



**Yale School of Engineering & Applied Science**  
**Department of Mechanical Engineering**  
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**Practical Mathematics for Pandemics**

It has been an extraordinary 18 months. The urgent need to find solutions in the midst of a global pandemic has motivated many members of the scientific community to seek out new collaborations and tackle new problems. In this talk I will describe two such experiences from the past year. The first begins with a collaboration in which we derive a framework to estimate the amount of random viral testing, follow-up contact tracing, and subsequent isolation of infectious individuals required to prevent outbreaks in different communities. This analysis led to a partnership with NIH's RADx initiative and the development of [whentotest.org](https://whentotest.org), a website that is now being used to inform policy in multiple states and organizations. The second story explores the impact of opening NFL stadiums to fans during the pandemic. Borrowing techniques from economics, we apply synthetic control methods to analyze covid case counts to determine whether opening stadiums has a detrimental, beneficial or neutral effect on the surrounding community.

**October 13, 2021**  
**2:30 – 3:30 pm**

**Location – Via ZOOM**

**Meeting ID: 937 0811 0959 Password: OEFaSXpRQWdwME9Oc1Z5bVc3dGRrdz09**

<https://yale.zoom.us/j/93708110959?pwd=OEFaSXpRQWdwME9Oc1Z5bVc3dGRrdz09>  
(weblink)

***Host: Madhusudhan Venkadesan***