- Faculté des sciences économiques
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Economic Research and AI (5ER2053)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
Master en développement international des affaires	**Cours: 2 ph**	**Voir ci-dessous**	3
Master en économie appliquée	**Cours: 2 ph**	**Voir ci-dessous**	3
Master en finance	**Cours: 2 ph**	**Voir ci-dessous**	3
Master of Science en innovation	**Cours: 2 ph**	**Voir ci-dessous**	3

ph=période hebdomadaire, pg=période globale, j=jour, dj=demi-jour, h=heure, min=minute

Période d'enseignement:

- Semestre Printemps

Equipe enseignante

Dr. Quentin Gallea

Contenu

This course aims to teach research methodologies in economics in the age of artificial intelligence. It follows the complete research cycle, from ideation to the final proposal, systematically integrating both traditional methods and generative AI (GenAI) tools.
Each session is structured around a key stage of the research process (e.g., writing, literature review). We will first cover conventional academic approaches and best practices, before exploring how AI tools (such as LLMs, NotebookLM, and Custom GPTs) can enhance, accelerate, or harm these processes.
A substantial part of the course is dedicated to hands-on practice and, collectively, to the critical evaluation of these technologies by analysing their advantages and risks.
Throughout the semester, students will develop a concrete research proposal on a topic of their choice, applying the methods and tools studied in class. Each student will thus produce a refined document that can directly serve as a basis for their Master's thesis proposal.
The course objectives are to:
• Teach traditional research methods in economics.
• Train students to use generative AI tools consciously, responsibly, and effectively at every stage of academic research, by comparing the capacities and limitations of different tools.
• Develop students' critical thinking skills regarding the limitations, biases, and risks of these technologies.
• Explore the new skills required in a professional world transformed by AI.

Forme de l'évaluation

The course assessment is designed to evaluate both theoretical understanding and the practical and critical use of AI tools in a research context.
It consists of two components: a mid-term group project and an individual oral examination.

1. Mid-Term Evaluation: Creating an AI Research Assistant (20% of the final grade)
Format: Group project. Group size and presentation length will depend on final enrolment numbers.
Objective: To assess students' ability to design and build a customized generative AI tool ("Custom GPT") for a specific research task.
Process: The evaluation will take place in class. Each group will present their tool and lead a critical discussion about it.
Evaluation criteria:
Tool design: Relevance and clarity of the instructions (role, process, constraints) and the knowledge base of the Custom GPT, in line with the principles studied in class.
Practical demonstration: The tool's ability to perform the research task it was designed for.
Critical analysis: The quality of the discussion on the tool's strengths (e.g., efficiency, synthesis support) and weaknesses (e.g., potential biases, knowledge base limits, risks).

2. Final Evaluation: Research Proposal and Oral Examination (80% of the final grade)
Format: Individual 15min oral exam, based on a written document developed throughout the semester.
Objective: The final evaluation serves two purposes:
Validate the production of a concrete, useful deliverable: a Master's thesis research proposal.
Assess understanding of course concepts and the ability to critically reflect on the integration of AI into one's own research process.
Process:
Part 1 – Presentation of the proposal: Each student presents their research proposal, emphasizing how generative AI tools were used (or deliberately excluded) at various stages (ideation, literature review, etc.).

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Part 2 – Critical discussion and questions: The presentation is followed by a discussion with the instructor. This discussion focuses on a critical analysis of the contribution and limitations of AI within the student's project. Additional questions will test knowledge of theoretical and practical course concepts (e.g., "What are the steps of a systematic literature review?" or "What is the principle of Temperature, and how does it relate to hallucination risk?").
This progressive evaluation structure ensures that students not only learn how to use AI tools but also develop the critical perspective required to integrate them ethically and effectively into their future careers as economists and researchers.

Modalités de rattrapage

In case of failure or absence, a second oral examination with the same structure will be organized.

Objectifs d'apprentissage

Au terme de la formation l'étudiant-e doit être capable de :

- Employ generative AI tools responsibly for research.
- Compare critically traditional and AI-assisted research methods.
- Produce a custom GenAI tool and a research proposal.
- Evaluate the strengths, biases, and risks of AI tools in research.

Compétences transférables

- Communicate their opinion and findings effectively.
- Evaluate critically about the role and use of technology in their work.
- Explore autonomously in an evolving digital research environment.