproducibly.

Learning outcomes

- > Import and structure imaging-based spatial proteomics data from different commercial platforms.
- > Optimize segmentation strategies for multiplex imaging datasets.
- > Quantify marker expression levels in a spatial context.
- > Annotate cell populations using the Harpy pipeline.

Approach

This course is fully hands-on, guiding participants through the Harpy pipeline to analyze imaging-based spatial proteomics data. Short theoretical introductions will be complemented by practical exercises using real datasets.

This course is part of the learning path Spatial targeted transcriptomics and/or proteomics data.

 In person

 8 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Arne Defauw, Frank Vernailen, Julien Mortier



Targeted spatial transcriptomics analysis

Spatial transcriptomics technologies have become widely used for studying gene expression within its spatial context, providing valuable insights into tissue organization. However, the complexity of these datasets requires dedicated analysis methods and tools for reliable interpretation.

This training offers a hands-on introduction to analyzing targeted spatial transcriptomics data using the SPArrow/Harpy pipeline, developed by the Yvan Saeys group (VIB). Through practical exercises, you will learn essential steps such as image processing, cell segmentation, transcript assignment, dimensionality reduction, and clustering to study spatial patterns effectively.

Learning outcomes

- > Import targeted spatial transcriptomics datasets from commercial platforms (Xenium) into the Harpy pipeline.
- > Apply segmentation techniques to identify cells and allocate transcripts accurately within spatial images.
- > Perform clustering and dimensionality reduction (e.g., UMAP) to explore spatial patterns.
- > Optimize pipeline parameters to improve the quality of segmentation and transcript assignment.
- > Interpret clustering and visualization results to draw biologically relevant conclusions from spatial data.

Approach

This training is highly practical, combining brief theoretical introductions with hands-on exercises working with real datasets.

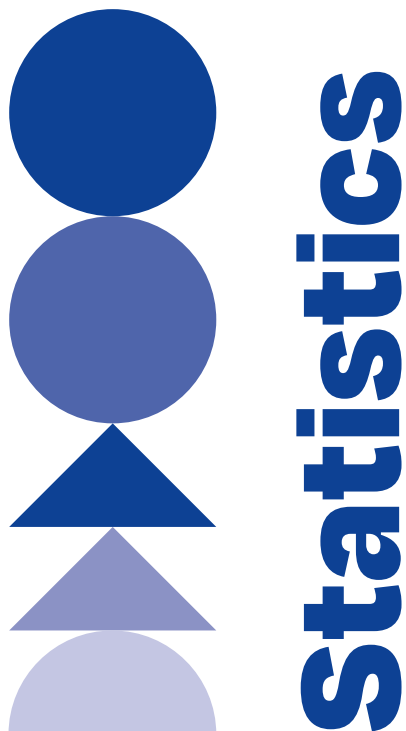
This course is part of the learning path Spatial targeted transcriptomics and/or proteomics data.

 In person

 16 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Arne Defauw, Frank Vernailen, Julien Mortier



Basics statistics theory

This course introduces the core principles of statistics for the analysis of life sciences data. It is highly recommended for participants planning to take the follow-up course “Basic statistics in R”, especially those without prior statistical knowledge.

Unlike tool-specific trainings that focus on implementation, this course explains the underlying concepts: why specific tests are chosen, how to select the most appropriate visualization, and how to interpret results correctly. Through an e-learning format, you learn at your own pace and explore essential topics, including how to describe and visualize data, select the right statistical tests, apply best practices for reporting, and improve the power of your analyses with practical tips and real-life examples.

Learning outcomes

- > Explain fundamental statistical concepts for life sciences data analysis.
- > Select the appropriate statistical test for different types of data.
- > Choose effective visualizations for presenting data.
- > Interpret and critically evaluate the results of basic statistical analyses.

Approach

Self-paced e-learning course combining theoretical explanations and quizzes.

This course is part of multiple learning paths.

 E-learning

 4 hours

 PhD student, Postdoc, Group leader, Technical support

 Janick Mathys

Linear mixed models in R

Linear mixed models have become essential tools in life sciences research because they account for dependencies and complex structures in experimental data. Despite their importance, they are often misunderstood and misused.

Building on the foundation of linear models, this advanced course introduces linear mixed models and demonstrates their practical application in R through real-world examples. You can submit your own dataset to be used in the practical sessions, provided the data can be shared, includes a clear description of the goal and setup, and is properly formatted.

Learning outcomes

- > Explain the capabilities and limitations of classical linear models for dependent observations.
- > Describe common sources of dependency in life sciences experiments.
- > Apply linear mixed models in R using packages such as nlme and lme4.
- > Interpret and report the results of mixed models both statistically and practically.
- > Leverage model structure to account for dependencies in experimental design.

Approach

The course combines lectures with hands-on exercises in R, using real-life examples to reinforce key concepts and practical skills.

This course is part of the learning path [Statistics](#).

// The trainer was highly knowledgeable and inspiring, and always willing to explain questions in detail. It was also great that the PowerPoint slides and exercises were available and remained accessible after the course.

— Attendee of 'Linear mixed models in R' —

 In person

 16 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Joris De Wolf

Smart experimental design

Designing experiments well is the key to obtaining reliable and impactful research results. Poorly planned experiments can waste time and resources and lead to misleading conclusions. In this training, you will discover the essential principles behind experimental design and understand why clear, structured planning makes experiments more efficient.

You will put these concepts into practice by working on realistic biotechnology research scenarios and using tools in R to design or optimize experiments. Dedicated time will be provided for discussing your own experimental design challenges.

Learning outcomes

- › Understand the core principles of experimental design and why they influence research validity and efficiency.
- › Define clear research questions and identify key factors, sources of variability, and strategies to manage them.
- › Apply essential design concepts such as randomization, blocking, replication, and power to real-world scenarios.
- › Compare and implement different experimental design strategies, including regression methods, factorial and fractional designs, using R tools.
- › Evaluate and improve experimental plans through power studies and collaborative case-based exercises.

Approach

The training blends core principles with hands-on exercises in R, complemented by group discussions and case-based applications to real-world biotech research.

This course is part of the learning path [Statistics](#).

 In person

 24 hours

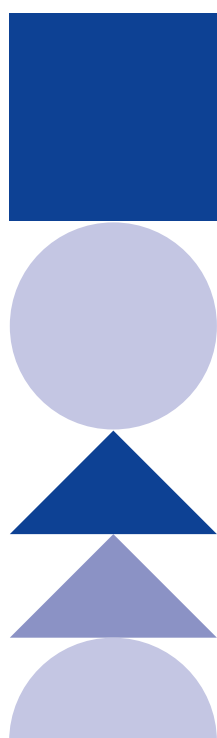
 VIB only

 PhD student, Postdoc, Group leader, Technical support

 Joris De Wolf

 It was such an interesting training given by just the right person who kept everyone excited. A training given at a really nice place and with really delicious food.

— Attendee of 'Smart experimental design' —



Structural biology

Exploring Protein Biophysics with B2BTools and Scop3P

Protein function depends on dynamics—not just static structures. While AlphaFold2 revolutionized structural biology by predicting near-complete protein structures, its models provide only a single snapshot. This course introduces tools that go further by exploring sequence-based biophysical properties such as disorder, dynamics, and folding propensity. You will learn how to use B2BTools to predict these features and Scop3P to assess the structural and functional impact of phosphorylation sites.

By combining structural predictions with dynamic insights, you will gain a deeper understanding of protein flexibility and function. Both tools are developed and maintained by the ELIXIR Belgium node, making them freely accessible for academic users.

Learning outcomes

- > Calculate and analyse protein biophysical profiles for sequence-based data.
- > Perform exploratory structural analysis combining the AlphaFold predictions with biophysical profiles generated by the B2BTools.
- > Compare the impact on protein dynamics by introducing mutations with B2BTools.
- > Correlate biophysical properties to post-translational modifications (PTMs).

Approach

This course includes practical, hands-on exercises. You need to bring your own laptop and have an active Google account, as all analyses will be performed on the Google Colab platform using Jupyter Notebooks.

This course is part of the learning path [Structural biology](#).

 in person

 8 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Adrián Díaz, Pathmanaban Ramasamy

Exploring protein structures: From analysis to prediction

Understanding protein structure is key to unlocking biological function and interactions. This two-day course introduces the fundamental principles of protein structure analysis and prediction for researchers who are new to the field. You will learn how to explore, compare, and visualize protein structures and gain insights into modern prediction methods. The training also covers approaches for designing protein variants and studying protein–protein interactions, combining theory with extensive hands-on practice.

Learning outcomes

- Visualize protein structures and compare homologous proteins using ChimeraX to interpret structural similarities and differences.
- Search for structurally similar proteins using FoldSeek.
- Design new stable proteins with web-based tools like PROSS or ProtFire.
- Set up and execute in silico site-directed mutagenesis experiments on the VSC HPC using tools like MutateX.
- Predict 3D protein structures using AlphaFold2 on the VSC HPC and analyze the quality of the resulting models.
- Apply AlphaPulldown to conduct protein-protein interaction screens.
- Formulate a research question involving structural prediction and select appropriate tools (e.g., AlphaFold3, Boltz-1, Chai-1) to address it.

Approach

On the first day, we combine short theoretical sessions with extensive hands-on exercises. On the second day, participants will apply these protein prediction tools to their research questions, with guided support.

This course is part of the learning path **Structural biology**.

 In person

 16 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Alexander Botzki, Kenneth Verstraete, Jasper Zuallaert

Scientific visualization and communication with PyMOL3

Three-dimensional molecular structures provide critical insight into the function and mechanisms of biological macromolecules. With structural data now widely available, the ability to analyze and clearly communicate these insights is essential. This hands-on course introduces PyMOL3, a leading visualization tool in structural biology. You will learn to load and navigate structures, inspect protein features, apply visualization techniques, and perform basic analyses. A strong focus is on creating clear figures and animations for publications and presentations, helping you illustrate structural features, molecular interactions, and conformational changes effectively.

Learning outcomes

- Navigate the PyMOL interface and organize molecular structures
- Apply different molecular representations, coloring schemes, and display settings.
- Identify and examine structural elements such as domains, ligands, and interactions.
- Perform basic structural analyses, including measurements of distances, angles, and contacts between atoms and residues.
- Create clear and informative molecular figures suitable for scholarly communication.
- Create animations and movies to illustrate molecular structures, conformational changes, and interactions.

Approach

The course combines interactive lectures with hands-on exercises using PyMOL. You will also explore AI-assisted tools to generate commands and Python scripts for advanced visualization and analysis tasks.

This course is part of the learning path **Structural biology**.

 in person

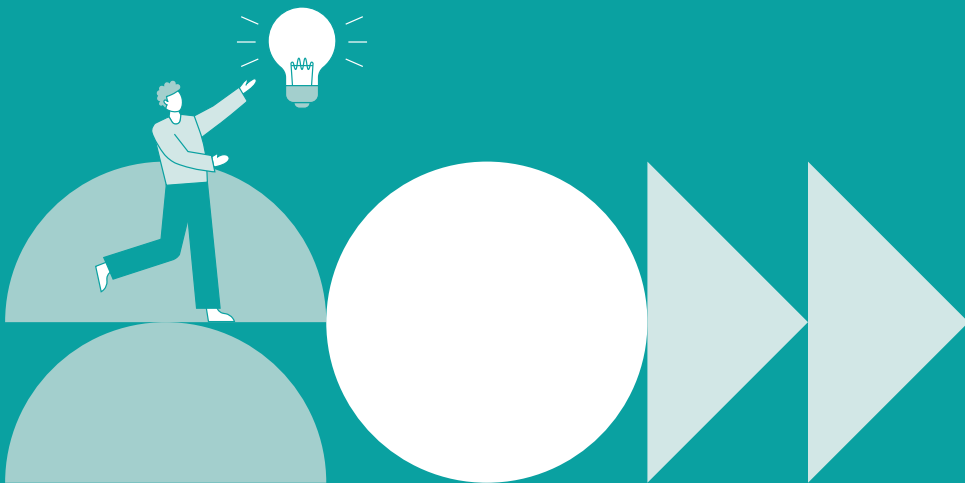
 8 hours

 PhD student, Postdoc, Group leader, Technical support, Industry professional

 Alex Koccev



Personal development





Learning path PhD student

PhD stage 1

Conference essentials: poster, pitching and networking

Technology transfer essentials in research

Grant writing essentials in life science

Managing your PhD

PhD stage 2

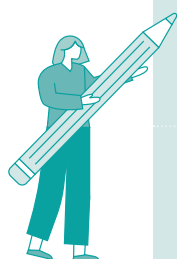
Career guidance for PhD Students and postdocs

Public speaking and storytelling

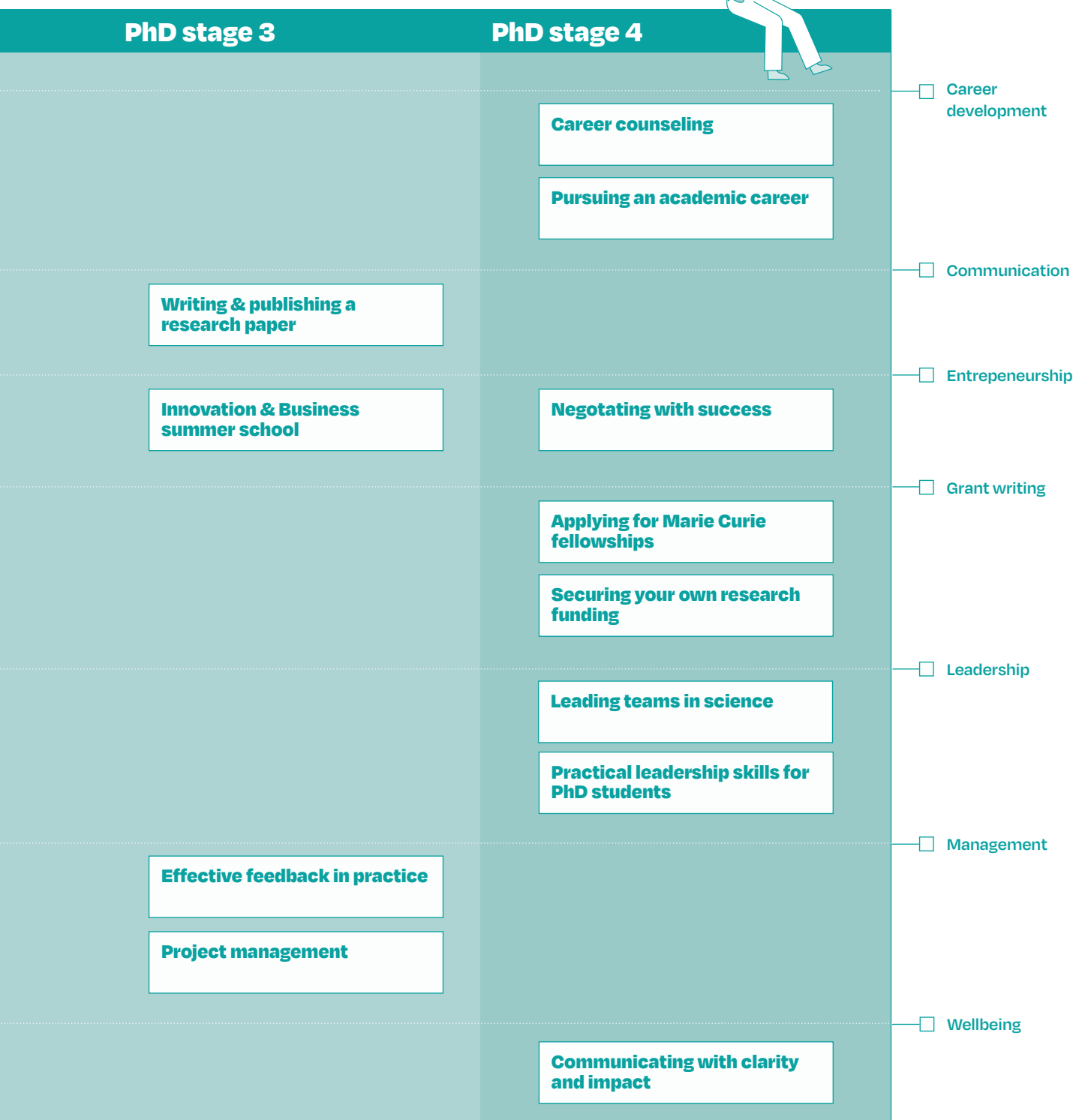
Rethinking time management

Strategic stakeholder engagement

Assertive communication



The Personal development learning paths show a recommended sequence of training courses over time. These are suggestions rather than an exhaustive list of our portfolio; they serve as a roadmap to help you plan your growth based on your starting level and academic goals. Click on a course for more information.



Learning path

Postdoc

Assertive communication

**Career guidance for PhD
Students and postdocs**

**Writing & publishing a
research paper**

**Public speaking and
storytelling**

**Conference essentials: poster,
pitching and networking**

**Technology transfer
essentials in research**

Project management

**Strategic stakeholder
engagement**

Assertive communication

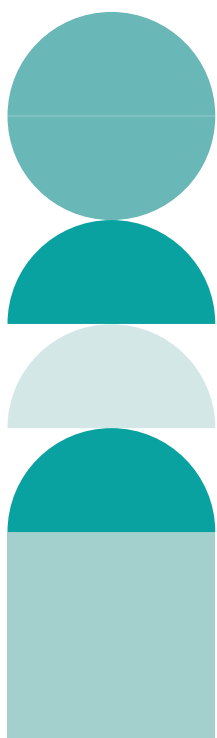
**Communicating with clarity
and impact**



The Personal development learning paths show a recommended sequence of training courses over time. These are suggestions rather than an exhaustive list of our portfolio; they serve as a roadmap to help you plan your growth based on your starting level and academic goals. Click on a course for more information.



Career development



Career counseling

Career counseling offers personalized guidance to help employees navigate key career decisions and challenges. During a 90-minute confidential session, VIB employees can receive focused support on urgent career questions; such as preparing a job application, practicing for an interview, exploring new opportunities, improving motivation, addressing work-life balance or stress, or preparing for a performance review. These sessions provide a safe space to reflect, gain clarity, and confidently plan your next steps.

Learning outcomes

After this session, you will be able to:

- > Prepare effectively for job applications and interviews.
- > Explore career options and identify immediate opportunities or next steps.
- > Address work-life balance and stress management strategies.
- > Approach performance reviews and important conversations with confidence.

Approach

- > Format: 90-minute individual session.
- > Topics can include:
 - > Application and CV preparation.
 - > Interview practice.
 - > Career opportunity discussions.
 - > Motivation and confidence building.
 - > Stress and work-life balance strategies.
- > Performance review preparation.
- > Delivery: Online (Teams/Zoom) or in person.

 Online or in person

 1.5 hours

 VIB only

 All VIB staff

 Lucia Smit

Career guidance for PhDs and postdocs

Exploring career options beyond academia can feel overwhelming. After years of identifying with a specific research topic, many PhDs and postdocs reach a turning point: how can their scientific expertise translate into broader competencies, networks, and technical skills relevant to other sectors?

This training provides guidance to map those transferable skills, understand diverse professional environments, and align future career moves with personal drivers and values. It helps participants navigate career transitions with clarity and confidence, whether they continue in academic research or explore opportunities in other sectors.

Learning outcomes

After this training, you will:

- > Identify career opportunities in and beyond academia that align with your values and motivations.
- > Recognize and articulate transferable skills and personal strengths.
- > Translate your research experience into a professional profile suited for multiple sectors.
- > Analyze the job market to understand sectors, roles, and organizations.
- > Communicate your goals and competencies effectively in applications and interviews.
- > Define a clear action plan based on your aspirations and career drivers.

Approach

This program combines group sessions for peer learning with individual coaching tailored to your needs.

After an interview intake, you choose the modules that fit your goals, creating a personalized career path.

Capacity is limited (12 for individual coaching, 15 for group sessions) and selection is based on motivation, availability, and career planning urgency.

 In person

 9 hours

 VIB only

 PhD student, Postdoc

 Lucia Smit

Pursuing an academic career

Planning to build an academic career can feel overwhelming: funding pressures, mobility requirements, and unspoken expectations all play a role. This workshop offers practical advice and honest insights into what it takes to succeed as a professor in the life sciences.

You'll learn what selection committees look for, explore strategies to strengthen your academic profile, and gain clarity on whether this path aligns with your goals.

Learning outcomes

After this training, you will:

- > Understand the key factors that influence academic career progression and selection committee decisions.
- > Identify strategies to secure funding and build a strong scientific track record.
- > Learn how to enhance publication quality and visibility in competitive journals.
- > Evaluate the role of international mobility and how to plan it strategically.
- > Reflect on work-life balance challenges and how to manage them effectively in academia.

Approach

This online workshop combines expert advice with real-world perspectives:

- > Interactive session with Prof. Sven Hendrix, addressing key steps for building an academic career.
- > Panel discussion with young professors sharing honest insights and practical advice from their own journeys.

Participants will have ample time for Q&A and discussion throughout.

 Online

 7 hours

 VIB only

 PhD student, Postdoc

 Sven Hendrix



communication

Conference essentials: Poster, pitching, and networking

Clear communication is essential to make your research stand out. A well-designed poster, a strong pitch and confident networking can help you engage both scientific and non-specialist audiences at conferences and other events.

This practical workshop teaches you how to design visually appealing posters, deliver impactful pitches, and actively use both as tools to start meaningful conversations.

Learning outcomes

After this training, you will be able to:

- > Design a clear, impactful research poster using best practices.
- > Craft and deliver a concise, audience-focused pitch.
- > Approach and engage others confidently in networking settings.

Approach

This one-day workshop is highly interactive, combining brief theory sessions with hands-on practice. You will:

- > Learn design principles and apply them by creating your own research poster.
- > Prepare and deliver a short pitch, followed by constructive feedback from peers and the trainer.
- > Practice initiating, navigating, and closing conversations during simulated networking exercises.

Participants are encouraged to bring a draft or existing poster and their laptop for practical exercises.

 In person

 8 hours

 VIB only

 PhD student, Postdoc, Staff Scientist

 Matheus Lourenço

Public speaking and storytelling

Great science deserves great storytelling. Communicating research effectively is not just about data; it's about creating a narrative that informs, inspires, and sticks.

In this hands-on training, you'll learn how to craft compelling storylines, strategically adapt content for different audiences, and present with confidence. We'll cover strategies for structuring your message, using visuals that enhance your narrative, and applying public speaking techniques to engage and persuade. Whether you're preparing for a conference talk, a group meeting, or an industry pitch, this course will help you transform complex ideas into memorable stories.

Learning outcomes

After this training, you will:

- > Identify your core message and structure it into a clear, compelling storyline.
- > Use visuals that support and strengthen your narrative.
- > Adapt presentations to different audiences for maximum impact.
- > Apply effective public speaking techniques—voice, body language, and pacing—to boost confidence.
- > Deliver your talk with clarity through practice, feedback, and self-assessment.

Approach

This is a hands-on workshop combining short theory bursts with active practice. You will:

- > Learn storytelling principles and audience-focused communication strategies.
- > Create slides that enhance your message.

The focus is on learning by doing, so expect to actively present and refine your talk throughout the session.

 In person

 10 hours

 VIB only

 All VIB staff

 Matheus Lourenço



Writing and publishing a research paper

Publishing in peer-reviewed journals is essential for advancing a scientific career, yet writing a strong paper can be challenging. This course provides tools, structures, and support to help you write and publish effectively.

Through expert guidance and peer collaboration, you will learn how to plan, draft, and refine a scientific manuscript, select the right journal, and respond constructively to reviewers. You will also explore how to use AI tools responsibly in scientific writing.

Learning outcomes

After this training, you will:

- > Plan and structure a scientific manuscript using the IMRaD format.
- > Write clear, concise sections, including a compelling abstract.
- > Choose an appropriate journal and understand submission requirements.
- > Respond effectively to reviewer feedback and handle revisions professionally.
- > Apply strategies to maximize the visibility and impact of your work.
- > Use AI writing tools responsibly in scientific publishing.

Approach

This online program combines live, interactive sessions with self-paced materials:

- > 5 live sessions (1.5 hours each) for group exercises, Q&A, and peer discussion.
- > Pre-recorded videos and handouts available on the learning platform for flexible study.
- > Opportunities to draft and refine your own abstract with expert and peer feedback.

This course is part of the learning path
Basic research essentials.

 Online

 20 hours

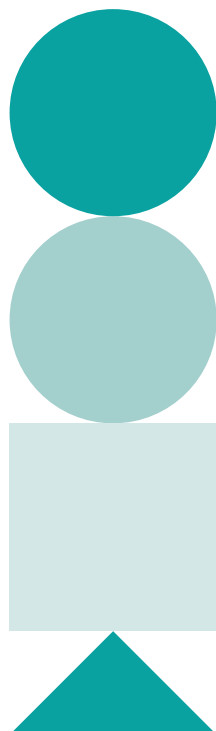
 VIB only

 PhD student, Postdoc

 Stefania Vaga

 I had an amazing experience at the VIB Innovation & Business Summer School. The sessions on intellectual property, business development, and new ventures highlighted the wide range of career paths for PhD holders, and the international mix of participants made for a great networking experience.

— Matyas Jelinek, attendee of 'Innovation & Business summer school' —



Entrepreneurship

Innovation & Business summer school

 Summer school

How do scientific discoveries become real-world medicines, products, and agricultural innovations? VIB's Innovation & Business Summer School answers this question through intensive training on technology transfer and entrepreneurship in life sciences.

Guided by VIB's Innovation & Business team and industry experts, you'll learn how inventions are protected, how academia-industry partnerships work, and what it takes to launch a biotech spin-off.

Learning outcomes

After this summer school, you will:

- > Understand how to protect inventions through patents and IP strategies.
- > Get familiar with contracts often encountered in biotech, such as CDAs and MTAs.
- > Explore how to build collaborations and negotiate with industry partners.
- > Learn what it takes to create a biotech spin-off company.
- > Recognize how to turn research into societal and economic value.

Approach

This multi-day interactive summer school combines expert sessions with real-life exercises to give participants a complete view of innovation and commercialization in the life sciences:

- > Introduction to IP basics and technology transfer principles with hands-on activities as e.g. practical patent search, drafting and reviewing (collaboration) agreements and negotiation role-play.
- > Entrepreneurship focus with a step-by-step guide to creating a biotech start-up and live pitch session with a guest venture capitalist.
- > Insights from VIB's Innovation & Business experts' team, biotech entrepreneurs, and investors.

 In person

 40 hours

 PhD student, Postdoc, Group leader, Industry professional

 VIB innovation & business experts and external speakers

Negotiating with success

Negotiation is a core skill for researchers, whether you're aligning project timelines, sharing resources, deciding on authorship, or defining team roles. Done well, it builds trust and long-term collaboration; done poorly, it creates conflict and missed opportunities.

This workshop equips you with the mindset and practical tools to negotiate effectively and with integrity. You will learn to prepare strategically, manage difficult interactions, and move from positional bargaining to constructive, interest-based agreements.

Learning outcomes

After this workshop, you will:

- > Recognize your negotiation style and adapt it to different situations.
- > Prepare effective negotiation strategies by setting objectives and prioritizing interests.
- > Communicate with confidence using questioning techniques and non-verbal cues.
- > Navigate key stages of negotiation and manage challenging dynamics.
- > Create sustainable, win-win agreements that strengthen professional relationships.

Approach

This online workshop is delivered across three interactive sessions to allow time for practice and reflection. You will:

- > Participate in real-world simulations, role-plays, and group exercises to apply negotiation principles.
- > Explore your personal negotiation style and learn strategies to improve collaboration.
- > Work on practical cases relevant to research environments (e.g., authorship, teamwork, resource sharing).

Each session builds on the previous one, ensuring participants develop confidence and actionable skills for future negotiations.

 Online

 24 hours

 VIB only

 All VIB staff

 Melissa Davies

 Very engaged teacher with a lot of experience in many different fields, resulting in interesting real-life examples. Takes time to explain or comment on questions, without endlessly expanding on off-topic issues. I hope to be able to follow other courses from her.

— Attendee of 'Negotiating with success' —

Technology transfer essentials in research

Ever wonder how your research can make an impact beyond the lab? This e-learning offers a clear introduction to technology transfer and the valorization process. Learn how scientific results evolve into patents, licenses, collaborations, or even spin-off companies.

Led by VIB's Innovation & Business team, with 25+ years of expertise in IP management, business development, and venture creation, you'll learn the essentials of translating research into economic and societal value.

Learning outcomes

After this training, you will be able to:

- > Understand the basics of technology transfer and valorization.
- > Recognize potential inventions and commercially relevant results in your projects.
- > Identify pathways for collaboration and innovation at VIB.

Approach

Engaging presentations, in e-learning format, with practical insights and examples to show the different avenues of bringing a fundamental research result to an economically valuable asset.

 E-learning

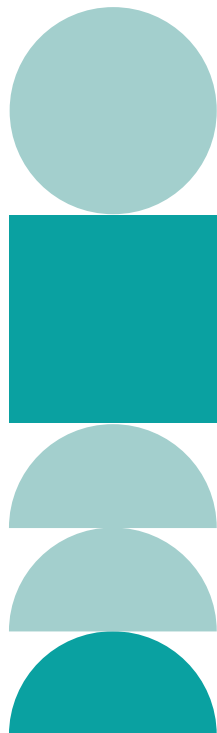
 2,5 hours

 VIB only

 All VIB staff

 Griet Den Herder, Frederik Van Leemputte,
Tim Van Acker





Grant writing

Applying for ERC funding

ERC Starting and Consolidator Grants are among the most prestigious opportunities for researchers establishing independence. But success requires more than outstanding science; it demands strategic planning, clarity, and a compelling narrative.

This interactive course helps senior postdocs and junior group leaders prepare competitive ERC proposals. Using real examples and reviewer insights, you will learn how to define a bold research vision and structure it into a persuasive application. Whether applying soon or later, you will build the mindset and skills to pursue ERC funding effectively.

Learning outcomes

After this course, you will:

- > Frame a compelling research question and translate it into a groundbreaking proposal.
- > Write a clear, persuasive abstract that stands out to reviewers.
- > Build a well-structured research plan, including risk assessment and mitigation strategies.
- > Understand ERC evaluation criteria and the expectations for an excellent PI.

Approach

This one-day course blends expert input with practical exercises to help you turn your research vision into a competitive ERC application:

Learn through real ERC examples, reviewer insights, and interactive exercises focused on proposal writing. Strong peer interaction is encouraged to share perspectives and strengthen ideas. Participants will also connect with the VIB Grants team for ongoing support.

 In person

 8 hours

 VIB only

 Postdoc, Staff scientist, Group leader

 Lieve Ongena, Elien Vandermarliere

Applying for Marie Curie fellowships

Securing a Marie Skłodowska-Curie Postdoctoral Fellowship is a major career step, but with low success rates, submitting a competitive proposal requires more than an excellent idea.

This hands-on course guides participants through the MSCA application process, focusing on how to craft a strong abstract, build a compelling research plan, and understand reviewer expectations. Through real-life examples and practical exercises, you'll learn what makes applications stand out and leave with tools to shape and refine your own proposal.

Learning outcomes

After this course, you will:

- > Write a clear, compelling abstract that grabs reviewers' attention.
- > Develop a well-structured, convincing research plan aligned with MSCA criteria.
- > Apply best practices to highlight your experience and strengths in your CV.
- > Analyze real MSCA applications from a reviewer's perspective to understand what works.
- > Revise your abstract and CV based on expert and peer feedback.

Approach

This one-day interactive training combines theory with hands-on practice:

- > **Morning:** Core principles of competitive grant writing, focusing on how to structure abstracts and proposals.
- > **Afternoon:** Detailed walkthrough of the MSCA application template using real examples and reviewer feedback.

Participants will complete practical exercises, including a "reviewer mindset" activity. The session also connects you to VIB's Grants Office for continued guidance after the course.

 In person

 8 hours

 VIB only

 PhD student, Postdoc, Staff Scientist, Group leader, Administrative support

 Lieve Ongena, Elien Vandermarliere

 I'm happy I took the course, as it will help me prepare a better grant application. The course was on point, and the instructors were nice, patient, and provided detailed feedback during the exercises.

— Attendee of **'Applying for Marie Curie fellowships'** —

Grant writing essentials in life sciences

Starting to write a grant can feel overwhelming, and procrastination often gets in the way. This course provides practical “handles” and basic principles to guide you through developing a solid grant application.

Packed with essential tips, real examples, and advice from experienced VIB researchers, the course helps you build confidence in crafting competitive proposals.

Learning outcomes

After this course, you will be able to:

- > Identify the core components of a strong grant application.
- > Apply practical writing principles and structuring techniques.
- > Avoid common mistakes and enhance clarity and impact.

Approach

This basic course combines short, easy-to-digest content with practical exercises. The course has a broad scope and references the FWO PhD fellowship template but is applicable to multiple funding schemes.

This course is part of the learning path
Basic research essentials.

 E-learning

 3 hours

 VIB only

 PhD students

 Elien Vandermarliere, Lieve Ongena,
Katie Van Geyte, Karin Voordeckers

Securing your own research funding

Securing your own research funding is a key step in your scientific career. But with low success rates, it can feel very challenging. A strong proposal takes more than excellent science: it needs a clear structure, a compelling story, and smart strategic positioning. Whether you plan to apply soon or in a few years, this course will help you to build the right mindset to pursue funding opportunities now and in the future.

This workshop gives you practical tools to turn your research idea into a persuasive life sciences grant application. You'll learn how to structure and write your application, address reviewers' expectations, and integrate key elements such as risk, ethics and impact. We'll also explore how AI can support your writing without compromising quality and impact.

Learning outcomes

After this course, you will:

- > Present your research idea in a clear, impactful proposal.
- > Structure your application in line with reviewer priorities.
- > Address essential aspects such as risk, ethics, diversity.
- > Match your proposal with the right funding opportunities.
- > Use best practices and selected AI tools to strengthen your application.

Approach

This interactive, half-day workshop focuses on hands-on practice. Through real examples, exercises and discussions, as well as with smart use of AI, you will be able to refine your proposal, sharpen your message, and anticipate reviewers' comments.

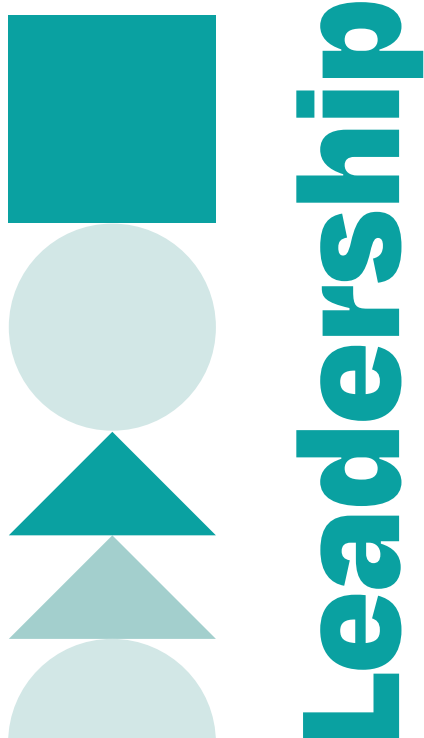
 In person

 4 hours

 VIB only

 PhD student, Postdoc

 Lieve Ongena, Elien Vandermarliere



Leading teams in science

Leading a research team brings both opportunities and challenges. It requires balancing scientific expertise with the ability to inspire others, adapt your leadership style, and build trust in diverse situations. This program supports emerging and experienced leaders in developing essential leadership skills.

Learning outcomes

After this training, you will:

- > Understand the difference between leadership, management, and coaching, and when to use each.
- > Identify your leadership style through self-assessment and peer feedback.
- > Apply different leadership styles effectively in context-specific situations.
- > Motivate and engage team members using clear goals and feedback.
- > Build trust and collaboration through active listening and coaching conversations.
- > Tackle real leadership challenges with confidence and create an action plan for growth.

Approach

This program combines intensive workshops, peer learning, and ongoing reflection to ensure real impact:

- > Before the training: Complete a leadership self-assessment, gather 360° feedback, and define your learning objectives.
- > During the training: Three days of training on leadership principles, spread out over multiple weeks, to enable putting theory into practice. There will be reflection sessions during the training and exchange sessions between the training days. Learn through group exercises, self-reflection, and peer coaching.
- > After the training: Apply tools in your work, join peer discussions, and access online resources for continued support.

 In person

 30 hours

 VIB only

 All VIB staff

 Robin Lefebvre

Practical leadership skills for PhD students

Leadership for PhD students is less about managing large teams and more about everyday situations: guiding a thesis student, collaborating on projects, or influencing peers. These moments matter, and the skills you develop now will shape your future career.

This hands-on workshop introduces practical leadership tools tailored for early-career researchers. You'll learn the difference between leading, managing, and coaching, explore your own style, and practice techniques for setting goals, giving feedback, and motivating others. Whether supervising for the first time or preparing for the next step, you'll leave with strategies you can apply immediately in your research environment.

Learning outcomes

After this workshop, you will:

- > Understand what leadership means in a PhD context and when to lead, manage, or coach.
- > Recognize your leadership style and reflect on how it affects collaborations.
- > Practice setting clear expectations and goals for students or partners in small projects.
- > Give and receive feedback constructively to foster positive working relationships.
- > Apply core leadership techniques in practical PhD scenarios through interactive exercises.

Approach

This is an interactive, practice-based workshop designed for early-career researchers. Using role-plays, real-life case discussions, and guided reflection, you will translate leadership concepts into practical skills you can apply right away in your PhD environment. The focus is on learning by doing, with tools and feedback to help you grow as a confident, effective collaborator and guide.

 In person

 8 hours

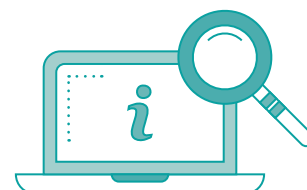
 VIB only

 PhD student

 Robin Lefebvre

 The balance between interactive discussions, theory, breaks, etc. was perfect and also the trainer was a really inspiring person. I feel really motivated to improve my leadership skills with the tips and tricks I learned during this course and will definitely use them for my future career.

— Attendee of 'Practical leadership skills for PhD students' —



For the latest course schedules and logistical details, simply scan the QR code or [click this link](#).

Management

Developing self-leadership

Professional growth begins with knowing your strengths and using them effectively in your role. This training helps support staff reconnect with their personal talents, values, and communication skills to create impact, both within their teams and in interactions with team leaders.

Through reflection and practical tools, you'll learn how to build confidence, set boundaries, and adapt your communication style for different situations.

Learning outcomes

After this training, you will:

- > Recognize your key strengths and apply them effectively in your role.
- > Communicate with clarity, confidence, and adaptability in diverse situations.
- > Use active listening to address workplace challenges constructively.
- > Set and maintain healthy professional boundaries.

Approach

This half-day workshop combines:

- > Practical exercises & role-playing based on real workplace situations.
- > Short theory inputs on self-leadership and communication skills.
- > Peer discussions & feedback to share experiences and strategies.

Participants can join an online follow-up session or request coaching within three months to address specific challenges.

 Blended

 5 hour

 VIB only

 All VIB staff

 Barbara Baert

Effective feedback in practice

Feedback is essential for collaboration and leadership, shaping both performance and motivation in research environments. Yet, many people struggle to give or receive it without discomfort.

This interactive workshop offers practical tools for delivering constructive feedback and fostering open conversations. Using evidence-based models and realistic practice, participants will learn how to structure feedback, ask for input effectively, and respond without defensiveness.

Learning outcomes

After this workshop, you will:

- > Deliver clear, specific, and constructive feedback with confidence.
- > Request and encourage feedback that leads to meaningful improvement.
- > Respond to feedback openly and without defensiveness.

Approach

This on-site, interactive workshop emphasizes hands-on practice:

- > Short theory input introducing a structured feedback model and practical techniques.
- > Live role-play exercises with a professional actor to simulate real scenarios.
- > Immediate, personalized feedback on participant interventions.
- > Individual reflection on feedback habits and strategies for applying new skills at work.

 In person

 5 hours

 VIB only

 All VIB staff

 Thomas Van Caelenberg

Fearless leadership – Developing the personal skills that shape how we lead

Leading in research is not just about expertise; it's about how we act under pressure. This program helps scientific leaders build the mindset, behaviors, and emotional agility required to lead with clarity and courage. Drawing on leading research (Brené Brown, Amy Edmondson), the program explores trust, psychological safety, values-based decision-making, feedback under pressure, and self-regulation to create high-performing, resilient teams.

Learning outcomes

After this program, you will be able to:

- > Recognize and shift from reactive, self-protective patterns to values-based leadership.
- > Apply practical tools to build trust, accountability, and psychological safety.
- > Navigate difficult conversations with clarity, empathy, and intellectual humility.
- > Strengthen your ability to stay effective and composed under pressure.
- > Translate insights into concrete actions that foster sustainable team performance.

Approach

This 6-week blended program (max. 10 participants) emphasizes experiential learning, deliberate practice, and peer support:

- > Orientation; 30min, online.
- > Foundation Day: 8hours, live.
- > Modules 1-4: 2h, online.
- > Action Lab: 2h, online.
- > Ongoing support: Weekly emails with workplace insights.

 In person

 23 hours

 VIB only

 Postdoc, Group leader, Staff scientist, Managers

 Sonja Noss



Managing your PhD

A PhD is both a scientific and personal journey. Managing it effectively is key to success. Beyond your research, you need to set clear goals, plan realistically, stay motivated, and navigate complex academic environments.

This course focuses on the three pillars of PhD success: your project, yourself, and your environment. Through practical tools and peer discussions, you will learn how to plan and prioritize, manage your time and energy, and build productive relationships with supervisors and collaborators.

Learning outcomes

After this course, you will:

- > Define the scope and goals of your PhD and create a realistic project plan with milestones.
- > Adapt plans and priorities when circumstances change, while keeping long-term objectives in view.
- > Improve time management, focus, and motivation through practical self-leadership strategies.
- > Build resilience and confidence in handling setbacks and challenges.
- > Map your academic environment and develop strategies to work effectively with supervisors and other stakeholders.

Approach

The training consists of 4 (half-day) sessions. These 4 sessions are likely spread out over multiple weeks, as the participants need to apply what they have learned during the training to their own PhD.

This course is part of the learning path

Basic research essentials.

 In person

 16 hours

 VIB only

 PhD student, Postdoc

 Jochen Roef

Navigating change with confidence

Change is a constant in research environments, whether it's shifting priorities, new systems, or evolving team structures. This workshop helps support staff build resilience, adapt effectively, and maintain balance during transitions. Through practical tools and strategies, you'll learn how to manage last-minute changes, handle resistance, and communicate confidently in challenging situations.

This training is part of a mini learning journey consisting of three trainings.

1. Developing self-leadership
2. Working smarter in teams
3. Navigating change with confidence

Learning outcomes

After this training, you will:

- > Manage unexpected changes and prioritize effectively under pressure.
- > Apply tools for time management and efficient meetings.
- > Handle resistance and challenging conversations using structured communication techniques (DESC, COSMOS).
- > Communicate clearly and involve the right stakeholders during transitions.

Approach

This half-day interactive workshop combines:

- > Scenario-based exercises to practice handling change and difficult conversations.
- > Short theory inputs on resilience, adaptability, and communication tools.
- > Peer exchange and feedback for real-life strategies and solutions.

For those who completed all modules, an online session and individual coaching are available within three months to address ongoing challenges.

 Blended

 5 hours

 VIB only

 All VIB staff

 Barbara Baert

 The training was well structured and organized. The trainer was well prepared, open to discussion and extra topics, helped individuals even outside the training scope, and created a very positive atmosphere.

— Attendee of 'Project management' —

Project management

Research projects require balancing complexity, uncertainty, and multiple stakeholders, conditions that rarely fit traditional project management approaches. This course provides a research-specific, pragmatic framework to help you plan, prioritize, and deliver results while staying flexible to scientific realities.

Learning outcomes

After this course, you will:

- > Plan and lead research projects using core project management principles tailored to scientific contexts.
- > Build realistic, adaptable timelines by combining traditional and agile techniques.
- > Engage key stakeholders effectively and manage expectations throughout the project lifecycle.
- > Run productive meetings and communicate progress to keep your project on track.
- > Monitor and adjust plans when challenges arise, while maintaining team alignment and sponsor satisfaction.

Approach

This course follows a flipped-classroom format, combining flexibility with hands-on application:

- > Pre-course (6 weeks): Weekly online content and short assignments (± 30 min/week) to introduce key concepts and reflect on your own projects.
- > Live training (2 full days): Interactive sessions focused on practical application through real case discussions. Topics include planning under uncertainty, engaging stakeholders, managing expectations, and keeping momentum.
- > Follow-up (3 months): Continued support via email tips and access to the online platform for peer exchange and trainer input.

The format connects learning directly to your research, with ongoing feedback and reflection.

This course is part of the learning path
Basic research essentials.

 Blended

 16 hours

 VIB only

 PhD student, Postdoc, Group leader, Staff scientist

 Katia Van Belle

Project management for support staff

Support staff often play a critical role in coordinating complex activities, yet managing projects without a clear framework can lead to stress and inefficiency.

This two-day, hands-on training provides the tools and structure needed to successfully lead or contribute to projects: from idea to delivery. Using real cases from your work, you'll learn how to plan effectively, manage risks, and communicate with confidence to keep projects on track.

Learning outcomes

After this training, you will:

- > Define project purpose, scope, and roles with clarity.
- > Plan effectively by setting milestones, anticipating risks, and balancing time, scope, and resources.
- > Execute projects successfully through clear communication, progress monitoring, and stakeholder engagement.
- > Close projects effectively and embed results for lasting impact.

Approach

This two-day interactive training combines practical tools with hands-on learning:

- > Format:
 - > Short theory sessions on project management essentials.
 - > Individual and group exercises with feedback.
 - > A serious game to apply key principles.
- > Real-world application: Participants work with their own projects to immediately put concepts into practice.
- > Included resources: Project Management Guide, access to the Inspiration App, and one year of Propellor's 55-Minute workshops.

 In person

 16 hours

 VIB only

 All VIB staff

 Katia Van Belle

Recruitment in practice - Smart strategies to attract and select talent

Making the right hiring decisions is essential for building high-performing teams. This interactive workshop equips hiring managers with practical tools to attract top talent, structure their selection process, and make objective, bias-aware decisions. Through real examples and hands-on practice, you'll learn how to design an inclusive recruitment approach that balances technical skills, potential, and team fit.

Learning outcomes

After this training, you will:

- > Understand each step of the recruitment process—from defining the role to making the final decision.
- > Apply structured, objective screening techniques to evaluate candidates fairly and make use of Joboid for support.
- > Conduct competency-based interviews using methods like STAR to reduce bias.
- > Make well-founded hiring decisions that balance technical skills, potential, and team fit.

Approach

This interactive workshop combines:

- > Short theory inputs on recruitment best practices, bias awareness, and structured processes.
- > Practical exercises such as role-playing structured interviews using the STAR technique.
- > Peer learning & reflection through group discussions on common hiring challenges and strategies for improvement.

 In person

 5 hours

 VIB only

 PhD student, Postdoc, Group leader, Administrative support, Technical support

 Liesbeth De Vreese

Self-leadership

Self-leadership means taking ownership of your choices, recognizing your strengths, and aligning actions with your values. For scientists balancing high expectations and complex roles, effective communication, resilience, and career satisfaction are key.

This workshop helps you build self-awareness, confidence, and clarity in decision-making. Through reflection, peer exchange, and practical tools, you'll gain strategies to handle professional challenges, define your personal vision, and strengthen your impact as a leader.

Learning outcomes

After this workshop, you will:

- > Understand self-leadership and its role in effective decision-making and career growth.
- > Increase self-awareness by identifying your values, strengths, and potential blind spots.
- > Recognize how biases and external expectations influence your leadership style.
- > Develop personal strategies to build resilience and handle professional challenges.
- > Apply practical tools to enhance confidence, clarity, and communication in daily interactions.

Approach

This three-session online workshop blends guided self-reflection with practical tools and peer learning. Expect:

- > Interactive activities such as small-group discussions, role-plays, and real-life case analysis.
- > Personal exploration focused on values, strengths, and leadership style.
- > A safe, small-group setting (max. 14) to encourage open dialogue and meaningful exchange.

You will leave with concrete strategies and tools to continue developing self-leadership in your professional and personal contexts.

 Online

 24 hours

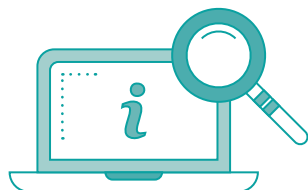
 VIB only

 All VIB staff

 Stéphanie Ruder Schoof, Melissa Davies

// This is the best training I have ever followed. It was not just theory. In these three days, I learned to talk to myself and to look at others in a different light. It also provided valuable tools that can be applied to everyday life.

— Attendee of 'Self-leadership' —



For the latest course schedules and logistical details, simply scan the QR code or [click this link](#).

Strategic stakeholder engagement

Scientific research creates real impact only when it connects with society. Engaging stakeholders such as patients, clinicians, farmers, or policymakers is key to ensuring relevant outcomes and meaningful societal value. This course introduces practical frameworks for stakeholder analysis and unmet needs mapping, helping you identify who matters to your project, what they need, and how to build effective collaborations.

Learning outcomes

After this training, you will:

- > Identify and map key societal stakeholders relevant to your research.
- > Prioritize stakeholders based on their influence, interests, and potential impact on your project.
- > Analyze unmet societal needs and link them to your project objectives.
- > Design targeted engagement activities to inform, involve, and collaborate effectively with your key stakeholders.

Approach

This 5-hour in-person workshop combines:

- > Concise theory inputs introducing stakeholder mapping and unmet needs frameworks.
- > Practical exercises to apply these tools directly to real research scenarios.
- > Small-group work to design engagement strategies for your own project.
- > Discussion and exchange to learn from peers' challenges and approaches.

The session is highly interactive and practice-oriented, ensuring immediate applicability to your own research context.

 In person

 5 hours

 VIB only

 PhD Student, Postdoc, Staff scientist

 Laurien Van Dyck, Valeria Imperato

Sustainable lab practices – From behavior to certification

Sustainable lab practices are essential for reducing environmental impact without compromising research quality. This two-module program combines practical strategies for saving energy and consumables with behavior-change techniques and role-based responsibility. The program is linked to ongoing VIB pilot projects and will evolve into an evidence-based framework for long-term, measurable impact.

Learning outcomes

After this training, you will:

- > Understand key strategies to reduce energy and consumable usage in research labs.
- > Apply behavior-driven methods and role-based responsibilities to create sustainable practices.
- > Prepare your lab for sustainability certifications such as LEAF or SPARKHub.
- > Translate evidence from VIB pilot projects into practical measures that meet compliance and reproducibility standards.

Approach

- > Module 1 (60min): Introduces practical measures for reducing energy and consumables, along with behavior-change strategies and role-based responsibilities.
- > Module 2 (60min follow-up session): Translates outcomes from VIB pilot projects into updated lab guidance, SOP recommendations, and certification-ready evidence.

The training uses real examples and KPIs to ensure measurable impact and long-term adoption of sustainable lab practices. Participants leave with actionable steps for immediate implementation and a clear pathway to certification.

 In person

 2 hours

 VIB only

 PhD Student, Postdoc, Technical support

 Wouter De Broeck

Working smarter in teams

Successful teamwork relies on trust, clear communication, and aligned expectations. This workshop gives support staff practical tools to collaborate effectively, prevent misunderstandings, and manage interpersonal dynamics in both lab and office settings. You'll learn how to set clear goals, provide and receive constructive feedback, and communicate with confidence to strengthen team alignment.

Learning outcomes

After this training, you will:

- > Align team expectations and responsibilities for smoother collaboration.
- > Set realistic goals using SMART and OUTCOME techniques.
- > Communicate effectively by balancing facts and emotions, reducing tension in challenging situations.
- > Give and receive constructive feedback with confidence.
- > Present your work clearly during team or lab meetings.

Approach

This half-day interactive workshop includes:

- > Short theory inputs on effective communication and teamwork principles.
- > Practical exercises & role-plays based on real-life team scenarios.
- > Peer exchange & reflection to share strategies and strengthen self-awareness.

Follow-up support:

An online session offers an opportunity to discuss progress and challenges, with optional one-on-one coaching available within three months.

 Blended

 5 hours

 VIB only

 All VIB staff

 Barbara Baert



Teaching & Instruction

Train the trainer

Effective teaching goes beyond subject expertise. It requires structure, engagement, and clear objectives. This course equips researchers and professionals with practical skills for designing and delivering impactful training sessions.

Based on the ELIXIR-GOBLET Train-the-Trainer framework, it blends learning science with real-world strategies. You'll learn to plan courses, foster interaction, and evaluate learning, leaving you ready to teach with confidence.

Learning outcomes

After this course, you will:

- > Apply core learning principles to design effective training sessions.
- > Define learning outcomes and structure a clear lesson plan.
- > Select appropriate teaching techniques to increase engagement.
- > Prepare supporting materials aligned with your syllabus.
- > Design simple assessment tools to evaluate learner progress.

Approach

The course is structured as a two-day, face-to-face workshop with a strong emphasis on active learning. You will:

- > Participate in small-group exercises to design training components and practice delivery.
- > Apply learning principles through practical activities, rather than just discussion.
- > Give and receive feedback in real time to refine your training skills.
- > Walk away with a draft training plan and actionable strategies you can immediately implement.

This course is part of the learning path Teaching & instruction.

 In person

 16 hours

 PhD student, Postdoc, Group leader, Administrative support, Technical support, Industry professional

 Bruna Piereck, Alexander Botzki

Training material made FAIR by design

In this course, you will learn from A to Z about how to design a FAIR training material. You will be challenged to work in a group to build a FAIR lesson on a topic to be presented at the end of the course. Come inspired!

It is based on the FAIR training handbook from ELIXIR and the 10 simple rules for making material FAIR for publication. All sessions are structured to complement each other, aiming to introduce participants to a theoretical & hands-on approach to designing FAIR training material. Activities are designed to enhance technical skills and critical thinking, while also developing a new training course.

Learning outcomes

- > Create a FAIR and open training material from the start.
- > Apply FAIR principles to all elements of training material.
- > Use AI tools in the content creation of FAIR training material.
- > To see the specific learning outcomes of each session, please check the course website.

Approach

The course is highly interactive, and it is essential that you actively contribute to all sessions and elements of the course. You will need to bring a laptop. After the session, you can schedule a one-on-one meeting with a trainer to support you in FAIRifying your own material.

This course is part of the learning path Teaching & instruction.

 In person

 16 hours

 PhD student, Postdoc, Group leader, Administrative support, Technical support, Industry professional

 Bruna Piereck, Alexander Botzki, Ineke Luijten, Nina Norgren

 The training had just the right amount of practical and theoretical work. The trainers ensured the participants learned the theory and used it during the exercises. This was a very effective way to keep participants engaged from start to finish.

— Maria Vivas Romero, attendee of 'Training material made FAIR by design' —



Active Bystander Approach

A safe, inclusive workplace depends on how we respond to inappropriate behavior when it happens. Research shows that active bystanders, colleagues who recognize and act on problematic conduct, help make such behavior socially unacceptable, improving both workplace culture and collaboration.

This short, interactive session introduces the 5Ds Active Bystander model and gives you practical tools to intervene constructively and confidently in difficult situations. By building these skills, you contribute to VIB's commitment to a respectful and inclusive working environment.

Learning outcomes

After this workshop, you will:

- > Recognize different forms of inappropriate behavior and their impact on workplace culture.
- > Explain and apply the five strategies of the 5Ds Active Bystander model effectively.
- > Respond confidently and constructively in challenging situations.
- > Overcome barriers to intervention and foster a culture of inclusion and shared responsibility.
- > Understand VIB's reporting mechanisms and when to use them.

Approach

The workshop is online and takes 1,5 hours. It has a very interactive and engaging format, offering plenty of opportunities to ask questions, clarify behaviors and also tackle the „grey zones“. It includes theory, practice, small-group conversations, and a quiz.

 Online

 1 hour

 VIB only

 All VIB staff

 Agnes Uhreczky



Assertive communication

Speaking up with confidence is essential for healthy collaboration but can feel challenging. Assertive communication is about more than delivering your message; it's about recognizing your own needs, respecting others, and knowing how to set clear boundaries.

This practical training helps you overcome barriers to speaking up, understand how messages are perceived, and practice techniques to express yourself effectively without damaging relationships.

Learning outcomes

After this training, you will:

- > Identify personal barriers and limiting beliefs that impact assertive communication.
- > Understand your responsibility in setting boundaries and expressing needs clearly.
- > Prepare and deliver assertive messages effectively and respectfully.
- > Apply practical techniques to stay confident and constructive in challenging conversations.

Approach

This full-day interactive workshop focuses on practice and real-life application:

- > Short theory inputs on the principles of assertiveness and respectful communication.
- > Guided exercises to analyze personal barriers and communication styles.
- > Simulation practice with a professional actor to rehearse real workplace scenarios and receive personalized feedback.

The session ensures participants leave with practical tools and confidence to speak up effectively and professionally.

 In person

 8 hours

 VIB only

 All VIB staff

 Michel De Gieter

Communicating with clarity and impact

Clear, impactful communication is essential for building visibility and trust. Especially in hierarchical, interdisciplinary, or high-stakes environments. Yet asserting yourself and navigating sensitive conversations can feel challenging.

This training helps you find your voice, stay confident, and communicate with intent. Using proven tools and practical frameworks, you will learn how to express messages clearly, manage emotional dynamics, and maintain strong connections, even in difficult conversations.

Learning outcomes

After this training, you will:

- > Communicate your messages clearly, assertively, and with confidence.
- > Use solution-focused language to handle sensitive topics constructively.
- > Navigate challenging or hierarchical conversations with emotional control and professionalism.
- > Maintain strong interpersonal connections while staying true to your values.
- > Choose deliberate, effective responses in high-stakes or emotionally charged situations.

Approach

This two-day interactive workshop focuses on practical application. You will:

- > Engage in exercises, role-plays, and feedback sessions to strengthen communication skills.
- > Experiment with real-life scenarios to build confidence for difficult conversations.
- > Apply tools from the solution-focused approach to increase clarity, assertiveness, and connection.
- > Reflection on personal style is integrated to ensure long-term impact and applicability.

 In person

 16 hours

 VIB only

 All VIB staff

 Katelijne Callebaut

 I learned a lot from the course. The trainer created a safe environment for sharing, which was a real asset, and the two days were filled with exercises and useful tips, with minimal dry theory.

— Attendee of 'Communicating with clarity and impact' —

Managing stress and burnout essentials

Stress is part of life, but when positive stress turns chronic, it can harm your health and performance. This introductory workshop explains how stress works, its impact on body and mind, and why lack of recovery is a major cause of stress-related problems. You'll learn to recognize personal stress signals early and explore practical ways to restore balance and energy day after day.

Learning outcomes

After this session, you will be able to:

- > Distinguish between acute and chronic stress.
- > Identify early warning signs using reflection tools.
- > Understand how stress impacts sleep and recovery.
- > Apply Jacobson's progressive relaxation technique.
- > Adjust habits to improve recovery and reduce tension.

Approach

A combination of theory and practical exercises, including relaxation techniques. Participants receive access to an app to continue practicing the Jacobson method after the course.

This session is an introduction to 2 follow-up sessions. Only if you participated in this introductory session, you can register for the in-depth sessions.

 In person

 4 hours

 VIB only

 All VIB staff

 Eef van Thuyne

Managing stress and burnout advanced

Ready to take stress mastery to the next level? These two advanced sessions dive deeper into techniques that restore mental balance and resilience. Participation in the introductory session is required.

Session 1: Training Your Brain for Relaxation

Discover how to reach deep relaxation (alpha/theta state) in minutes. Learn quick techniques to calm stress before it peaks, maintain control, and protect your energy throughout the day.

Session 2: The Power of Beliefs

Uncover how hidden beliefs drive stress. Apply a 4-step method to reframe limiting patterns and create supportive beliefs for lasting change.

Learning outcomes

After this training, you can:

- > Apply Schultz relaxation, breathing, and QRB techniques.
- > Restore mental balance and prevent stress accumulation.
- > Identify and change limiting beliefs to reduce pressure.

Approach

These sessions, each 3.5hours, are a combination of theoretic frameworks and exercises to come to relaxation and change your beliefs. Includes access to an app for guided practice plus 25 audio podcast episodes (NL only).

Only if you participated in the 'essential' session, you can register for these in-depth sessions.

 In person

 8 hours

 VIB only

 All VIB staff

 Eef van Thuyne

“ It was valuable that ready-to-use templates were provided, as they support immediate application in daily work. The inclusion of a follow-up session was particularly appreciated

— Attendee of 'Navigating conflict in diverse teams' —

Navigating conflict in diverse teams

Conflict is inevitable in any collaborative setting, especially in diverse teams. Needing to conduct a difficult conversation with your PI? Having to bring fair but harsh feedback to a colleague? Wanting to assert your boundaries in a respectful manner? These are all potential conflict situations that the workshop will tackle. Because when managed well, conflict can become an opportunity for innovation and stronger working relationships.

By deepening self-awareness and practicing strategies for psychologically safe conversations, participants learn how to transform tension into collaboration.

Learning outcomes

After this training, you will:

- > Recognize factors that shape workplace conflict, including diversity, emotions, and power dynamics.
- > Identify your own conflict style and understand its impact on others.
- > Apply practical techniques for constructive dialogue, collaboration, and mediation.
- > Use tools to create psychologically safe, inclusive team environments.

Approach

This interactive half-day workshop combines:

- > Short theory inputs on conflict dynamics and the role of diversity, power, and emotions.
- > Self-assessment exercises to identify individual conflict styles.
- > Scenario-based practice in dialogue, collaboration, and mediation techniques.
- > Group reflection and discussion to share insights and strategies for an inclusive team culture.

The emphasis is on real-world application, giving participants concrete tools and confidence to navigate conflict constructively.

 In person

 3 hours

 VIB only

 All VIB staff

 Agnes Uhreczky

Restoring balance in a connected world

Constant connectivity can erode focus, productivity, and work-life balance. This interactive workshop helps you understand your personal “disconnection profile” and offers practical tools to combat digital, psychological, and emotional overload. Through reflection and real-life strategies, you’ll learn how to set boundaries, prevent digital stress, and create sustainable routines for better focus and well-being.

Learning outcomes

After this training, you will:

- > Understand your personal connectivity habits and their impact on focus and well-being.
- > Identify and manage common digital stressors in your work routine.
- > Apply practical strategies for digital, psychological, and emotional disconnection.
- > Set healthy boundaries and communicate them assertively.
- > Build sustainable routines to enhance concentration, recovery, and work-life balance.

Approach

This training uses a blended learning approach to create lasting behavioral change:

- > Pre-session: Complete an intake questionnaire and disconnection profile via the online platform.
- > Interactive workshop: Includes real-life scenario discussions, individual reflection exercises, and practical tools for digital, psychological, and emotional disconnection.
- > Follow-up support: Optional “buddy challenge” and post-training nudges via the platform to reinforce new habits.

The program is highly practical, focusing on sustainable strategies for better focus, recovery, and well-being.

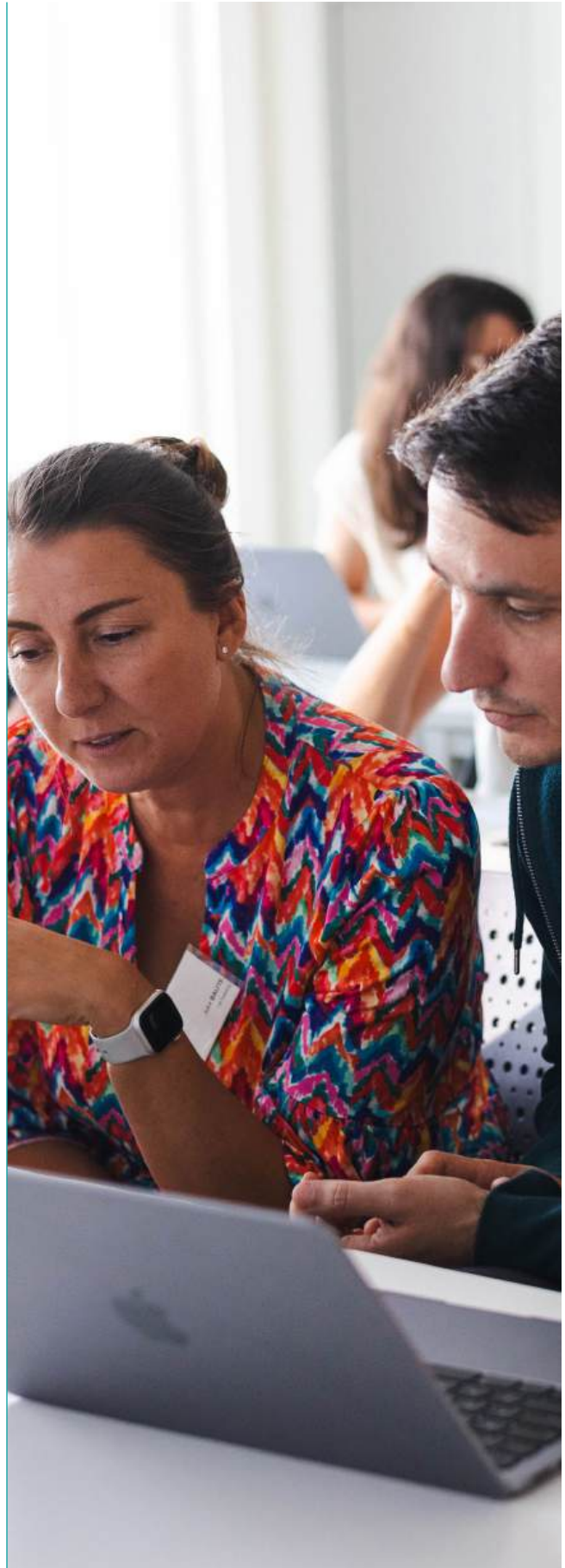
 In person

 4 hours

 VIB only

 All VIB staff

 Experts from 'How's work?'



Rethinking time management

It was a very inspiring training with the perfect balance between exercise, theory, chats with colleagues, a nice and professional trainer who had sufficient expertise in 'life', applicable tools, and real-world examples.

— Els Hermans, attendee of 'Rethinking time management' —

Feeling overwhelmed by endless tasks, distractions, and constant change? Traditional time management tools no longer suffice in today's world of information overload. The real challenge is not managing time but managing attention.

This practical training helps you shift from reactive firefighting to focused, effective work. You'll learn how to create space for quality thinking, reduce stress, and build sustainable systems to stay organized and in control.

Learning outcomes

After this training, you will:

- > Assess your productivity habits and identify what supports or hinders focus.
- > Apply strategies to reduce distraction, stress, and information overload.
- > Build a practical "Second Brain" system to manage tasks, projects, and ideas effectively.
- > Create time and mental space for high-quality, focused work.
- > Adopt tools and habits that promote clarity, control, and sustainable productivity.

Approach

This one-day interactive workshop combines short theory bursts with practical exercises. You will:

- > Apply key principles from How to Be a Productivity Ninja® to your own work.
- > Build your personalized "Second Brain" system for organizing tasks and ideas.
- > Practice strategies to improve focus, reduce stress, and boost sustainable productivity.

 In person

 8 hours

 VIB only

 All VIB staff

 Ekki Lemmink

Unplug to reconnect

Our always-on culture and constant digital stimulation can make it hard to truly disconnect from work. While flexibility has its benefits, being permanently connected can lead to overstimulation, stress, and concentration issues.

This e-learning introduces practical strategies and exercises to help you and your team disconnect more consciously, recover effectively, and create healthy boundaries.

Learning outcomes

After this workshop, you will be able to:

- > Understand the impact of constant connectivity on focus and well-being.
- > Identify your own disconnection style and habits.
- > Apply practical tools and exercises to reduce techno-stress and enhance recovery.
- > Initiate team conversations on disconnection and set healthy norms.

Approach

Hands-on session using a toolbox of practical exercises designed for both individuals and teams. Participants choose approaches that fit their context—whether optimizing tools, improving meeting culture, or strengthening personal recovery practices.

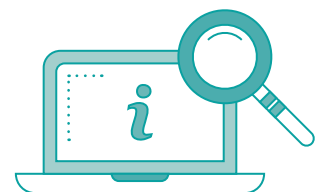
 E-learning

 2 hours

 VIB only

 all VIB staff

 Experts from 'How's work?'



For the latest course schedules and logistical details, simply scan the QR code or [click this link](#).



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