

Controversies in Medicine, Technology and the Environment

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Course Code: STIS10009

Course Year: 2026-27 (Semester 1, possibly Monday morning)

Course URL in Path: https://path.is.ed.ac.uk/courses/STIS10009_SV1_SEM1

Reading list: <https://eu01.alma.exlibrisgroup.com/leganto/nui/lists/62361742650002466>

Student feedback: Comments from 2025-26 cohort ([mid-term](#) and [end-of course](#))

**** The order of the lectures may still be subject to minor modifications ****

Session 1: What is a controversy?

We will explain our understanding of controversies and why they matter in the field of Science and Technology Studies. The lecture will also review different types of controversies and ways to investigate them, outlining the remaining sessions of the course. Historical, sociological, philosophical and political science perspectives for analysing the arguments and actors involved in controversies – both within and outside the scientific community – will be introduced. We will also address the issue of whether controversies end up being resolved or re-emerge in particular social and historical contexts.

Students will perform a number of group exercises identifying different controversies around the Covid-19 pandemic. These controversies will focus our analysis during the subsequent weeks of the course.

Session 2: Controversy analysis - From the philosophy to the sociology of science

This session explores how science develops and how disagreements emerge over scientific and technical issues. We begin with early philosophy of science, examining approaches that emphasised testing, verification, and the criteria for distinguishing scientific knowledge from non-science. The evolution of these ideas highlights how scientific knowledge is provisional, subject to challenge, and shaped by competing interpretations. We then move to the sociology of science, considering how social, historical, and institutional contexts influence the production and acceptance of knowledge. Controversies are understood not just as clashes of ideas, but as processes shaped by broader societal forces, reflecting the interpretive flexibility of scientific facts and the co-production of science and society.

Session 3: Controversies as socio-technical networks

Controversies, understood as disagreements between scientists, technical experts or other social actors, have been a privileged object of inquiry in the field of Science and Technology Studies (STS). We will explore an early analytical perspective that emerged in the mid-1980s: actor-network theory. This perspective involved following the actors that were at stake in a controversy and considering the many strategies by which they created connections with – and influenced – others. Actor-network theory stimulated fruitful debates within STS and was crucial for the emergence of sociological and anthropological studies of how scientists worked at the laboratory.

Session 4: Blogpost writing

In this session, we will review the criteria and expectations for the first major assessment of the course. Students will be able to make questions and sound their plans with their peers and teaching staff.

Session 5: Controversies and digital environments

Digital environments have changed and continue to change the way humans communicate, socialise, and learn, and this is changing how scientific and technological controversies unfold. Actors advocating for particular scientific positions or technologies – from politicians and activists to interest groups and members of the public – are now able to organise with others, disseminate information, and influence large numbers of people rapidly at little cost. In this lecture, we examine how digital methods are being used to analyse and map the dynamics of controversies over science and technology in these environments, and the similarities and differences between controversies in these spaces and others.

Session 6: Power dynamics - Frame analysis and discourse coalitions

In this session, we discuss the legal, political, regulatory and cultural factors shaping (and shaped by) scientific research. We will examine a number of theoretical perspectives on the formation of alliances and coalitions to shape the policy agenda. Competing accounts of the world can be understood as 'frames' that enable people and groups from diverse backgrounds to relate to each other in the understanding of a complex problem. These frames circulate as discourses and mediate both the controversies and formation of alliances among different social groups. We will use frame analysis to explore the development of policy and the engagement in scientific research by different publics. This will be illustrated through the example of acid rain and the environmental controversies it has sparked.

Session 7: Network dynamics - Infrastructures, boundary objects and boundary work

Controversies never occur in a vacuum, but in complex social organisations comprising scientific institutions, political stakeholders, economic interests and the public. This creates an intricate network of actors (both social and institutional) that communicate and interact with each other through different channels. The session will explore how these complex organisations and their institutional strategies shape the arguments of a controversy and their acceptance by different audiences. As an example, we will analyse the launch of the *Challenger*, a space shuttle that disintegrated in the skies of the US in 1986, killing all its crew.

Session 8: Blogpost and policy brief writing

In this session, we will review the criteria and expectations for the final assessment of the course. Students will be able to make questions and sound their plans with their peers and teaching staff.

Session 9: Expert evidence and controversies in the courtroom

Scientific data and technical experts are a common feature in courts of law. During trials, controversies arise about the standing and credibility of these type of evidence and specialists. The outcomes are more unpredictable than anticipated and proofs that would, at a first sight, seem superior or unquestionable – such as traces presented by forensic scientists – have to compete with challenges from defence solicitors or information provided by more lay witnesses. This lecture will explore the conditions under which scientific evidence is accepted or rejected, building on the fruitful interaction between the sociology of law and the field of Science and Technology Studies. The organisation of legal proceedings, the ways evidence and testimonies are presented in the courtroom, and different social dynamics between judges, lawyers, witnesses, defendants and juries shape the transition of data from the scientific laboratory to the justice system. The contested evidentiary power of genetics will be used as an example of judicial controversy. Although the session will be focused on court cases, the concepts and methods we will discuss are adaptable to any scenario in which expert evidence is mobilised and differently interpreted by a variety of actors. Healthcare interventions, regulation of emerging technologies or scientific fields, and environmental policymaking are other settings to which the learnings from courtroom sociology could be suitably applied.

Session 10: Wrap up and conclusions

The session will start with some reflections on key ideas, concepts and debates discussed during the course and questions by students. It is essential that students revise the prior course materials ahead of the session and identify issues that are unclear or require further information from the lecturers. There will also be time for last-minute questions about the upcoming final assessment of the course.

Course Assessments

This course has **three** assessments.

Title	Weighting	Word count	Due date	Expected feedback return date
Blogpost (outline of essay ideas)	30%	Up to 1,500	Mid-term	Three weeks after deadline
Essay	60%	Up to 3,000	End of semester	Three weeks after deadline
Reading portfolio	10%	Up to 100 words per contribution	By 11:59pm on Sunday each week of the course from Week 1	Formative feedback will be provided halfway through the course