Controversy Mapping – Syllabus 2012-13

The economic inequities, the environmental crises, the bioethical conundrums and all the issues troubling modern societies are imbroglios of politics, ethics and technologies impossible to disentangle. In these hybrid situations, public participation becomes more and more difficult. To navigate a world of uncertainties, **future citizens need to be equipped with tools to explore and visualize the complexity of public debate**. The purpose of the mapping controversy is to contribute to the development of these tools through the creative use of digital technologies.

For a few examples of the works realized by the students of the controversy mapping course, see:
the archive of the controversy websites (http://controverses.sciences-po.fr/archiveindex/).

Introduced by **Bruno Latour** more than fifteen years ago, the cartography of controversies is currently taught in several European (Paris, Copenhagen, Milan, Manchester, Amsterdam, Liège, Lausanne, Dublin, Oslo, Padova, Trento…) and American universities (Cambridge, Mass., São Paulo, Rio de Janeiro, Buenos Aires…).

Characterized by a **radically experimental approach**, controversy mapping is developed through several research projects

- MACOSPOL (mapping controversies on science for politics) 2007-09
- MEDEA (mapping environmental debate on adaptation) 2011-14
- EMAPS (electronic maps to assist public science) 2011-14
- FORCCAST (formation à la cartographie des controverses pour l'analyse de sciences et des techniques) 2012-20

Course team

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The course in a nutshell

Understand the junction between science and society, observe it through the case study of a specific controversy and make the results of this analysis public.

Benefits for the students

- To understand the junction between science and society and to be able to take a stance in a controversy.
- To learn the techniques of exploration of public debate in offline and online media.
- To master traditional and digital methods of investigation.

Aims of the course

The most important task of the course is the **analysis of a socio-technical controversy**. Achieving this task implies understanding some crucial notions of STS (Science and Technology Studies) and mastering a number of traditional and digital investigation techniques. The course is meant to teach all that is necessary to accomplish this task.

Course schedule

The course alternates master lectures and practical workshops.

- The **master lectures** are meant to introduce and discuss the theoretical notions and the methodological tools necessary for controversy mapping.
- The **practical workshops** (in smaller groups) are meant to assure a constant and personalized support until the final exam and to provide a space for sharing and confrontation among the students.

Course organization

- From the very beginning of the course, the class will be divided in **groups of 6 students**.

- At the middle of the fall term, every group will chose the controversy that it will follow for the rest of the year.

- With the help of a teaching assistant, every group will fill in a **logbook** (in the form of a research blog) gathering all the maps produced through the different cartographic exercises.

- At the end of the spring term (with the help of a teaching assistant) every group will produce a 7 minutes **video of the controversy** presenting the results of its analyses and making the debate legible for a larger public.

Fall term

Lesson 1. Master lecture
(WHY) Why sciences and technologies will not deliver us from controversies and how to profit from that

In this lesson we will introduce the approach of *Science and Technology Studies* and we will try to challenge the common sense about sciences and technologies. By analyzing some historical controversies, we will try to overcome the idea that scientific truth and technical efficiency are independent of the work of scientists and engineers. Practical information on the course and its evaluation will also be given.

Home assignment in preparation of lesson 2

Revise the notes of the previous lesson and read the excerpts from the following texts:

- H. M. Collins (1975). The Seven Sexes: A Study in the Sociology of a Phenomenon, or the Replication of Experiments in Physics. Sociology, 9(2), pp. 205-224.

- David, P. (1985). Clio and the Economics of QWERTY. *American Economic Review*, 75(2):332-337.

Séance 2. Practical workshop

Guided by their teaching assistant, students will discuss the concepts introduced in the previous lesson and the texts they have read. The session will be organized as a small 'game controversy': each group will prepare a presentation from constructivist, relativists or positivists point of view. The session will consist of a debate within the class.

The groups will also discuss with their teaching assistant about their possible choices of controversy subject.

Lesson 3. Master lecture
(WHAT) What is a socio-technical controversy

In this session we will try to avoid the relativistic drift that the first course could have generated. We will show that acknowledging the importance of controversies in constructing science and technology does not diminish at all the objectivity of the technoscience. By introducing the concept of second-degree objectivity, we will claim that only a realistic description of science and technology can help understanding their complexity.

Home assignment in preparation of lesson 4

Revise the notes of the previous lesson and read the excerpts from the following texts:

- Proctor, R. N., Schiebinger, L. (2008). "Agnotology: A Missing Term to Describe the Cultural Production of Ignorance (and Its Study)". In Proctor, R. N. (ed.), *Agnotology: The Making and Unmaking of Ignorance*. Stanford: University Press, 1-33.

- Latour (1995). "The 'Pedofil' of Boa Vista-A Photo-Philosophical Montage". In Common Knowledge, 4:1, pp. 145-187.

Séance 4. Practical workshop

Guided by their teaching assistant, students will discuss the concepts introduced in the previous lesson and the texts they have read. The session will be organized as a small 'game controversy': each group will prepare a presentation from constructivist, relativists or positivists point of view. The session will consist of a debate within the class.

The groups will also discuss with their teaching assistant about their possible choices of controversy subject.

Lesson 5. Master lecture
(HOW) Exploring discourse fields and choosing a good controversy

In this session we will introduce the different 'fields' of controversy mapping. In particular, we will discuss open data, media discourse (factiva.com, google.com, news.google.com, emm.newsbrief.eu), scientific literature (scholar.google.com, scopus.com) and online debate (linkscape.eu, pulseweb.veilledynamique.com). The objective of this session is to learn how to explore these fields to assess the value and feasibility of a potential controversy subject. Later in the course, students will learn how to analyze these fields in a greater depth.

Home assignment in preparation of lesson 6

Drawing on the exploration techniques introduced in the previous lesson, each group will choose a controversy and prepare a short report on it. The report (3 double-sided pages) will be published on the research blog of the group and will contain:
- A brief description of the chosen controversy.
- The reasons for the choice (why the controversy is interesting).
- The presentation of the key players of the chosen controversy.
- The presentation of the most important issues in the chosen controversy.
- A first bibliography on the subject.
- A first sitography on the subject.

Séance 6. Practical workshop

In this lesson, the choice report of all the groups will be presented by the authors and discussed with the teaching assistant and the rest of the class.

Lesson 7. Master lecture
(WHO) The actors of a controversy

In this lesson we will show how the networks of science and technology extend far beyond the walls of the laboratories, and how unexpected actors can play a crucial role. In particular, we will show that the most important protagonists of techno-scientific controversies are not always human beings.

Home assignment in preparation of lesson 8

Revise the notes of the previous lesson and read the excerpts from the following texts:

- Epstein, S., (1995), "The construction of Lay Expertise". *Science, Technology & Human Values*, 20(4): 408-437.

- Kholer, R. (1999). "Moral Economy, Material Culture and Community in Drosophila Genetics". In R. Biagioli (ed), *The Sciences Study Reader*, New York: Routledge, 243-257.

Séance 8. Practical workshop

Guided by their teaching assistant, students will discuss the concepts introduced in the previous lesson and the texts they have read. The session will be organized as a small 'game controversy': each group will prepare a presentation from constructivist, relativists or positivists point of view. The session will consist of a debate within the class.

The groups will also discuss with their teaching assistant about their possible choices of controversy subject.

Lesson 9. Master lecture
(WHERE) Why techno-science cannot be separated by society

After having showed that sciences and technologies are social constructions, in this lesson we will show symmetrically that society is a techno-scientific construction.

Home assignment in preparation of lesson 10

Revise the notes of the previous lesson and read the excerpts from the following texts:

- Winner, L. (1980). Do Artifacts Have Politics? Daedalus, 109(1): 121-136.

- Latour, B. (1994). On Technical Mediation. Common Knowledge, 2(3): 29-64.

Séance 10. Practical workshop

Guided by their teaching assistant, students will discuss the concepts introduced in the previous lesson and the texts they have read. The session will be organized as a small 'game controversy': each group will prepare a presentation from constructivist, relativists or positivists point of view. The session will consist of a debate within the class.

The groups will also discuss with their teaching assistant about their possible choices of controversy subject.

Lesson 11. Master lecture
(HOW) Open Data and information visualization

In this session students will learn how to find datasets freely available on the web, and how to analyze and visualize them by using Many Eyes (www-958.ibm.com) and Google Fusion Tables (google.com/fusiontables).

Home assignment in preparation of lesson 12

Find an interesting dataset relevant for the controversy chosen by the group and realize at least one visualization using one of the tools introduced in the previous lesson.

Séance 12. Practical workshop

In this lesson, the groups will present the results of the home assignment and discuss with their teaching assistants of the problems encountered and the possible ameliorations.

Home assignment

Revise and ameliorate the visualizations produced by the group.

Spring term

Lesson 1. Master lecture
(HOW) How to enter and exit a controversy

In this session we will review the theoretical basis of controversy mapping and we will discuss the importance of finding a 'fil rouge' to follow through the cartographic campaign. We will also introduce the basic techniques of sociological investigation: the interview and the document analysis.

Home assignment in preparation of lesson 2

Read the excerpts from the following texts:

- Venturini, T. (2010). Diving in magma: how to explore controversies with actor-network theory. Public Understanding of Science, 19(3), 258-273.

- Venturini, T. (2012). Building on faults: how to represent controversies with digital methods. Public Understanding of Science, (X), 1-17.

Home assignment in preparation of lesson 2

Identify the 'fil rouge' of one's controversy and prepare a detailed plan of the interviews to be realized and of the document to be analyzed.

Séance 2. Practical workshop

In this lesson, the groups will present the 'fil rouge' and the plan of their enquiry and will discuss them with their teaching assistants.

Lesson 3. Master lecture
(HOW) Scientometrics and network analysis

In this session, we will introduce the first 'digital methods' used in controversy mapping: scientometrics and network analysis. Students will learn how to extract a network of scientific articles from Scopus database (scopus.com), how to transform it into a co-citation network through Sciscape (jiminy.medialab.sciences-po.fr/sciscape /) and how to visualize it in Tubemynet (jiminy.medialab.sciences-po.fr/tubemynet /)

Home assignment in preparation of lesson 4

Visualize a corpus of scientific papers connected the controversy chosen by the group and propose an interpretation of the resulting citation network.

Séance 4. Practical workshop

In this lesson, the groups will present the results of the home assignment and discuss with their teaching assistants of the problems encountered and the possible ameliorations.

Home assignment

Revise and ameliorate the maps produced by the group and their interpretation.

Lesson 5. Master lecture
(How) Web cartography

In this lesson the students will learn how to explore the web using Hyphen (jiminy.medialab.sciences-po.fr/hyphen/) and how design a hyperlink network using Gephi (gephi.org).

Home assignment in preparation of lesson 6

Visualize a network of websites connected to the chosen controversy and propose an interpretation on the basis of the knowledge acquired through the web exploration.

Séance 6. Practical workshop

In this lesson, the groups will present the results of the home assignment and discuss with their teaching assistants of the problems encountered and the possible ameliorations.

Home assignment

Revise and ameliorate the maps produced by the group and their interpretation.

Lesson 7. Master lecture
(HOW) Visual Narration

In this lesson we will learn a series of techniques to make visible and legible the complexity of a controversy. We will learn how to draw a debate scale, a tree of questions, an actor-networks diagram, a timeline and a cosmogram.

Home assignment in preparation of lesson 8

Read the excerpts from the following text:

- Venturini, T. (2012). Building on faults: how to represent controversies with digital methods. Public Understanding of Science, (X), 1-17.

Design 2 or 3 of the five representational devices introduced in the previous lesson.

Séance 8. Practical workshop

In this lesson, the groups will present the results of the home assignment and discuss with their teaching assistants of the problems encountered and the possible ameliorations.

Home assignment

Revise and ameliorate the representations produced by the group and their interpretation.

Lesson 9. Master lecture
(HOW) Architecture de l'information et montage

In this session students will learn how to structure the information they have gathered through their cartographic efforts in order to build a coherent and intelligible narrative. They will also learn to use a video editing software.

Assignment in preparation of lesson 10

Write a detailed scenario for the video that the group will prepare for its controversy it.

Séance 10. Practical workshop

In this lesson, the groups will present the results of the home assignment and discuss with their teaching assistants of the problems encountered and the possible ameliorations.

Assignment

Realize a first draft of the video presentation of the controversy.

Séance 11. Practical workshop
Finalization of the video and of the introduction page

The last two lessons of the course will be dedicated entirely to the production of the video describing the controversy chosen by the group.

Séance 12. Practical workshop
Finalization of the video and of the introduction page

The last two lessons of the course will be dedicated entirely to the production of the video describing the controversy chosen by the group.

Evaluations

	Fall term	
40%	Controversy choice report	Lesson 6
60%	Final written exam	After lesson 12
+/- 4 points	Texts' discussion	Lessons 2, 4, 8, 10
	Spring term	
40%	Research blog	Lessons 2, 4, 6, 8, 10
60%	Controversy video	After lesson 12