

R Training with Artificial Intelligence (AI)

Module 1 – Setting Up Artificial Intelligence Tools

- Create or configure a Google Account;
- Access Gemini and Google AI Studio;
- Obtain and securely manage a Gemini API key;
- Explore Google's main online tools;
- Compare Gemini with other AI assistants and models;
- Understand data privacy and confidentiality considerations.

Module 2 – Programming with AI

- Explore the main tools used with R;
- Understand the roles of RStudio, Google Colab, and Quarto;
- Configure a Google Colab notebook to work with R;
- Generate, comment on, and explain code with AI;
- Improve scripts and troubleshoot errors;
- Use Gemini in conversational mode and with code blocks;
- Convert a notebook into a Quarto document;
- Move from an online environment to a local development environment.

Module 3 – Using Posit Assistant in RStudio

- Explore Posit Assistant and its main features;
- Use the assistant directly within RStudio;
- Generate, explain, and modify R code;
- Troubleshoot errors using the project context;
- Use AI-powered code-editing suggestions;
- Understand the limitations of an AI assistant integrated into a development environment.

Module 4 – Using AI Features Effectively

- Write clear, precise, and contextualized prompts;
- Use AI to plan an analysis;
- Interact with technical documentation or PDF manuals;
- Analyze code, tables, charts, and diagrams;
- Compare multiple solutions suggested by AI;
- Validate AI-generated answers, code, and results;
- Protect personal, confidential, and organizational data.

Module 5 – Learning R Syntax with AI

- Explore the fundamental elements of R syntax;
- Create objects, vectors, and data frames;
- Use functions and operators;
- Generate examples tailored to your skill level;
- Ask AI to explain and adapt code examples;
- Diagnose and correct common errors;
- Create a self-assessment quiz;
- Develop a personalized AI-assisted learning plan.

Module 6 – Performing Data Analysis with R and AI

- Explore the main Tidyverse packages;
- Use `data.table` to work with large datasets;
- Compare base R, Tidyverse, and `data.table`;
- Import and explore a dataset;
- Clean, transform, and validate data;
- Create summary tables and data visualizations;
- Use AI to generate, explain, adapt, and correct code;
- Apply the workflow to your own data.

Module 7 – Performing Statistical Analysis with AI

- Find and use reliable technical documentation;
- Translate a business or research need into an analytical approach;
- Select an appropriate statistical method with AI assistance;
- Compare two means using a t-test;
- Calculate and interpret Cohen's d;
- Select the appropriate parameters and function arguments in R;
- Verify assumptions and interpret the results;
- Adapt the workflow to other statistical analyses.