

**Scientific Material Culture, Heritage and
Communication**

Code: 42281
ECTS Credits: 15

| Degree | Type | Year | Semester |
|--|------|------|----------|
| 4313223 History of Science: Science, History and Society | OT | 0 | 1 |

Contact

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Prerequisites

None.

Use of Languages

Principal working language: catalan (cat)

Objectives and Contextualisation

The module poses a critical and rigorous vision of scientific communication and its history from the study of the spaces where this knowledge is produced, as well as to the materiality and to all the actors that take part in its production and circulation. The factories of scientific knowledge and of its communication become the objects of analysis. Spaces, media, objects and actors reveal the connections between science -understood how a dynamic process, of mutual interaction, and without a neat separation between experts and non-experts- and its publics. Upon this premise, the module takes, as a first explanatory reference, the local historical context of Barcelona or Catalonia, from where the possibility to build or explain a culturally complex history of the science is shown.

This module is compulsory for those students that want to do M4 or Pràcticum with a professional specialty. In this way, M3 is the base for the carrying out of professional training in companies and institutions that work with scientific heritage and communication. In any case, M3-M4 students also have the possibility to do a doctoral thesis (PhD).

General aims

- Develop, analyse, apply and understand the historical knowledge of science in those fields related to the communication and the material culture of science.
- Develop an original and interdisciplinary historical narrative that integrates humanistic and scientific cultures.

Competences

- Apply historical knowledge of science to communication, material culture and science teaching.
- Develop an original, interdisciplinary historical narrative that integrates humanistic and scientific culture.
- Display a sound knowledge of history so as to pinpoint the great events of the past with accuracy: authors, theories, experiments, practices, etc., and their stages of stability and transformation.
- Display rigorous, advanced knowledge of the evolution of science throughout history.
- Gather and critically assess information for problem solving, in accordance with the discipline's own analysis methods and techniques.
- Use acquired knowledge as a basis for originality in the application of ideas, often in a research context.

- Use information and communication technologies appropriately in research and in professional activity.
- Work in interdisciplinary teams, showing leadership and initiative.
- Work independently: solving problems, taking decisions and making innovative proposals.

Learning Outcomes

1. Assess the scientific and medical heritage.
2. Critically analyse the mechanisms of scientific communication in the mass media.
3. Describe the function and meaning of the spaces where scientific and medical practice is conducted.
4. Describe the historical factors determining technological processes in the configuration of scientific and industrial professionalisation spaces.
5. Display a plural vision of the meaning of material culture and scientific and medical heritage.
6. Display understanding of the value of material culture and scientific and medical heritage, and of the socio-cultural practices and transformations associated with their production and implementation.
7. Gather and critically assess information for problem solving, in accordance with the discipline's own analysis methods and techniques.
8. Identify and distinguish the elements of material culture in the history of science and medicine.
9. Identify the changes and continuances of scientific and technical heritage in the process of identifying engineering as a scientific profession.
10. Identify the mechanisms of visual representation in the material production of science and medicine.
11. Identify the role of scientific and technological heritage, the media, and educational institutions in the creation and transmission of scientific knowledge.
12. Identify the transformations of the museology of science, medicine and technology, their forms of representation and their communication strategies over time.
13. Recognise the cultural material of science and medicine as essential ingredients in the processes of socio-cultural construction.
14. Recognise the different communication channels of science and medicine across history, their special characteristics and their links.
15. Recognise the essential communication channels and strategies of science, medicine and technology and their relationships with their audiences.
16. Recognise the essential elements of the history of technology with regard to the role of scientific and industrial heritage.
17. Understand the historical principles underpinning the processes of scientific, technological and medical professionalisation.
18. Understand the mass media (press, radio, cinema, television, internet) as spaces of learning, reflection and socio-cultural construction in relation to science, medicine and technology.
19. Understand the processes of generation, circulation and management of scientific, medical and technological knowledge in relation to complex, multi-dimensional sets of communicative practices.
20. Use acquired knowledge as a basis for originality in the application of ideas, often in a research context.
21. Use information and communication technologies appropriately in research and in professional activity.
22. Work in interdisciplinary teams, showing leadership and initiative.
23. Work independently: solving problems, taking decisions and making innovative proposals.

Content

The student will obtain a wide-ranging, detailed and updated knowledge of the modern and contemporary history

and Europe, from the point of view of material culture, heritage and communication.

This strategy will allow the student to know the meaning of the material culture of science and medicine -practice:

technologies and the spaces of science and medicine-, and their relation with organisational changes, the creatio

Besides, the student will know the diverse forms of communication tied to these processes and, specially, the rel:

management of scientific, medical and technological knowledge, and its role in socio-cultural transformations in h

Themes

Spaces, heritage, material culture and communication: in situ

Spaces, heritage, material culture and communication: theoretical frames

Cabinets and bookshops to the Republic of the Letters

Anatomical Theatres: science and spectacle

The publics of science in the Enlightenment

Engineering and society in 19th century Barcelona

The origins of the RACAB: for an useful science

Looking at the sky: astronomy and meteorology, 19th-20th centuries

Clinics and hospitals: medicine, architecture and city

Cathedrals of science: from the science museum to the science center

Museologic sciences and artifacts

Museums of technologic and industrial heritage

Natural sciences, heritage and identity

Scientific heritage and exhibitions today

Advertising and science

Science popularization, education and industrialisation in the 19th century

Science and art: from Turner to Banksy and beyond

Science, literature, the press and comics (ss. XIX-XXI)

Science, cinema, radio and television

Science and communication technologies

Scientific journalism today

Methodology

Classes have a unique geographical, chronological and thematic character, so that it is the whole that gives cons

between two teaching typologies: the oral explanation, and the contact with the sources, objects and spaces. The

in which students will have contact with several primary sources and objects of study.

Spaces where module sessions are taught:

- UAB/Facultat de Medicina
- UB/Facultat de Física
- Gabinet Salvador
- Teatre RAM
- Acadèmia de Bones Lletres
- MCNB
- CosmoCaixa
- RACAB

- ETSEIB
- Observatori Fabra
- Arxiu Nacional de Catalunya
- Hosp. S. Pau
- IMF-CSIC
- Parc de la Ciutadella / Museu de Ciències Naturals de Barcelona
- Institut Català de Paleontologia Miquel Crusafont
- Museu Geològic del Seminari Conciliar de Barcelona

Activities

| Title | Hours | ECTS | Learning Outcomes |
|---|-------|------|---|
| Type: Directed | | | |
| Theory and practice | 75 | 3 | 2, 17, 18, 19, 6, 5, 4, 3, 11, 9, 10, 8, 12, 15, 14, 16, 13, 20, 1 |
| Type: Supervised | | | |
| Monitoring and tutoring of content worked by students | 56.25 | 2.25 | 2, 17, 18, 19, 6, 5, 4, 3, 11, 9, 10, 8, 12, 7, 15, 14, 16, 13, 20, 23, 22, 21, 1 |
| Type: Autonomous | | | |
| Individual study, problem solving and task completion | 225 | 9 | 2, 17, 18, 19, 6, 5, 4, 3, 11, 9, 10, 8, 12, 7, 15, 14, 16, 13, 20, 23, 22, 21, 1 |

Assessment

The assessment contemplates several aspects, among which attendance and active participation

are essential. In addition, compulsory reading of three books (see bibliography) is required: these

are easy to read, and serve as an instrument for channeling more specialized readings thus facilitating

the comprehension of major issues. From these obligatory readings, this module contemplates the

execution of several written essays and an oral presentation, as follows:

- Preparation of three brief essays, one for each thematic block: spaces, The student will have to analyze questions raised and explored in the se:

a maximum length of 800 words and will carry a weight of 30% on the final grade.

- Oral presentation of the heritage essay in a specific workshop on mana

This presentation will have a weight of 20% on the final grade.

- Preparation of the synthesis essay, based on the general theoretical framework treated or related to one of the thematic blocks. This essay will have a maximum of 3,000 words and will be articulated upon guiding questions that will be provided. This essay will have a weight of 50% on the final grade.

- The students will obtain the grade of "Non assessable" when the evaluation is

a weight lower than 67% in the final grade.

Assessment Activities

| Title | Weighting | Hours | ECTS | Learning Outcomes |
|---------------------------|-----------|-------|------|---|
| Essays on thematic blocks | 30% | 6 | 0.24 | 2, 17, 18, 19, 6, 5, 4, 3, 11, 9, 10, 8, 12, 7, 15, 14, 16, 13, 20, 23, 22, 21, 1 |
| Oral presentations | 20% | 3 | 0.12 | 2, 17, 18, 19, 6, 5, 4, 3, 11, 9, 10, 8, 12, 7, 15, 14, 16, 13, 20, 23, 22, 21, 1 |
| Synthesis essay | 50% | 9.75 | 0.39 | 2, 17, 18, 19, 6, 5, 4, 3, 11, 9, 10, 8, 12, 7, 15, 14, 16, 13, 20, 23, 22, 21, 1 |

Bibliography

Compulsory reading:

Burke, Peter. *Historia social del conocimiento*, Paidós, 2002 (orig.2000)

Nieto-Galan, Agustí. *Los públicos de la ciencia. Expertos y profanos a través de la historia*. Marcial Pons. Madrid 2011.

Thompson, John B. *Los media y la modernidad: una teoría de los medios de comunicación*, Barcelona, Paidós, 1998, 2003, 2007 (orig. 1995).

In addition to these references, students have complementary readings, not mandatory, which may be commented specifically in the sessions.