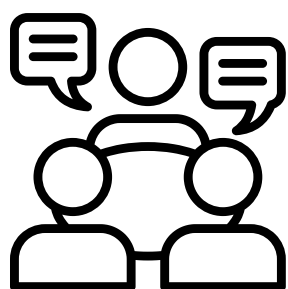




idil
INTER-DISCIPLINARY &
IN-LAB GRADUATE PROGRAM
UNIVERSITÉ DE MONTPELLIER

IDIL TRANSVERSAL Training Units 26-27



Block 1 – Team Management

Level 1

- Becoming a manager: the fundamentals (8h)

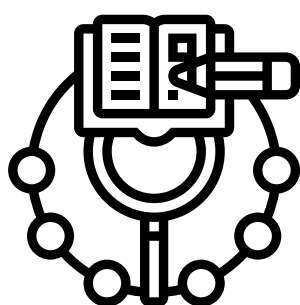
Level 2

- Preventing and managing conflicts (7h)

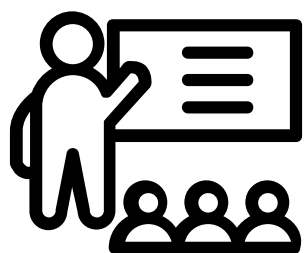
Block 2 – Scientific dissemination and popularization

- Talking about science- The basics of scientific mediation (8h)
- Convincing and debating (8h)
- Publishing as academics (3h)
- Building your Identity as a Researcher (2h) **NEW**
- Peer review process (3h)
- Preparing, conducting, and responding to interviews (7h)

Level 1



Block 4 – Effective communication



Level 1

- Body language proficiency (8h)
- Public speaking - Oral communication (8h)
- Scientific Writing: How to Communicate Effectively and Avoid Plagiarism (12h)

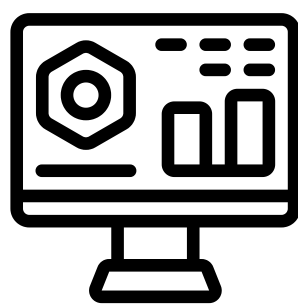
Level 2

- Developing effective reading strategies and tactics (7h)
- Preparing to attend a conference (Poster and Oral Presentation) (14h)

Block 5 – Information and data management

- Descriptive Statistics (4h)
- Practical introduction to versioning and sharing your work with Git/GitHub (3h)
- System R – level 1 - Tidyverse and Rmarkdown to wrangle data and produce plots (14h)
- Unix – learning by doing (6h)
- Literature discovery and management (3h)
- Research data management (3h)
- AI for Data Work: Where it works, where it doesn't, and how to use it (6h) **NEW**
- Intro to Python : Understanding the language **NEW**

Level 1

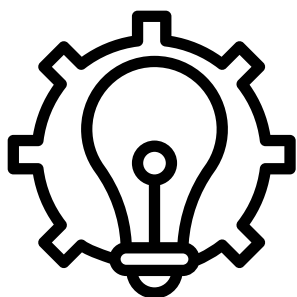


- Introduction to Statistical Analysis (7h)^o
- Systeme R-level 2- Rstudio, Tidyverse, and Rmarkdown (7h)*
- Data Visualisation (3h)* **NEW**
- Data Wrangling (3h)* **NEW**

Level 2

(*) Prerequisites: Getting started with Rstudio.

(^o) Prerequisites: Descriptive Statistics



Block 7 – Innovation and Project Valorisation

Level 1

- Welcome to the Innovation Jungle (4h)

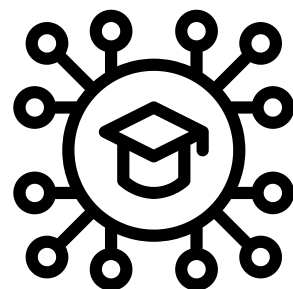
Block 8 – Sciences and Society

- Research integrity in everyday practice (3h)
- Inclu Lab: Promoting inclusion in the lab (6h)

Level 1

- MOOC Scientific integrity (15h)

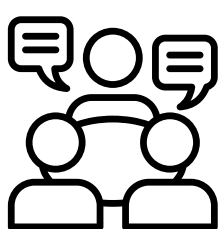
Level 2



Level 1 courses available to M1 and M2 students who did not study them in M1.
Level 2 reserved to students who completed prerequisite Level 1 course on the same topic.



IDIL Transversal Training Units Description



Block 1 – Team Management

- **Introduction to Management (7h) CDUM**

Level 1

This course provides an understandable and up-to-date perspective on management and the manager's role within companies. This course teaches the foundations, identifies spontaneous management methods, and develops your ability to adapt to different types of situations people.

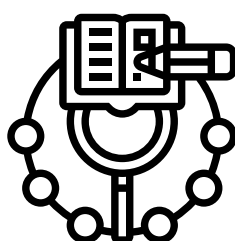
- **Preparing and leading a work meeting (6h) CDUM**

Level 2

Work meetings guide all projects. Knowing how to organize and run meetings is one of the key success factors of any project. Meetings are crucial for interdisciplinary projects involving colleagues from different backgrounds.

- **Preventing and managing conflicts (7h) CDUM**

This course helps you understand how conflicts unfold, acquire the necessary methods to prevent them, manage them, and, above all, avoid making them worse. The differences between the way conflicts are handled in a business environment and in a research team are discussed at the end of the day.



Block 2 – Scientific dissemination and popularization

- **Talking about science- The basics of scientific mediation (8h) CDUM**

Level 1

As young players in the scientific community, you can learn how to present a scientific topic engagingly and interactively to share and disseminate your knowledge to a diverse audience (including primary school students, high school students, and the general public).

- **Convincing and debating (8h) CDUM**

This course and its rhetorical elements will give you the skills to defend your points of view and assert yourself through a variety of role-playing situations. In other words, you will improve your leadership skills!

- **Publishing as academics (3h) PRI**

This course will be focused on the evolution of the scientific publishing world, and how to best publish your future scientific articles in open access and at a lower cost.

- **Building your Identity as a Researcher (2h)**

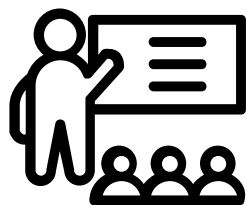
Cultivating your researcher identity online is an essential component of communicating your research and presenting yourself as a scholar. If you are a junior researcher, being present online contributes to your impact within and beyond academia.

- **Peer review process (3h) PRI**

By the end of this training, you be able to critically evaluate research articles and understand the peer review process. You will identify strengths and weaknesses in research methods, data analysis, and arguments. You will also provide constructive feedback to improve the research's clarity, validity, and impact. Additionally, you will assess ethical considerations and the research's relevance within its field. Ultimately, you will gain confidence in contributing to the academic community through thoughtful and thorough peer reviews.

- **Preparing, conducting, and responding to interviews (7h) CDUM**

At some point in your work, you will need to be able to respond to requests from journalists and the media. This course helps you prepare scientific communication for an interview. Come test yourself. No doubt you will enjoy this kind of exercise!



Block 4 – Effective communication

- **Body language proficiency (8h) CDUM**

Level 1

Body language conveys meaning just as effectively as words. People react subconsciously to non-verbal messages. This course is based on testimonials from speakers and on scientific research. Learn how to turn your stage fright into an asset through concrete examples and practical exercises.

- **Public speaking – Oral communication (7h) CDUM**

Would you like to speak in public with ease and confidence? This course will help you develop your enthusiasm and interaction with your audience. It offers a simple and effective method enabling you to make progress quickly.

- **Scientific Writing: How to Communicate Effectively and Avoid Plagiarism (12h)**

This course trains students in scientific writing, focusing on structuring key texts like abstracts, literature reviews, presentations, research proposals, reports, and their MSc thesis. It covers literature management, proper citation, plagiarism prevention, and the responsible use of AI in writing. By the end, students will be able to produce clear, well-structured texts for scientific audiences, benefiting their research projects and internships throughout the IDIL Master program.

- **Developing effective reading strategies and tactics (7h) CDUM**

Level 2

This speed-reading course implements a global and controlled method for making progress. The objective is to increase your reading speed by about 80% and implement operational strategies (prioritization, location, selection) for information management (summarizing, memorizing, etc.).

- **Preparing to attend a conference (Poster and Oral Presentation) (10h) CDUM**

The purpose of this course is to give you the keys to help you choose and benefit from scientific conferences, and provide you with the methodology and tools to prepare your communication effectively. Training includes an exercise creating an oral presentation or poster (according to participants' needs).



IDIL Transversal Training Units Description



Block 5 – Information and data management

- **Descriptive Statistics (4h)**

This short module aims to review the presentation of data by means of numerical figures. The main descriptive statistics to measure the central tendency, the dispersion, and the form of the distribution of a variable are presented before considering some measures of the relation between variables. Examples are given using the usual software or statistical software. This module is useful in many domains because it helps to summarize data, and it should be an introduction to statistical analysis where the estimation and test of hypotheses are developed.

- **Practical introduction to versioning and sharing your work with Git/GitHub (3h)**

After briefly highlighting the advantages of versioning your work, this course will cover the fundamentals of file versioning with Git (local) and GitHub (online) for individual and group projects. Although commonly associated with coding tasks, Git can be used with any type of file (reports, dissertations, spreadsheets, etc.). Knowing GitHub is highly valuable for most tech roles and serves as a distinctive addition to a CV. The students will have the opportunity to practice individually and in groups.

- **Getting started with RStudio, Tidyverse, and Rmarkdown to wrangle data and produce plots (14h)**

The purpose of this course is to teach you the basics of Rstudio, Tidyverse, and Rmarkdown, for manipulating tables, producing graphs, and generating reports. The course focuses on the data analysis steps before statistical analysis, leveraging the Tidyverse software package and language designed specifically for data manipulation and producing graphics.

- **Unix – learning by doing (6h)**

Unix is not in single-click territory! No need to panic, this course is designed for beginners and users with little experience. Learn how to survive on a Unix system, find your way through the jungle of commands, plant environment variables, bounce from one machine to another, and defeat hackers by protecting your data! A great way to impress your friends and family... and above all, to prevent computers from holding you back in your doctoral work!

- **Literature discovery and management (3h)**

By the end of this module, you will be adept at discovering, evaluating, and managing scholarly literature for your research projects. You will acquire skills in using advanced search techniques and databases to efficiently find relevant literature. You will learn to critically assess the quality and relevance of sources, ensuring a strong foundation for your research. Additionally, you will become proficient in using reference management tools to organize and cite literature systematically. This module will also enhance your ability to stay updated with the latest developments in your field, fostering a proactive and informed approach to academic research.

- **Research data management (3h)**

By the end of this module, you will understand the principles and practices of effective research data management. You will know how to organize, store, and preserve data to ensure its integrity and accessibility throughout the research lifecycle following the FAIR principles. You will learn best practices for data documentation, including metadata creation, to facilitate data sharing and reproducibility. You will become proficient in using tools and software for data management and will be knowledgeable about ethical considerations and legal requirements related to data privacy and security. This module will equip you with the skills needed to manage research data efficiently, promoting high standards of data stewardship in your academic and professional career.

- **AI for Data Work: Where it works, where it doesn't, and how to use it (6h)**

This training provides a practical introduction to using artificial intelligence for data analysis and visualization. Participants will explore how AI works, including its strengths, limitations, and how to validate its outputs. The course focuses on understanding how to write effective prompts by clearly defining intent, data structure, constraints, and verification steps. Applications will focus on data visualization, helping participants understand how AI generates graphs in order to guide and refine results. The session shows how to adapt existing plotting templates and efficiently debug common issues. A hands-on mini-project will allow participants to reproduce a complex, publication-style graph using AI and provided data.

- **Introduction to Python : understanding the language and how to use it (6h)**

Python is one of the most widely used programming languages for data analysis, automation, and scientific research. This workshop introduces the foundations of Python through a practical, data-focused approach. Participants will learn how to read and understand basic Python syntax, execute scripts/tools from the terminal, recognise common data structures, and manipulate tabular data using the pandas package. Around 90 minutes will be dedicated to hands-on exercises and short quizzes to reinforce the concepts.

- **Introduction to Statistical Analysis 2 (7h)**

This course provides the basics of classical statistical analysis through examples without going deeply into theoretical concepts. Starting with descriptive statistics, the course focuses on hypothesis testing on those statistics and their comparison between different samples. The course also covers the analysis of variance and regression methods on quantitative and qualitative variables. The goal is to learn how to perform a preliminary statistical analysis on data sets.

[Prerequisites: Intro to Statistical Analysis 1](#)

- **Système R–level 2- RStudio, Tidyverse, and Rmarkdown (7h)**

If you took the two-day course on the basics of Tidyverse and want to go further into using Tidyverse to handle your tables, produce your graphs, and generate R Markdown reports, then this course is for you!

[Prerequisites: Getting started with RStudio.](#)

- **Data Wrangling in R (3h)***

No dataset is ever born “ready” to be analysed or plotted. Many steps are usually necessary. This course covers the basics of data transformation in R to make data preparation reproducible (column addition/deletion, adding new attributes, aggregating data, selecting, filtering, ...). A particular focus will be on character data, which requires the most intensive curation before it becomes usable in analysis. 60 to 90 minutes will be dedicated to the direct application of the concepts.

[Prerequisites: Getting started with RStudio.](#)

Level 1

Level 2



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IDIL Transversal Training Units Description

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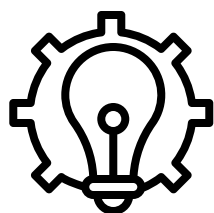
Prerequisites: [Getting started with RStudio](#).

- **Data Visualisation in R (3h)***

This course covers the fundamentals of data visualisation, including: selecting the appropriate visualisation for your data; a conceptual overview of ggplot2 functions; creating simple figures with it; and finding reusable templates for more complex visualisations. 60 to 90 minutes will be allocated to the practical application of these concepts.

Prerequisites: [Getting started with RStudio](#).

Recommended: [Data Wrangling](#)



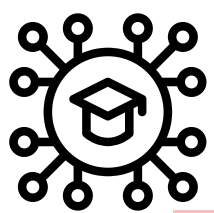
Block 7 – Innovation and Project Valorisation

- **Welcome to the Innovation Jungle (4h) INITIUM**

Level 1

Are you keen to discover the innovation process? Would you like to demystify all the mechanisms for valorizing your future scientific research? Do you want to enrich your scientific vision with tools that allow you to approach your projects so that they meet societal challenges?

The aim of this module is to introduce you to innovation tools illustrated by practical cases for integration into your scientific reflections, thus providing a perspective on the valorization of the projects to which you contribute.



Block 8 – Sciences and Society

- **Research integrity in everyday practice (3h) PRI**

Level 1

By the end of this module, you will have a thorough understanding of research integrity and its application in everyday practice. You will learn about the core principles of ethical research conduct, including honesty, transparency, and accountability. You will be able to identify and address common ethical issues and dilemmas that arise during the research process. You will gain knowledge on how to avoid research misconduct, such as plagiarism, data fabrication, and falsification. Additionally, you will understand the importance of responsible authorship, peer review, and collaborative research practices. This module will prepare you to uphold the highest standards of integrity in your research endeavors, fostering a culture of ethical and responsible research within your academic and professional communities.

- **INCLU LAB': Promoting Inclusion in the Lab (6h)**

Diversity, Equity & Inclusion (DEI) is crucial in science, enhancing productivity and innovation. Society as a large, and in particular, research teams are becoming increasingly diverse in terms of social identities, stretching from sex and gender over ethnicities and nationalities to appearances, languages, age, and socio-economic status, to name but a few, DEI education remains lacking. This workshop, designed for master's and doctoral students in multidisciplinary research, explores DEI from various perspectives. It equips participants with essential soft skills to navigate diverse work environments, fostering belonging and improving team performance and innovation.

- **CULTURES IN'LAB: Promoting Cultural Inclusion (6h)**

This training explores intercultural skills in laboratory and research environments. It begins with an interactive cultural simulation activity, followed by key sessions on cultural self-reflexivity, inclusive intercultural communication, and collaborative project planning in multicultural teams. Participants will also develop competencies in culturally inclusive evaluation and decision-making, supported by theoretical inputs on intercultural communication concepts. The training emphasizes inclusion in laboratory contexts and concludes with a synthesis of key learnings and a personal commitment exercise to support the application of these skills in professional practice.

- **MOOC Scientific integrity (15h) CDUM**

Level 2

Science constitutes a fundamental value in our democratic societies, which promote the desire for knowledge about the world and mankind. Nevertheless, today's techno-scientific performance and the acceleration of innovations can sometimes be intimidating. Furthermore, the magnitude of the resources involved, a competitive international environment, and conflicts of interest between private and common good also create a climate of mistrust.

For more information:

<https://lms.fun-mooc.fr/courses/course-v1:ubordeaux+28007EN+session06/info>