

## 27224 - History of Science

### Información del Plan Docente

<b>Academic Year</b>	2018/19
<b>Subject</b>	27224 - History of Science
<b>Faculty / School</b>	100 - Facultad de Ciencias
<b>Degree</b>	452 - Degree in Chemistry
<b>ECTS</b>	3.0
<b>Year</b>	2
<b>Semester</b>	Second semester
<b>Subject Type</b>	Optional
<b>Module</b>	---

### **1.General information**

#### **1.1.Aims of the course**

#### **1.2.Context and importance of this course in the degree**

#### **1.3.Recommendations to take this course**

### **2.Learning goals**

#### **2.1.Competences**

#### **2.2.Learning goals**

#### **2.3.Importance of learning goals**

### **3.Assessment (1st and 2nd call)**

#### **3.1.Assessment tasks (description of tasks, marking system and assessment criteria)**

### **4.Methodology, learning tasks, syllabus and resources**

#### **4.1.Methodological overview**

The methodology followed in this course is oriented towards achievement of the learning objectives. It is focused on the application of basic knowledge on historical development of science and technology to case studies based on primary sources. A wide range of teaching and learning tasks are implemented, such as lectures, analysis of primary sources, assignments tasks, and tutorials.

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

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course syllabus, as well as other learning resources such as synoptic tables, chronologies, maps, extended bibliography, and

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digital resources.

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

### 4.2.Learning tasks

The course includes 3 ECTS organized according to:

- Lectures (0,6 ECTS): 15 hours (classroom sessions). lectures on history of science, 1 hour/week. Although lecture notes are available via Moodle, regular attendance is highly recommended.
- Practice sessions (0,6 ECTS): 15 hours (classroom sessions). Teacher-guided Think-Pair-Share activity. Students work with historical texts (primary source-based learning), using textual analysis in order to develop the ability to identify and classify specific information from a text. Students are divided into two smaller groups, 1 hour/week for each group.
- Teacher-guided assignment based on historical texts (0,6 ECTS): 15 hours (small team activity and tutorials). writing a team-based assignment (3 students/team) explaining events, procedures, ideas, concepts in a historical scientific text, including what happened and why.
- Autonomous work (1,05 ECTS): 26,25 hours. Students' autonomous study and individual contribution to the team-based assignment.
- Assessment task (0,15 ECTS): 3,75 hours. Individual textual analysis (Moodle task and/or final exam).
- Tutorials: 35,40 professor's office hours specifically devoted to the teacher-guided assignment.

### 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 Ciencias" website (<http://ciencias.unizar.es/>).

### 4.5.Bibliography and recommended resources