Economics of AI — 2026 BSE

Final Syllabus (reflecting the material actually covered in class)

Course Outline

1. What is AI?
    a. Definitions and views
    b. Machine learning
    c. Reinforcement learning
    d. Foundation models (a teaser — developed fully in Section 2)
    e. Key facts and trends
    f. Economics in AI
    g. Economics of AI
2. Foundation models
    a. What is a foundation model? Capabilities
    b. Competition in the vertical stack
    c. What's new: industry features (proliferation, entry barriers, cost-per-performance, converging performance, winner-take-all vs. commoditization)
    d. AI partnerships
    e. Partnerships: theory (foreclosure, technology and talent pooling)
3. AI, jobs, and growth
    a. AI as a general-purpose technology
    b. Jobs and tasks before LLMs: exposure and evidence
    c. Jobs after LLMs: exposure
    d. Systematic evidence (RCTs: customer support, software development)
    e. Macroeconomics: task-based model and labor demand
    f. Macroeconomics: productivity and growth
    g. Adoption
4. Reinforcement learning
    a. The Markov decision process framework
    b. Policies, values, and the Bellman equation
    c. Model-free methods and Q-learning
5. Agentic markets: an overview
6. Agentic sellers: pricing algorithms
    a. Introduction: algorithms in markets
    b. Pricing theory: commitment and competition
    c. Algorithmic collusion (Calvano, Calzolari, Denicolò, Pastorello)

    d. Empirical evidence (German retail gasoline)
    e. Field experiment on Amazon
7. Agentic platforms: recommender systems
    a. Introduction and sources of power
    b. Quantifying the power of Spotify
    c. Recommender systems: definition and economics
    d. Recommender systems and competition
8. Agentic platforms: choice manipulation
    a. Framework: manipulating choices
    b. Inflated recommendations (Peitz and Sobolev)
    c. Self-preferencing (Aridor and Gonçalves)
    d. Playing it safe (Calvano and Jullien)
9. Agentic buyers
10. Algorithms and public policy
    a. Broad policy challenges
    b. Why is AI different?
    c. The policy landscape: DMA, DSA, AI Act
    d. Application: tackling algorithmic bias
    e. Application: tackling algorithmic collusion
    f. Data-driven incumbency advantage
    g. Looking ahead

About the Instructor

Emilio Calvano (PhD in Economics, Toulouse School of Economics) is Full Professor of Economics at LUISS Guido Carli University in Rome, associate faculty at the Toulouse School of Economics and research fellow of the Centre for Economic Policy Research in London (CEPR) and Einaudi Institute for Economics and Finance in Rome. He is an applied theoretical economist whose research mainly focuses on the theory of Industrial Organization. His research interests include the economics of artificial intelligence, the economics of platforms, information economics and competition policy. His recent work studies the impact of AI powered algorithms (such as pricing software and recommender systems) on digital markets. He has published in top international peer-reviewed outlets such as Science Magazine, American Economic Review, Management Science, American Economic Journal: Microeconomics, Economic Journal and International Journal of Industrial Organization and is associate editor at the Journal of Industrial Economics. In 2023 he has been awarded a 5 year multi-million European Research Council Advanced grant to conduct academic research Artificial Intelligence and Competition.

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Full list of readings, consolidated and alphabetical.

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