

AI in daily Academic work – practical Workshop

1. Welcome & Introduction (15 minutes)

1. Workshop Objectives

- Introduce the current landscape of AI tools for academic use.
- Show practical ways to integrate AI into teaching and research workflows.
- Discuss ethical and best-practice guidelines.

2. Context & Relevance

- Why AI is integral to academic work (teaching, research, and coding/data analysis).
- Current trends in AI adoption in education and research.

3. Icebreaker

- Quick show of hands: who has used ChatGPT, Claude, or any other AI tool?
- Ask participants to share one thing they hope to learn by the end of the workshop.

2. Overview of AI Platforms (30 minutes)

1. ChatGPT, Claude, Gemini, Llama, and Grok

- **Key Features:** Language models, generative capabilities, summarization, Q&A, coding assistance, etc.
- **Pros & Cons:** Accuracy, limitations, model updates, speed, cost, and data privacy concerns.
- **Live Demonstration:** Show brief examples (e.g., generating a short summary, quick content outline).

2. Microsoft Copilot & the Future of Agentic AI

- **What is Microsoft Copilot?** Integration within the Office suite, code generation, multi-app connectivity.
- **Agentic AI:** AI “agents” that handle tasks across multiple applications (emails, files, data).
- **Discussion:** Implications for academic work, research collaboration, and coding tasks.

3. Hands-On Mini Exercise (Optional if time permits)

- Have participants open one AI tool (e.g., ChatGPT or Claude) and ask it an academic question, such as “Explain the difference between quantitative and qualitative research.”

3. AI for Teaching & Lecturing (45 minutes)

3.1 Content Creation

1. Lecture Material

- Using AI to generate lecture outlines, slide content, or lecture scripts.
- Practical tips for prompt engineering to ensure relevant, accurate content.

2. Assignments & Quizzes

- Crafting multiple-choice questions or short-answer prompts using AI.
- Verifying accuracy and avoiding biased or vague questions.

3.2 Verifying Student Work & Academic Integrity

1. Detecting AI-Generated Content

- Overview of current tools (e.g., Turnitin's AI detection, GPTZero).
- Reliability, false positives, and the evolving nature of detection methods.

2. Blending Student & AI Contributions

- Setting clear guidelines on how students can use AI as a resource.
- Encouraging reflection and originality.

3.3 Multimedia Use (Graphics & Video)

1. AI-Generated Visuals

- Tools like DALL-E, Midjourney, or Stable Diffusion for quick diagram creation.
- Ensuring images are relevant, clearly labeled, and appropriate.

2. Video Generation

- AI video tools for creating micro-lectures or animated tutorials.
- Demonstration of a short AI-generated video sample.

Interactive Task:

- **Group Exercise:** In small groups, use an AI tool to create a short lecture outline, one or two quiz questions, and a supporting graphic. Share with the workshop.

4. AI for Research (Total: 60 minutes)

4.1 Student Research (30 minutes)

1. Ethical Use & Preventing Abuse

- Policies and guidelines for dissertations and theses.

- Proper citation of AI tools and acknowledging assistance.
- 2. Data Verification & Quality Checks**
 - Using AI to analyze data, but verifying correctness.
 - Recognizing AI “hallucinations” or fabricated references.
- 3. Research Methodology & Interpretation**
 - Prompting AI to suggest suitable research methods.
 - Validating AI-driven suggestions with academic standards.
- 4. Finding & Including Sources**
 - Using AI to propose relevant academic papers (caution regarding false references).
 - Best practices for fact-checking references.
- 5. Integrating Conclusions & Checking Technical Accuracy**
 - Summarizing findings with AI.
 - Double-checking calculations, formulas, or code snippets.

Practical Demonstration:

- Show how to prompt an AI tool to assist with an example thesis topic:
 - “Suggest a literature review structure on [Topic].”
 - “Generate key research questions based on [Topic].”

4.2 Academic & Professional Research (15 minutes)

- 1. Marking & Evaluating Papers**
 - AI-assisted grading: possibilities, limitations, and ethical concerns.
 - Using AI to highlight potential writing issues or structural flaws.
- 2. Writing Research Reports**
 - Drafting sections (Introduction, Methodology, Discussion) with AI’s help.
 - Ensuring compliance with academic style guides (APA, MLA, Chicago, etc.).
- 3. Evaluating Sources & Gaps in Research**
 - Using AI to generate critical summaries of articles or datasets.
 - Identifying contradictory findings and open areas for future investigation.
- 4. Case Study:**
 - End-to-end example of integrating AI at each stage of a research paper’s lifecycle.

4.3 AI in Coding & Statistical Applications (15 minutes)

1. Coding with AI Assistance

- Using AI to generate or troubleshoot scripts in R, Python, or Stata.
- Common prompt structures: “Write a function that does X,” “Optimize this code,” or “Debug this error.”

2. Data Analysis Tools

- Getting help with EViews or SPSS commands and interpreting outputs.
- Example prompts: “Explain how to run a linear regression in SPSS,” “Generate ARIMA model code in R.”

3. Interpreting Statistical Results

- Using AI to clarify regression outputs, confidence intervals, p-values, or time-series forecasts.
- Validating that the AI’s interpretations align with standard econometric or statistical practices.

4. Practical Demonstration

- Show how to ask an AI model to generate a simple R/Stata script for data cleaning or descriptive statistics.
- Demonstrate AI’s capability (and limitations) in debugging code or explaining model outputs.

Interactive Task:

• Individual Exercise:

- Ask participants to either generate or debug a short piece of code (in R, Python, or Stata).
- Have the AI interpret the results of a basic regression or statistical test.
- Compare the AI’s responses to actual references/documentation for accuracy.

5. AI Projects & Practical Application (15–20 minutes)

1. Showcasing AI Projects

- Examples of real-world or classroom-based AI projects using ChatGPT, Claude, etc.
- Demonstrate how tools can be combined (e.g., AI for data extraction, then code generation).

2. Guided Brainstorm

- Participants propose potential AI-based class projects, research experiments, or coding collaborations.

3. Building a Culture of Experimentation

- Encouraging safe-to-fail pilots, iterative improvement, and exploration of new AI features.

6. Conclusion & Q&A (10–15 minutes)

1. Recap

- Key takeaways for integrating AI into teaching, research, and coding workflows.
- Ethical considerations, data privacy, and the importance of critical thinking.

2. Resources & Next Steps

- List of recommended AI tools, references, and tutorials for coding and data analysis (e.g., DataCamp, Stack Overflow's AI assist).
- Invitation to continue discussions or schedule follow-up training.

3. Open Q&A

- Final opportunity for questions or clarifications.
- Encourage sharing experiences and forming peer-support groups post-workshop.

Workshop Preparation Checklist

- **Technical Setup:**
 - Stable Wi-Fi, participants pre-registered on AI tools (ChatGPT, Claude, etc.).
 - Have sample data/scripts ready for coding demos.
- **Accounts & Tools:**
 - Ensure participants can access R/Python/Stata or have a web-based alternative.
 - Check if AI plugins (e.g., ChatGPT Code Interpreter) are enabled if relevant.
- **Slides & Handouts:**
 - Quick-reference materials on prompt engineering, coding examples, and best practices.
 - Printed instructions or cheat sheets for basic AI coding prompts.
- **Sample Datasets:**
 - Provide a simple dataset for participants to run code on (CSV or Excel) to see how AI can help.
- **Interactivity:**
 - Encourage hands-on tasks for both teaching material generation and coding exercises.
 - Provide live feedback on participants' prompts and AI outputs.

Timing at a Glance (3 Hours Total)

1. **Welcome & Introduction** (15 min)
2. **Overview of AI Platforms** (30 min)
3. **AI for Teaching & Lecturing** (45 min)
4. **AI for Research** (60 min)
 - 4.1 Student Research (30 min)
 - 4.2 Academic & Professional Research (15 min)
 - **4.3 AI in Coding & Statistical Applications (15 min)**
5. **AI Projects & Practical Application** (15–20 min)
6. **Conclusion & Q&A** (10–15 min)