

1. Informations générales :

Titre du cours :	<i>Science and society: a sociological perspective on responsible research.</i>		
NOM de l'enseignant·e :	Séverine Louvel	Semestre :	☐ Automne ☒ Printemps
Public visé :	☐ 1 ^{ère} année ☒ 3 ^{ème} année	Langue :	☐ français ☒ anglais
Nombre maximal d'étudiant·es :	☒ 20 ☐ 30 ☐ 40 ☐ 50 ☐ Pas de maximum	Organisation du cours :	☒ 9 séances de 2h sur 9 semaines ☐ 12 séances de 1h30 sur 12 semaines ☐ 12 séances de 1h30 sur 6 semaines ☐ 6 séances de 3h sur 12 semaines

2. Résumé du cours :

Information and communication technology, biology, and environmental research profoundly shape contemporary societies. Scientific knowledge and technological innovation influence public policies, economic development, and everyday life. At the same time, science has become the object of increasing public debate: while citizens expect scientists to provide knowledge and expertise to address major societal challenges, they also question the authority and credibility of scientific experts and the potential risks associated with scientific and technological developments.

These debates reflect broader transformations in the relationships between science and society. From a sociological perspective, they raise important questions: how are expectations toward science socially constructed? How are the credibility and authority of scientific knowledge established and maintained? How are the boundaries between science, politics and society negotiated? And how do different actors—scientists, policy-makers, research institutions, and citizens—define what counts as “responsible” research?

This course adopts a sociological perspective on science, technology and expertise. It examines how the social responsibility of science has emerged as a key issue in contemporary science policy and public debate. In sociology of science, responsible research can be understood as the contemporary expression of two long-standing concerns: (1) responsible research practices, referring to the social norms and institutional arrangements that support the production of valid and reliable scientific knowledge; and (2) socially relevant science, referring to the expectation that research should address societal issues and produce benefits for citizens.

While these two dimensions are widely recognized in contemporary science policy, they are interpreted differently by scientists, policy-makers, research institutions and citizens. The course therefore analyses the social and political processes through which the responsibility of science is defined, governed and contested. It will first examine policy initiatives aimed at promoting responsible research practices (for example policies addressing research integrity, scientific misconduct or open science). It will then explore how the meaning of socially relevant science has evolved in science policy and in scientists’ professional norms, and how institutions attempt to evaluate the societal value of research. Finally, it will examine new governance frameworks that seek to involve civil society more directly in scientific research and technological innovation, highlighting debates about public engagement, citizen science and the role of lay expertise in knowledge production.

The course is open to any student interested in science and in understanding the relationships between science and society, including the challenges involved in assessing the societal impacts of research. It is also open to students who wish to reflect on the role that citizens can play in shaping socially responsible research, even in scientific areas where they do not have technical expertise.

3. Pré-requis éventuels :

None

4. Modalités de contrôle des connaissances et des compétences envisagées :

Continuous assessment

This course is assessed through three components. Together, they evaluate students' participation, their understanding of the course, and their ability to think critically about the topics discussed.

The **participation grade (30%)** is based on preparation for class, and active involvement in discussions and in-class activities.

The **15-minute oral exam (30%)** focuses on basic knowledge and understanding of the course. Students will be asked to explain key concepts, ideas, and examples discussed during the sessions, using clear and simple language.

The **1.5-hour written exam (40%)** consists of written answers to questions that connect several course sessions. This exam evaluates students' ability to understand the main issues related to responsible research and to develop a clear, structured, and critical argument based on the course content.

5. Description détaillée du cours

Course objectives

After this course, the student:

- understands how the relationships between science and society are analysed in the sociology of science and technology, using concepts such as the credibility and authority of scientific knowledge, the social norms and institutional arrangements of science, boundary-work, the governance of science, lay expertise, and citizen science;
- situate debates about responsible research within broader political, institutional and social transformations of contemporary research systems;
- analyse how scientific knowledge and expertise are shaped by institutions, policies and societal expectations;
- apply this knowledge to concrete and topical examples.

Format and coursework

This course is based on a combination of lectures and active learning approaches. Most sessions require preparatory work at home, while others do not. When preparation is required, students will be asked to read one short text (such as a social science research article or a newspaper article, for example published in *The Conversation*) and, occasionally, to watch or listen to a short audio or video document. These materials will then be discussed during the class and will serve as a basis for collective analysis and debate.

A central part of the course takes place during the sessions themselves. Students are expected to engage in active notetaking, to participate in class discussions and debates, and to take part in short in-class exercises. Participation during class, rather than passive listening, is therefore essential. In order to support active engagement, the instructor may restrict the use of laptops during class if participation and attention are insufficient (in that case, laptop use may be authorised only for medical reasons).

Outline

Theme 1 – Responsible research practices: norms, institutions and the organization of science

A central tenet of scientists' social responsibility is the production of high-quality knowledge. From a sociological perspective, this raises questions about the norms, institutions and incentive structures that organize scientific work and support the credibility and reliability of scientific knowledge. Does the current system of scientific publishing encourage researchers to produce robust knowledge? Are we witnessing a "scientific publishing crisis"? And how does science communication evolve in the era of the Internet and social media?

1. Integrity in scientific publishing. Scientific publications play a central role in establishing the credibility and authority of scientific knowledge. Can the peer-review system reliably identify high-quality science? How does the current pressure to “publish or perish” affect scientific norms and research integrity?
2. Research misconduct. Misconduct exists in science as in other professional activities such as law, medicine, and business. What is considered research misconduct? Is it always easy to detect? And how do the organization of science and current incentive structures contribute to the emergence of misconduct?
3. Open science in the digital age. Open science is often presented as a response to concerns about scientific integrity and the credibility of science, as well as a way to democratize access to scientific knowledge. What does open science mean in the digital age? And how might greater openness reshape relationships between science and society?

Theme 2 – Social relevance of science and the governance of research

Questions about the social impacts of science and scientists’ responsibilities are not new. Sociology of science examines how different actors—universities, research funders, governments and scientists themselves—attempt to govern scientific activity and align it with broader social values. How do these actors define the social relevance of science? According to what criteria do they evaluate it? And what effects do these governance mechanisms have on scientific autonomy and research practices?

4. Who should limit potential harmful uses of research? Monitoring dual-use research. The idea that scientists bear responsibility for the uses of their discoveries gained prominence in the 20th century, when military applications of scientific knowledge challenged the “neutrality view”. What policies currently aim to regulate potentially harmful uses of scientific research, and how do they redefine the boundaries between science, politics and security?
5. Encouraging scientists to produce socially relevant research: shifts in funding policies. What have been the main historical justifications for public funding of science? Are we witnessing a shift in funding priorities toward research expected to deliver societal benefits, and what consequences might this have for the autonomy and organization of scientific work?
6. Producing societal value in research evaluation: a critical assessment. Scientists are increasingly encouraged to demonstrate the societal relevance of their work. But how do research institutions assess the “societal value” or impact of science? Can the impact of research be evaluated in the same way across disciplines (e.g., political science and physics)?
7. Scientists’ advocacy and activism: emerging forms and challenges. Scientists are increasingly visible in the public arena, using their expertise to support certain political positions (for example in debates about climate change), defend scientific facts or denounce attacks on science. What are the implications of these forms of engagement for the credibility and perceived neutrality of scientific expertise?

Theme 3 – Public participation and the relationships between science and society

In recent decades, new policy frameworks have sought to involve civil society more directly in the production and governance of scientific knowledge. Concepts such as public engagement, stakeholder participation and citizen science reflect changing views about the role of citizens and the value of lay expertise in scientific research. At what stages of the research process can citizens be involved—defining research agendas, producing data, or evaluating research outcomes? And why is their participation expected to improve the social relevance and legitimacy of science?

8. Public engagement in science. The term “public engagement in science” has become popular among policy-makers, replacing earlier expressions such as science popularization or public understanding of science. Why did this notion gain momentum in the 2000s? We will examine how public engagement initiatives are implemented in public debates, participatory forums and citizen conferences.

9. Citizen science. The expression “citizen science” is widely used in media and science policy discourses. How can ordinary citizens contribute to scientific knowledge and technological development? Does their participation transform the relationships between scientific experts and the public? This session will explore the epistemological and political implications of citizen science and the role of lay expertise in knowledge production.