Universidad Zaragoza

Academic Year/course: 2021/22

27224 - History of Science

Syllabus Information

Academic Year: 2021/22
Subject: 27224 - Historia de la ciencia
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

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology followed in this course focuses on the application of basic knowledge on the historical development of science and technology to case studies based on primary sources.

Teaching and learning tasks consist of lectures on history of science, teacher-guided practice sessions on analysis of primary sources (case studies based on historical chemistry texts), and writing a team-based assignment (2- 4 students/team) on a historical chemistry text (text understanding and analysis, the author biography in his scientific and social context, and the scientific relevance of the text).

Students are expected to participate actively in class and tutorials throughout the semester.

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course syllabus, extended bibliography, and digital resources.

Further information regarding the course will be provided on the first day of class.

4.2. Learning tasks

This 3 ECTS course is organized as follows:

1.- Lectures (0,6 ECTS, 15 hours): Classroom sessions on history of science, 1 hour/week. Although lecture notes are available via Moodle, regular attendance is highly recommended.

2.- Practice sessions (0,6 ECTS, 15 hours): Teacher-guided Think-Pair-Share activity in classroom sessions. Students work with historical scientific texts (primary source-based learning), using textual analysis in order to develop the ability to identify and classify specific information from a text. 1 hour/week, regular attendance is highly recommended.

3.- Teacher-guided assignment (1,2 ECTS, 30 hours/student, including tutorials): Writing a team-based assignment (2-4 students/team) on a historical chemistry text (text understanding and analysis, the author biography in his scientific and social context, and the scientific relevance of the text).

Tutorials: 43,20 professor's office hours specifically devoted to teacher-guided assignments, in order to review the development of the assignment in gradual stages (text understanding and analysis, biography and relevance, and final draft prior to submission).

4.- Autonomous work (0,52 ECTS, 13 hours): Students' autonomous study and individual contribution to the team-based

assignment.

5.- Assessment tasks (0,08 ECTS, 2 hours): Individual textual analysis (Moodle task and/or final exam).

4.3. Syllabus

The course will address the following topics:

Topic I. Science in the Ancient and Medieval World

1. The Origins of Rational Science: Technology and Philosophy
2. Materialism and Idealism
3. Ancient Knowledge of Matter: Alchemy, Technology, Medicine

Topic II. The Birth of Modern Science

1. Scientific Revolution, Protestant Reformation and Early Capitalism
2. Pneumatic Chemistry (Hales, Black, Cavendish, Priestley, Scheele)

Topic III. Science and Industry (19th-20th centuries)

1. Heat and Power
2. Engineering and Metallurgy
3. Electricity and Magnetism
4. Chemistry
5. Biology

4.4. Course planning and calendar

For further details concerning the timetable, classroom and further information regarding this course please refer to the Facultad de Ciencia website (http://ciencias.unizar.es/).

4.5. Bibliography and recommended resources

http://biblos.unizar.es/br/br_citas.php?codigo=27224&year=2021