

MODULE SYLLABUS

AI in the Digital Economy

(人工智能在数字经济中的应用)

Module: Economic Perspectives on Artificial Intelligence

COURSE LEVEL	Graduate	FORMAT	Co-taught course; 3-week module
INSTRUCTOR	Dr. Yapei Zhang	INSTITUTION	ShanghaiTech University
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Overview

This module examines artificial intelligence through the lens of economics and finance. It studies AI as a productive tool, a force that reshapes markets and information, and a technology with broader effects on productivity, labor, competition, and governance. The module emphasizes economic mechanisms, evidence, real-world cases, and responsible interpretation of rapidly changing AI developments.

Learning Outcomes

- Explain how algorithms, compute, and data shape the economics of AI.
- Classify AI systems by both technical capabilities and economic market functions.
- Evaluate applications of AI in asset pricing, credit, venture finance, and firm decision-making.
- Identify data, validation, overfitting, interpretability, manipulation, and governance risks.
- Analyze the effects of AI on market structure, productivity, labor, and economic responsibility.

Teaching and Learning Approach

Short lectures are combined with frontier research, real-world cases, in-class simulation, and a group AI Frontier Briefing. Students are expected to distinguish technical novelty from economic significance and to evaluate claims critically.

Module Structure

WEEK	TOPIC	FOCUS
1	AI as a Tool	Historical evolution; AI, machine learning, and deep learning; algorithms, compute, and data; economic functions of AI; data quality, model validation, overfitting, interpretability, and statistical discrimination.
2	AI Reshaping Markets	AI in financial decision-making and capital allocation; machine learning in asset pricing; alternative data and credit; venture-capital screening; endogenous data manipulation; economics of AI firms and implementation choices.
3	AI and the Broader Economy	Productivity and the productivity paradox; automation and augmentation; labor-market effects; data as a production factor; market power; responsible AI, data rights, contracts, code, control, and governance.

Assessment

AI Frontier Briefing	A 10-minute group presentation by 2-3 students on a concrete AI development from the preceding 6-12 months.
Required elements	A precise account of what happened, a hands-on demonstration when accessible, and an economic interpretation addressing cost, market power, entry barriers, incentives, or systemic risk.

Teaching Materials and Cases

Frontier research papers, current AI industry evidence, the Pukang Technology teaching case, and instructor slides. Materials are updated as new models, regulations, market practices, and empirical findings emerge.

Academic Integrity

Students are expected to comply with ShanghaiTech University standards on academic integrity. All submitted work must be original, properly attributed, and completed in accordance with the stated collaboration rules.