

ECI 289A D-Lab COVID 19

Spring 2020

Units: 4 units

Instructors: Maureen Kinyua, Kurt Kornbluth

Mtg. times: Tuesday, Thursday 10am-11:50am

Lecture location: Canvas Zoom

Office Hours: By appointment

Course Description:

COVID 19 was declared a pandemic by World Health Organization. A pandemic refers to a disease epidemic that spread over several countries or continents. An epidemic disease refers to an increase, often sudden, in the number of cases of a disease above what is normally expected in given population in a specific area.

In addition to the primary impact on human health, the sudden increase in COVID 19 cases in the California has the potential to negatively impact the quality of life. This occurs when existing non-medical infrastructure (e.g., water and energy utilities and transportation) lacks the resiliency to withstand projected intensity of the pandemic. The situation is worse for communities that are already marginalized (e.g., low-income and ethnic minority groups).

Acknowledging the critical role infrastructure systems have in intensifying or alleviating the vulnerability of communities to pandemics, this course will provide students with the opportunity to evaluate the capacity of water, energy and or transportation infrastructure to pandemics and propose potential innovations to tackle the pandemic with the goal of reducing the risk of negative impacts from COVID 19.

Expected Course Outcome:

By the end of the quarter students will be able to demonstrate the ability to evaluate the capacity of US infrastructure (e.g., transportation and water) to handle the impacts of COVID 19 pandemic. For the purpose of this course, categories of capacity are

1. Social capacity - for a given service: what is the gap between the levels of service provided and what is needed? What is the institutional (e.g., standards and policies) framework and human resources needed to provide the services?
2. Economic capacity - how much does it cost to provide services, what are the financial services available (loans, subsidies, bonds etc.)
3. Environmental capacity - availability of natural resources to provide services, impact on the environment (i.e., level of carrying capacity and stress to the environment).

Course Objectives

1. Students identify appropriate social, economic and environmental (SEE) variables that impact infrastructure capacity pre, during and post pandemic

2. Students demonstrate understanding of how individual SEE variables inform infrastructure capacity pre, during and post pandemic
3. Student develop an infrastructure capacity analysis which reflects evaluation of all SEE variables

Submission and Late Work Policy:

All assignments will be turned in through canvas on the due date. Late work will not be accepted without prior arrangements.

Grading:

Attendance and punctuality are mandatory (you are only allowed 1 unexcused absence).

Furthermore, since your work in this class has the potential to impact the lives of people around the world, we expect an appropriate level of commitment.

Class participation, attendance: 15%

Peer Evaluation: 5%

Sector Paper: 25%

Group Presentations: 30%

Final Report: 25%