# Bocconi

PhD School

# Data Mining for Marketing Analytics

*or AI-Assisted Research Methods*

Ph.D. Course 41037 · Spring 2026 · Kai Zhu

## Why This Course?

AI is transforming how research is done. Tools like Claude Code, ChatGPT, and specialized AI platforms can now assist with literature reviews, data analysis, experimental design, and academic writing — tasks that once consumed months of a PhD student's time.

But using these tools well is not obvious. Without training, researchers risk producing work that is fast but fragile: hallucinated citations, unvalidated analyses, and opaque methods that undermine the credibility of their findings.

This course teaches you to use AI tools **rigorously and transparently**, so that they genuinely improve your research rather than introduce new risks. You will learn not only *how* to use AI for each stage of the research pipeline, but also *when* to trust it, how to validate its outputs, and how to document your workflow for reproducibility.

## Who Should Take This Course?

This course is designed for PhD students in marketing, management, economics, and related social sciences who want to integrate AI tools into their research. You should take this course if:

- You want to accelerate your dissertation work without sacrificing rigor
- You are curious about AI but unsure how to use it responsibly in academic research
- You want hands-on experience with tools like Claude Code, not just theoretical knowledge
- You care about reproducibility, transparency, and research ethics

**Prerequisites:** Completion of core PhD methods courses (quantitative or qualitative). Basic familiarity with data analysis in R, Python, or Stata. No advanced programming required — the course starts from the basics of Claude Code and builds from there.

## What You Will Learn

Over 12 sessions, you will build practical skills across four modules:

| Module | What You Will Do |
|---|---|
| **1. Foundations** (Sessions 1–3) | Install and configure Claude Code; set up a professional research environment; build reusable AI workflows ("skills") for common research tasks |
| **2. Literature & Theory** (Sessions 4–5) | Conduct AI-assisted literature reviews with citation verification; use AI as a brainstorming partner for theory development and hypothesis generation |
| **3. Data & Analysis** (Sessions 6–9) | Collect and preprocess data with AI assistance; perform text analysis and NLP for marketing research; write and debug statistical code; design experiments and surveys with AI-generated stimuli |
| **4. Writing & Ethics** (Sessions 10–12) | Revise academic writing with AI while maintaining your scholarly voice; audit AI outputs for bias and errors; present your research proposal |

## How the Course Works

Each 90-minute session follows a consistent **30/30/30 structure**:

1. **Lecture (30 min):** Core concepts and live demonstrations of AI-assisted research techniques.
2. **Hands-on exercise (30 min):** Apply the techniques to a real research task, working with Claude Code in your terminal.
3. **Paper discussion (30 min):** A student-led discussion of an assigned academic paper connecting the session topic to the broader literature on AI in research.

The course is designed for learning by doing. By the end of the semester, you will have practiced AI-assisted methods for every stage of the research pipeline — and you will have started applying them to your own dissertation.

## The Final Project

The capstone of the course is a research project where you apply AI-assisted methods to a question of your choosing — ideally connected to your dissertation. The project has three milestones:

1. **Research Proposal** (5 pages, due before Session 11): Outline your research question, methodology, and plan for integrating AI tools.
2. **Proposal Presentation** (10 minutes, Session 12): Present your plan and receive feedback from peers and the instructor.

3. **Final Research Report** (25 pages, due ∼1 month after Session 12): A complete research paper with results, an AI methodology reflection, and a full reproducibility package.

## Logistics

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| **Course Code** | Ph.D. Course 41037 |
| **Credits** | 6 ECTS |
| **Period** | Spring 2026, II semester |
| **Sessions** | 12 sessions × 1.5 hours |
| **Instructor** | Prof. Kai Zhu |
| **Email** | kai.zhu@unibocconi.it |
| **Office Hours** | By appointment |

| **Assessment Component** | **Weight** | **When** |
|---|---|---|
| Class Participation & Discussion | 10% | Ongoing |
| Hands-On Research Exercises | 20% | Throughout semester |
| Paper Discussion Leadership | 20% | Sessions 1–11 |
| Final Research Project | 50% | Proposal + Presentation + Report |

*Questions? Contact Prof. Kai Zhu at kai.zhu@unibocconi.it.*