

27224 - History of Science

Syllabus Information

Academic year: 2023/24

Subject: 27224 - History of Science

Faculty / School: 100 - Facultad de Ciencias

Degree: 452 - Degree in Chemistry

ECTS: 3.0

Year: 2

Semester: Second semester

Subject type: Optional

Module:

1. General information

This subject is designed to complement the student's training in the field of science and technology from a historical and synthetic perspective. Its objective is to prepare the student to:

1. Recognize the necessity and character of science, especially chemistry, as an institution, as a methodological corpus, as an accumulative tradition of knowledge, as a means of production, as a source of ideas and in its social interactions.
2. Search, organize, present and critically analyse techno-scientific information from a historical perspective.

These approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) of the United Nations Agenda 2030, so that the learning results provide training and competence to contribute, to some extent, to their achievement.

- Goal 4: Quality Education.
- Goal 5: Gender Equality.

2. Learning results

Upon completion of the subject the student will be able to:

- Recognize the epistemological and methodological foundations of scientific activity, as well as its institutional bases and its social, ideological and productive interactions.
- Search, organize, present and analyse historical and critically contextualized techno-scientific information.
- Understand and convey information, ideas, problems and solutions to both specialized and non-specialized audiences.
- Work in a team in an organized and planned manner.

3. Syllabus

1. Ancient and medieval science.

The technological and philosophical genesis of scientific knowledge. Materialism and idealism. Knowledge of the subject (alchemy, technology and medicine).

2. The birth of modern science.

The scientific revolution, the Protestant Reformation and the dawn of capitalism. Pneumatic chemistry (Hales, Black, Cavendish, Priestley, Scheele).

3. Science and industry (19th and 20th centuries).

Heat and energy. Engineering and metallurgy. Electricity and magnetism. Chemistry. Biology.

4. Academic activities

This subject is oriented to the application of basic knowledge about the historical evolution of science to real case studies. Its development is carried out through the following academic activities:

1. Expository-interactive classes for the acquisition of basic knowledge (15 classroom hours).
2. Cooperative-participative classes of problem solving and case studies (15 classroom hours).
3. Practical work of deepening in a topic related to chemistry, to be chosen among the proposed ones and to be done in groups of 3 to 4 students, according to the guidelines provided and under scheduled tutorials with the teacher to review its development in two phases (12 student hours).

5. Assessment system

The student must demonstrate achievement of the intended learning results through the following assessment activities:

Continuous evaluation:

- Problems and cases (10% of the final grade): Moodle questionnaire (individual) on authors, concepts, works and historical-scientific texts. The questionnaire can combine different types of questions (short open-ended, multiple choice, matching, true/false, etc.).
- In-depth practical work (90% of the final grade): Detailed explanation of the content of the text (2 points); Analysis of the text (scientific language, scientific genre, target audience and information about the journal or monograph where it is framed) (2 points); Biography of the author in their scientific and social historical environment (3 points); Relevance of the text in the development of chemistry (2 points); Composition and general presentation of the work (structuring, bibliography, writing and spelling correction) (1 point).

Global test (alternative to continuous evaluation or to improve the grade): Textual analysis questionnaire.

Students who have passed the continuous evaluation and wish to take the global test to improve their grade must notify the teacher (via Moodle) during the first three days of the evaluation period reserved by the Faculty of Science for the final activities of continuous evaluation.