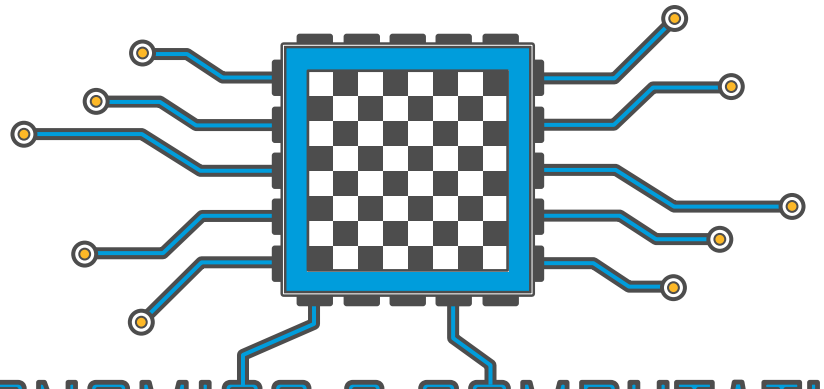


Spring 2026 | Lecture 0

Overview

Ariel Procaccia | Harvard University

David C. Parkes

1973–

Dean of Harvard SEAS. Started teaching “Economics and Computation” in 2011.

SYLLABUS

Game theory

- Nash equilibrium
- Equilibrium computation
- Extensive-form games
- The price of anarchy

Social choice

- Voting rules
- The epistemic approach to voting
- Strategic manipulation in elections

Mechanism design

- The VCG Mechanism
- Strategyproof approximation algorithms

Fair division

- Cake cutting
- Rent division
- Indivisible goods
- The price of anarchy

Matching

- Online matching algorithms
- Kidney exchange
- Stable matching
- Random assignment

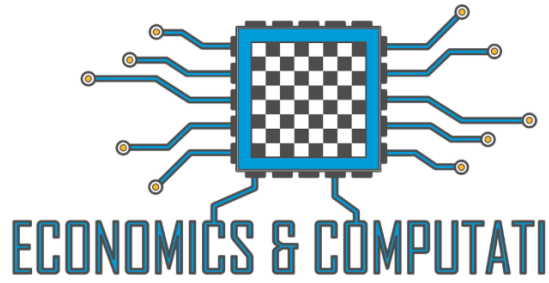
Social networks

- Cascade models
- Influence maximization

AI connections

- Minimax Theorem via no-regret learning
- Feature attribution
- Fairness in machine learning
- Virtual democracy

COURSE WEBSITE



Harvard University | CS 1360 | Spring 2026

Time: Tuesdays and Thursdays at 11:15am-12:30pm

Location: SEC 1.321

Instructor: Ariel Procaccia

Economics and Computation explores the interaction between the disciplines of economics and computer science. In one direction, we will see how computational thinking (including concepts like approximation algorithms and worst-case analysis) gives a new perspective on areas of economic theory such as game theory, mechanism design, and social choice. In the other direction, we will discuss how economic approaches can address timely questions in computer science and artificial intelligence. Special attention will be devoted to problems of societal significance. For a detailed list of topics, see the course schedule.

Recommended preparation: Familiarity with probability theory (as taught by, e.g., Stat 110) and the basics of theoretical computer science (e.g., complexity theory and asymptotic runtime analysis, as taught by CS 1200, 1210, or 1240) is assumed. Background in artificial intelligence, such as CS 1810 or CS 1820, is useful but not required. Background in economic theory is not assumed.

Requirements: Grades are based on five homework assignments (8% × 5 = 40%), class attendance (10%), a midterm exam (20%), and a final exam (30%).

Ed Discussion is used for Q&A. Enrolled students can sign up using this link.

Gradescope is used for grading. Enrolled students can sign up through the Gradescope website using the code 8DN8Y7.

https://sites.google.com/view/econcs26