



Fall 2021 Project-based Courses and Descriptions

Bacterial Antibiotic Resistance (NU Path, ND)

- **Faculty designer and discipline:** Veronica Godoy-Carter, Biology
- **Project Description:** Are we entering an era in which bacterial infections will not be easily treated; forcing us to resort to 1850s medicine? The bacterial antibiotic resistance problem, in which bacteria become superbugs, is a global challenge that needs to be addressed from many different points of view including science, economics, and health policy. You will learn about these aspects when joining this learning community. You will learn about bacteria, which are the most fascinating living organisms, and the magic bullet (antibiotics), and how these two intersect. For the project, students will draft a proposal to the World Health Organization indicating who should be involved in funding and production of safe and effective novel antibiotics to overcome bacterial drug resistance, and to ensure the health of the population is equitably protected from infections over time.

Immigration Justice (NU Path, DD)

- **Faculty designer and discipline:** Gordana Rabrenovich, Sociology
- **Project Description:** Immigrants are an integral part of American society. They helped build our country and contribute to its growth and success. Immigrants are also an easy target to blame for social, economic and political problems that our society faces. In addition, they are often denied equal access to societal resources and are the focus of prejudice and hate attacks. To address these challenges, immigrants often seek legal remedies, participate in host countries' political decision-making processes, and build coalitions with other immigrants and with members of their host societies. For the project, students will identify a particular problem facing immigrant groups in Boston. They will then propose how to build a coalition that works to ensure immigrants have fair and just access to resources and opportunities related to that specific problem. Finally, they will present their proposals to the City of Boston office on Immigrant Advancement.

Racism and Racial Inequality in the United States (NU Path, DD)

- **Faculty designer and discipline:** Heather Streets-Salter, History
- **Project Description:** Why is racism and racial inequality so entrenched in the United States? This project takes a global and historical approach to understanding contemporary racism and racial inequalities, with a view to envisioning substantive, effective reforms. We explore what 'race' actually is and its history as a concept. We examine the global influence of racism in the context of slavery and empire, paying particular attention to the racial inequalities and systems of structural racism that developed in settler colonies. Projects center around the development of a presentation to a local or state advocacy agency designed to increase racial equality in measurable ways.

Conflicts of Interest and Economic Inequality (NU Path, SI)

- **Faculty designer and discipline:** Nicole Boyson, D'Amore McKim School of Business
- **Project Description:** Nearly every relationship between people, countries, or companies entails potential and often unavoidable **conflicts of interest**. For example, investment professionals have incentives to sell products that pay them the highest commissions, while healthcare providers have incentives to perform expensive – and perhaps unnecessary – surgeries. All these conflicts involve one party (the **agent**) putting his personal interests before the best interests of another (the **principal**). In this project course, we examine the history of conflicts of interest in the United States in a number of institutional, social, and legal settings and study how the existence of conflicts can exacerbate economic inequality. We research existing and potential solutions to conflicts, such as regulation, certifications, personal oaths, education, and market-based initiatives. Student projects investigate an existing conflict of interest and develop a policy recommendation to present to advocates, professional organizations, regulators, and/or policymakers.

Urban Infrastructure (NU Path, ND)

- **Faculty designer and discipline:** Matthew Eckelman, Civil and Environmental Engineering
- **Project Description:** The majority of humans live in cities, but how do cities actually work, physically? Why are our cities designed as they are? And how can we implement urban systems that are more sustainable, resilient, and equitable? Properly functioning infrastructure is essential for the function of modern societies, yet there is chronic under-investment, totaling trillions of dollars just for the United States alone. We will explore different types of urban infrastructure – transportation, energy, water, telecommunications, food, and waste management, among others – in terms of basic engineering principles, how advances in infrastructure technology have shaped history, and how the benefits and costs of major infrastructure decisions are distributed. Each student project will critically investigate a local piece of infrastructure of their choice, to explain its design, financing, level of performance, environmental and social impacts, and finally to suggest innovations that could be harnessed to make improvements for their local communities.

The Global City (NU Path, SI)

- **Faculty designer and discipline:** Oliver Ayers and Lars Kjaer, History and Geography, New College London



- **Project Description:** From the COVID-19 pandemic to renewed calls for racial justice across the world, the events of 2020 have reinforced how cities are crucibles of social transformation - for good and ill. But there is a deeper and conflicted history here: time and again, it has been in cities where empires have risen and fallen, where philosophical ideas have been debated, where laws have been enacted, where political decisions have been made and contested and - crucially - where people have migrated to live, work and forge social relationships. At a time of profound global change when the future of cities and the wider world looks uncertain, how can we make these complex and oftentimes difficult pasts work for us, promoting reconciliation in the present and helping to create inclusive and sustainable futures?

Security Scanning

- **Faculty designer and discipline:** Cary Rappaport, Chemical and Electrical Engineering
- **Project Description:** Everybody hates airport security. The lines, the waiting, the disrobing, the pat-downs, and the general atmosphere of suspicion makes the process unpleasant. On the other hand, everybody wants to be safe on airplanes. This project course considers the technology of security scanning and the reasons why the security experience is so inconvenient. Projects will consider ways of improving the experience and what security scanning may look like in the future. The final deliverable will be a proposal to suggest meaningful improvements to the entire process that considers all parties: the traveling public, the security establishment, the scanning equipment manufacturers, and the airports.

Sustainable Fisheries Management

- **Faculty designer and discipline:** Jonathan Grabowski,
- **Project Description:** How can industrial and artisanal fisheries around the world be designed to simultaneously promote food security, the well-being of fishing communities, and the sustainability of coastal marine ecosystems? We review common elements of fisheries that result in them achieving or violating elements of sustainability, from the ecosystem to the communities that sustain their livelihood through fishing. We also examine fishery food supply chains, and the practices and policy changes that could be implemented to enhance local and regional food security. For the project, students will pick a fishery and develop a proposal that provides policy recommendations and practices aimed at improving the well-being of its fishers, the sustainability of the coastal marine ecosystem that is within, and local and regional food security.