**Workshop description:**

Our focus in this workshop is to learn and learn to apply the “difference-in-differences” (DiD) methodology, a popular research design for causal inference the quantitative social sciences, as well as the classic synthetic control model. As some of these models are quite advanced, the goal is to provide “step downs” as much as possible through explainer style lecturing and examples of programming code. The goal is that we will as a group reach a level of basic competency at implementing these models as well as a conversant level of literacy around the methods. The hope is that by the conclusion of the workshop, the methods will have been demystified and that you will feel more comfortable using it in your own research, as well dive deeper into the material yourself.

**Github repo I:**

[**https://github.com/scunning1975/causal-inference-class**](https://github.com/scunning1975/causal-inference-class)

**Github repo II:**

[**https://github.com/scunning1975/CI-Solutions**](https://github.com/scunning1975/CI-Solutions)

**Outline**

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| **DAY ONE** | | |
| 45 min | Two by two without covariates | Mixtape chapter |
| 1 hour 15 min | Two by two with covariates | Abadie (2005); Sant’Anna and Zhao (2020) |
| 1 hour | Bias of TWFE under differential timing | Goodman-Bacon (2021); simulation |
| 1 hour | Manual aggregation methods I: static and dynamic | Callaway and Sant’Anna (2020); simulation |
| **DAY TWO** | | |
| 1 hour | Manual aggregation methods II: dynamic | Sun and Abraham (2020); |
| 1 hours | Stacked regression | Minimum wages: Cengiz, et al. (2019); Clemens and Strain (2021) |
| 1 hour | Imputation | Borusyak, Jaravel, and Speiss (2021); Clemens and Strain (2021, *if time*); simulation |
| 1 hour | Synthetic control | Abadie, Diamond and Hainmueller (2010); example |