



EAS 204

Technological Innovation & Civil Discourse in a Dynamic World

Spring 2021

Mondays 5-8pm ET

Course Instructors

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Course Description:

The promises of today's emerging technologies include longer, healthier lives; safer, faster, and more efficient transportation; and immediate, far-reaching communication mechanisms. Recent advances in machine learning, autonomous systems, nanomaterials, and neurotechnologies offer the potential to dramatically change the way our global society lives, works and shares information. With such prolific power, these technologies also pose new challenges and risks such as reduced individual privacy; political repercussions; and inequitable access to the benefits of technology. Rapid technological innovation often outpaces and challenges established legal regulations, cultural norms, and societal frameworks of communications.

A robust civil discourse anchored in technical expertise, cultural context, and inclusivity can foster the optimization of the benefits of emerging technologies. This course is aimed in preparing undergraduate students to engage in and lead such discourses. The students will consider a series of engineering innovations from technical, legal and social perspectives and will hone the analytical and communication skills necessary to identify and address opportunities for civil discourse.

Interdisciplinary collaboration has proven fruitful in situating technological changes within their social, political, economic, and historical contexts. From an interdisciplinary lens, this course

will consider the intersection between technological innovations and civil discourse from two angles. One perspective will be to examine the *civil discourses about technological innovations*. What do global conversations and public debates concerning powerful, rapidly emerging technologies look like? What roles do various stakeholders – such as, engineers, the media, NGOs, government agencies, and citizens – play? How can such discourses be better served?

A second perspective will be to examine the *technologies that have been shown to enable or thwart civil discourse*. How have global and local communications been either advanced or stifled by the growing proliferation of social media and smart phones? Who holds the responsibility to foster the benefits and to mitigate the risks and unintended consequences of these technologies? How can individual citizens as well as larger institutions best engage in civil discourse by employing emerging technologies?

Course Format:

The class will meet synchronously at 5pm-8pm ET via Zoom. The weekly class meetings will include: (a) a guest speaker presenting scholarship within their field, selected to represent the various schools and departments across Penn; (b) a student-led discussion with the guest speaker; and (c) reading seminar discussions, anchored by student presentations and contextual material such as public policy papers, media coverage and other primary sources.

Student Coursework:

- Weekly Assigned Readings and Discussion Participation (20%)
 - Students will write a weekly brief response to prompts based on the assigned readings to prepare for class discussion. Participation in class will be evaluated.
- Rotating Presenters & Discussion Leaders (20%)
 - Small teams of students will prepare discussion questions and lead the in-class discussion. Individually, each student leader will present on a short piece related to the assigned readings and guest speaker. Each student will be a class leader 2-3 times/semester.
- Source Tracing Assignment (20%)
 - Students will select a piece of journalism covering a topic of their choosing and then trace the various sources. They will write an analytical response to how the piece was constructed, as well as how various stakeholders and communities of interest were represented or not in the piece.
- Final Project: Policy Paper and Presentation (40%)
 - The final project for the course will be a policy paper in which students select a topic and (a) analyze the discourse around that topic and (b) propose policy guidance.
 - Students should analyze the discourse about a selected topic and identify potential areas of communication breakdown, offering policy guidance on where scientific information is most needed and how best to create a more robust,

evidence-based and equitable civil discourse. Students should propose at least one concrete proposal for improvement.

Course Calendar:

January 25

- Course Introduction
- Speaker: Brit Shields
 - Senior Lecturer, Department of Bioengineering, School of Engineering & Applied Science
- Topic: Sociology of Technology

February 1

- Speaker: Christopher S. Yoo
 - John H. Chestnut Professor of Law, Communication, and Computer & Information Science; Director, Center for Technology, Innovation & Competition, Penn Law
- Topic: Law, Technology & International Internet Governance

February 8

- Speaker: Michael X. Delli Carpini
 - Faculty Director, SNF Paideia Program; Oscar H. Gandy Professor of Communication & Democracy, Annenberg School for Communication; Secondary Appointment, Political Science
- Topic: Digital Media and Democracy

February 15

- Speaker: Michael C. Horowitz
 - Political Science Professor, Director of Perry World House, and Richard Perry Professor
- Topic: Emerging Technologies and Global Politics
- Student Project Topic Proposals

February 22

- Speaker: Vijay Kumar
 - Nemirovsky Family Dean of the School of Engineering & Applied Science
- Topic: Robotics, AI
- Student Project Topic Proposals

March 1

- Speakers: Michael Kearns and Aaron Roth
 - Michael Kearns: Professor and National Center Chair, Department of Computer and Information Science; Founding Director, Warren Center for Network and

Data Sciences; Founder and former Director, Networked and Social Systems Engineering Program; Secondary Appointments in Economics, Statistics and Operations, Information and Decisions, Wharton

- Aaron Roth: Professor of Computer and Information Science; Co-Director of Networked and Social Systems Engineering Program
- Topic: Ethical Algorithms

March 8

- Speaker: Michelle Johnson
 - Associate Professor, Physical Medicine and Rehabilitation; Associate Professor, Bioengineering; Director of Rehabilitation Robotics Lab
- Topic: Robotics, Affordable Rehab Robots
- Readings:
 - Michelle Johnson, "[How to create affordable rehab robots](#)," TED Talk, 2016
 - M. J. Sobrepera, E. Kina and M. J. Johnson, "[Designing and Evaluating the Face of Lil'Flo: An Affordable Social Rehabilitation Robot](#)," IEEE, 2019
 - Johnson, M. et al., "Design of an Affordable Socially Assistive Robot for Remote Health and Function Monitoring and Prognostication," Journal of Prognostics and Health Management, 2019

March 15

- *Note: Guest Speaker will visit at 6:30pm ET*
- Speaker: Sandra González-Bailón
 - Associate Professor, Annenberg School for Communication
- Topic: Network Science, News Consumption

March 22

- Speaker: Duncan J. Watts
 - Stevens University Professor, Annenberg School for Communication; Computer and Information Science, School of Engineering & Applied Science; Operations, Information and Decisions, Wharton
- Topic: Consumption of Misinformation & Media Sources
- Reading:
 - Duncan J. Watts and David M. Rothschild, "[Don't blame the election on fake news. Blame it on the media.](#)" *Columbia Journalism Review*, December 5, 2017.

March 29

- Speaker: Dorothy E. Roberts
 - George A. Weiss University Professor of Law and Sociology and the Raymond Pace and Sadie Tanner Mossell Alexander Professor of Civil Rights
- Topic: Race & Biotechnology
- Reading:

- Dorothy E. Roberts, *Fatal Invention: How Science, Politics, and Big Business Re-Create Race in the 21st Century*, The New Press, 2012, excerpts

April 5

- Speaker: Goubin Yang
 - Grace Lee Boggs Professor of Communication and Sociology, Annenberg School for Communication (Associate Dean of Graduate Studies) & Department of Sociology, School of Arts and Sciences; Director, Center on Digital Culture and Society; Deputy Director, Center for the Study of Contemporary China
- Topic: Media Activism

April 12

- Engagement Day: No Class Meeting

April 19

- Student Presentations

April 26

- Student Presentations