

Yale National Initiative
Proposed Seminar Descriptions for 2021
Ian Shapiro
Sterling Professor of Political Science

“Democracy and Inequality: Challenges and Possible Solutions”

It was once widely believed that democracy and equality went hand in hand, a belief that frightened wealthy elites and heartened the poor. In fact, democracies not often coexist with high and even increasing levels of inequality – as we have seen in the United States and many other democracies over the past half century. This seminar will focus on understanding this puzzle and exploring possible responses to it. We will look at the ways in which the political system and the economy affect one another, the role of electoral systems and political parties, and why attempts to address different kinds of inequalities, such as those of class, race, and gender, often fare differently from one another in democratic politics. The main focus will be on democracy and inequality in the US over its history, but we will also pay attention to other democracies for sources of insight. We will evaluate various proposed reforms to the US system that might reduce inequality, and the feasibility of enacting them.

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Frances Rosenbluth
Damon Wells Professor of Political Science

“Gender, Race, and Class in Today’s America”

This seminar explores different forms of inequality that characterize American society, considered over the course of our history and compared with other countries. Where do these multiple forms of inequality and discrimination come from, and what are their consequences? What do they have in common and how are they different? Why do they all-too-often intersect? How can we as individuals and as a society deal most effectively with the causes and consequences of inequality? This seminar will draw on insights from history, social science, and the language arts to help students understand their world and to reimagine their opportunities.

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Proposed Seminar Description for 2021
David C. Engerman
Leitner International Interdisciplinary Professor of History

“U.S. Social Movements through Biography”

This seminar examines a handful of modern social movements through the lens of life histories. It aims to shed light on key movements in modern American history, including those promoting the abolition of slavery, equal rights for women, workers' rights, civil rights; others topics will depend on teachers' interests. Sample biographical subjects include Frederick Douglass, Eugene Victor Debs, Elizabeth Cady Stanton, Betty Friedan, and Bayard Rustin. The seminar will also help teachers develop inquiry-based pedagogical tools that call on students to read – and think – like historians.

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Proposed Seminar Description for 2021
Anjelica Gonzalez
Associate Professor of Biomedical Engineering

“Human Centered Design of Biotechnology”

As engineers and scientists move towards advanced design of biomedical devices, diagnostic tools and therapeutic solutions, we often lose sight of the ultimate goal of improving the human condition. This leads to a design approach that ignores the ethical, political and social implications of our technologies. Such an approach also reduces the overall adoption of biotechnology, by resulting in designs that are unaffordable, inaccessible and inappropriate for ethnically, religiously and socioeconomically diverse communities in the U.S. and abroad.

This interactive seminar aims to explore best practices in human centered design of biotechnology. We will evaluate biotechnological advancements that are enhancing the quality of life in the developing world and the U.S. We will study the most pressing concerns in global health today, and look ahead to pandemic and epidemic challenges we are experiencing now and may expect in the next 10 years. By understanding the state of global health, how it is changing, and where interventions might be most useful, we can begin to use human centered design to prototype technical solutions for global health challenges.

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Proposed Seminar Description for 2021
Sarbani Basu
Professor of Astronomy

“The Sun, the Solar System and Us”

I propose a seminar on the Sun and the solar system. The curriculum requirements of most states include this topic, which makes this potentially very useful.

This is a vast subject and can go into many different directions, some of which I outline below:

(1) The Sun as a star: How big is the Sun, and how heavy is it? How does it shine? How long will it live? Etc.

(2) The solar activity cycle: What are sunspots, flares and mass ejections? Why do they give rise to aurorae? Can they harm life?

(3) Solar ejections and technology: How can solar emission disrupt technology? What does it do to communication systems on Earth? How much economic damage can they so? Can they harm astronauts in space?

(4) The solar system: Why is Mercury hot, why is Neptune cold? Why do comets show tails? Are there other planetary systems like the Sun? Are other exoplanets like solar system planets? What would it be like to live around our next-nearest star?

(5) The Sun and weather: How does the Sun drive climate and weather? Can it explain global warming? Does it exacerbate or damp global warming?

(6) Solar eclipses: Why do eclipses occur? What can we learn from them? What are the effects of a solar eclipse on Earth? Does a solar eclipse do any harm?

(7) Exploring the Sun and solar system with space missions: We can see the Sun clearly, why do we need space missions to study the Sun? What have we learned from the different missions?

(8) The Sun in mythology: Every culture in the world started with mythologies about the Sun, some more elaborate than others. While this is not a science topic, it does reveal human’ fascination with the Sun and an understanding of how the Sun is central to life on Earth. This could also involve the mythology of solar eclipses.

The seminar topic is essentially the same as that of a seminar that I led in in the Yale-New Haven Teachers Institute in 2005 entitled “The Sun and How It Affects Us.” Some of the units developed then can be found at <https://teachersinstitute.yale.edu/curriculum/units/2005/4/>.

We have learned a lot more about the Sun in the intervening years thanks to exciting space missions such as SoHO, SDO, the Parker Solar Probe and the Solar Orbiter. We also know a lot more about the effects of flares and massive mass ejections can have on technology and society.