

VT A "Public Inspired Science" Graduate Training Program

Clickable poster 

Marc A. Edwards and Siddhartha Roy, Civil and Environmental Engineering, Virginia Tech

"Set the millions of eyes in this great Republic to watching, and intelligently observing and thinking, and there is no secret of Nature or art we cannot find out; no disease of man or beast we cannot understand; no evil we cannot remedy; no obstacle we cannot surmount" – Jonathan B. Turner (1866), Father of the Land Grant University Act

MODEL

Graduate class:
[Engineering Ethics and the Public](#)

Projects:
Citizen Science Collaborations and Field Work

PUBLIC INSPIRED SCIENCE

Public Reflections:
Storytelling, podcasts, and documentaries

Outreach:
Professional documentaries congressional work, papers

- ## GOALS
- Retain and Train → Altruistic, ethical engineers who seek and speak the truth — especially when doing so is unpopular
 - Acknowledge and overcome barriers to ethical practice (i.e., personal bias, perverse incentives, institutional corruption, shunning)
 - Understand historical dangers of ill-informed academic activism, but also learn effective "last resort" strategies for whistleblowing
 - Generate valid scientific data, oftentimes in direct collaboration with the public, to assist stakeholders in evaluating complex problems
 - Cultivate engineering ethics "street smarts" and coping strategies through case studies and engagement with unfolding public dilemmas

REAL-WORLD IMPACT

Over **11** YEARS we have trained **142** GRADUATE STUDENTS working with the public




leading to gut-wrenching ethical reflections in

5 COMMUNITY SCIENCE DOCUMENTARIES



11 PODCAST STORIES

10+ EDITORIALS/ OPINIONS

We helped uncover a public health crisis in Flint, but learned there are costs to doing good science

Science is broken
The Hand-in-Hand Spread of Mistrust and Misinformation in Flint

Enginers shall hold paramount the safety, health and welfare of the public — but not if it threatens our research funding?
Edwards, Pruden, Roy, Rhoads

Should scientists engage in activism?
Ivan Oransky, Adam Marcus

Academic Research in the 21st Century: Maintaining Scientific Integrity in a Climate of Perverse Incentives and Hypercompetition
Marc A. Edwards* and Siddhartha Roy†

Citizen Science During the Flint, Michigan Federal Water Emergency: Ethical Dilemmas and Lessons Learned
Siddhartha Roy and Marc Edwards

The Flint Water Crisis: Overturning the Research Paradigm to Advance Science and Defend Public Welfare
Marc A. Edwards* and Amy Pruden

This work has reached communities in **250+** CITIES



including Washington DC, Flint MI, Denmark SC, Cicero IL

spurred **3** FEDERAL/STATE EMERGENCIES

4 NEW LAWS TO PROTECT PUBLIC HEALTH

and (in)directly led to **>\$1** BILLION IN FUNDING RELIEF

12 CONGRESSIONAL HEARINGS AND INVESTIGATIONS

reaching/engaging tens of millions via

250+ PRESENTATIONS

3 TED TALKS IDEAS WORTH SPREADING

20+ DOCUMENTARIES

300+ NEWS STORIES




All brands, logos, covers, and trademarks are the property of their respective owners. Icons: icons8.com. Images: Molly Riley/AP, Virginia Tech.