JUSTUS-LIEBIG-UNIVERSITÄT GIESSEN

GGS Gießener Graduiertenzentrum Sozial-, Wirtschafts- und Rechtswissenschaften

Workshop

AI-Assisted Empirical Research with Claude Code

Organizational Details

Instructor:	Dr. Florian Gärtner
Dates:	15, 16, 22 & 23 October 2026, 9:00 am – 17:00 pm each day
Location:	Licher Straße 68, Seminarraum 050 (preliminary)
ECTS:	3
Max. participants:	15

Requirements for ECTS credit:

- active participation in the exercises and a final short project applying the workflow to your own research task.
- Please bring your own laptop; tested installation instructions for the (free) software will be provided before the workshop starts.

Objectives

AI coding assistants such as Claude Code can now help with the whole empirical research pipeline, from cleaning data and writing analysis code to producing tables, figures, and prose. This workshop is a practical, hands-on introduction for researchers who want to use such tools seriously and keep control of their work. Rather than a tour of features, it builds the understanding needed to use an AI assistant deliberately, to decide what to delegate and what to keep, and to adapt as the tools change.

The workshop treats an AI assistant as a research collaborator to think alongside, not a machine to hand tasks to and trust without checking. Participants learn to brief and review it as they would a junior co-author, to verify its output, and to use it responsibly with respect to data protection and good scientific practice.

After the workshop, participants will be able to:

- explain how a large language model works, well enough to predict and diagnose its behaviour (why it “forgets”, why a long, cluttered context hurts performance, why it fabricates);
- set up and structure a research project so an AI assistant can navigate and work in it effectively (project conventions, version control);
- run an AI-assisted analysis pipeline end to end, from raw data to publication-ready tables and figures in LaTeX/Overleaf;
- configure Claude's behaviour to their own workflow (rules, permissions, hooks, custom commands, skills, agents);

- critically verify AI-generated results and recognise characteristic failure modes before they reach a paper;
- work with Claude as a research collaborator, including coordinating several parallel sessions safely (branches, worktrees);
- apply AI to literature work (including retrieval over their own library) and design their own multi-step research pipelines;
- integrate all of this responsibly, with respect to data protection and good scientific practice.

Content & Method

Content:

- How large language models actually work, and what that implies in practice (no memory, attention, tokenisation, hallucination)
- Claude as a research collaborator: how the mental model changes the way you work with it
- The command line, shells, and how Claude Code operates on your machine; the plain-text research toolkit
- Structuring a project so an AI assistant can navigate it (project instructions, folder conventions)
- Version control with git as a safety net and provenance layer
- The analysis pipeline: from data to tables and plots to LaTeX/Overleaf in one workflow
- Controlling the assistant: rules, hooks, permissions, custom commands, and the difference between skills and agents
- Running the assistant safely: it can act with your full access to the machine (files, the registry, email), so how to contain it with permissions and approvals, sandboxing (e.g. Docker), and the option of running a local model instead of the cloud
- Managing context and cost
- Trusting AI output: verification strategies, catching fabrication, the reliability and cost trade-off
- AI for literature work: retrieval-augmented generation (RAG) over your own library
- Designing multi-step and multi-agent pipelines, and the systems thinking behind them
- Working with several AI sessions at once: parallel sessions, branches, and worktrees
- Recurring workflows and scheduled routines
- Data protection, credential handling, and responsible use

Methods:

Consistently practice-oriented, with a high share of hands-on work. Each block combines a compact conceptual input with a live demonstration and a guided exercise, roughly balanced between theory and practice (with more exercise time in later blocks). Participants work in pre-configured example projects so that little time is lost to setup, and apply the full workflow to their own research in a final project. Every tool is introduced through the problem it solves, so that the foundations come first and the applications follow.

Target Group & Course Language

Target Group: Doctoral candidates and postdocs doing quantitative/empirical work who want to use AI assistants seriously in their research, with little or no prior experience of terminals, version control, or AI coding tools.

Event language: English

Requirements for participation: No programming experience is required for the tooling itself. Basic familiarity with a data-analysis language (R, Python, or Stata) is helpful for the analysis parts but not essential. Please bring your own laptop.

About the Instructor

Florian Gärtner is a postdoc at the Chair of Banking & Finance (BWL6) at Justus Liebig University Giessen, with backgrounds in sociology and economics. His research includes the empirical study of large language models themselves, examining how they behave as decision-makers in economic and game-theoretic settings. He teaches R and empirical methods in his course “Empirical Methods in Sustainable Finance”, uses AI-assisted workflows (including Claude Code) in his research daily, and has built AI research infrastructure such as automated literature pipelines, retrieval systems over large paper collections, and multi-agent research tools.

Registration

If you would like to attend the workshop, please register by email to info@ggs.uni-giessen.de by **October 5, 2026**.