Understanding and Predicting Technological Innovation
Prof. Jessika Trancik

Class Outline

Day 1
Module 1: Data-based models and predictions

9:00-10:30:   Technology innovation: Definitions, metrics, and course overview.

10:30-10:45:   Break

10:45-12:00:   Data-based models of technological innovation.

12:00-1:30:   Lunch

1:30-3:00:   Class introductions and guided exercise on analyzing technology innovation trends.

3:00-3:30:   Break

3:30-5:00:   Students will work in groups and report back on their assessment of the rates of innovation across various industries and the best-performing models.

Day 2
Module 2: Theory

9:00-10:30:   Lecture on theories of technological innovation. How do we explain the observed evidence?

10:30-10:45:   Break

10:45-12:00:   Theory continued.

12:00-1:30:   Lunch

1:30-3:00:   Group exercise and discussion of design and investment decisions based on features of a technology's design.

3:00-3:30:   Break

3:30-5:00:   Which technologies improve fastest and why? Students will consider the component dependencies and flexibility of various technologies and industries, working in small groups.

Day 3
Module 3: Applications

9:00-10:30:   Lecture on applying insights from data and theory to decision making in private firms and government. How can we optimize technology design decisions and investment portfolios?

10:30-10:45:   Break

10:45-12:00:   Guided exercise on decision models.

12:00-1:30:   Lunch

1:30-3:00:   Students will optimize technology portfolios in a context of interest: engineering design, private investment, or public investment.

3:00-3:30:   Break

3:30-4:30:   Students will report back on insights relating to technology design and portfolio optimization.

430-5:00:   Summary lecture on insights and applications.