THE UNIVERSITY OF TEXAS AT AUSTIN / DEPARTMENT OF GOVERNMENT

Causal ML & Earth Observation
for Social Science

GOV 385L Fall 2026 **Tuesdays, 9:30 a.m.–12:30 p.m. CT**

A political border made visible by land-use policy: Kazakhstan (left), China (right).
Landsat 8 OLI, September 9, 2013. NASA Earth Observatory/Robert Simmon; USGS Landsat data.

Satellites now observe every field, road, settlement, and forest on Earth, many times a year. This course teaches you to turn those observations into causal evidence about society: how to measure a social outcome or exposure from imagery, how to join that measurement to an experiment or natural experiment, and how to use machine learning with high-dimensional image data.

Drawing on Planetary Causal Inference research, students in this course will learn how satellite imagery and large-scale remote sensing data can reveal new dimensions of treatment effect heterogeneity, confounder modeling, and outcome measurement. Through a blend of methodological foundations and applied exercises, the course examines how these tools enable researchers to understand the transportability and generalizability of causal effects across diverse contexts. Students will gain hands-on experience integrating EO data into experimental and observational frameworks—such as randomized controlled trials (RCTs) and natural experiments—to strengthen causal claims on topics ranging from environmental policy to economic development. By the end, participants will be equipped to use planetary-scale data and modern causal-ML techniques to address questions at the intersection of society, economy, and the environment.

Instructor	Connor T. Jerzak	**Email**	connor.jerzak@austin.utexas.edu
Office	BAT 3.108	**Office hours**	Tuesdays, 2:30–3:30 p.m., or by appointment
Classroom	See the UT course schedule and Canvas	**Course site**	Canvas

Version September 10, 2026. The current version is posted on Canvas.