

Current Scientific Matters

Code: 104053
ECTS Credits: 3

Degree	Type	Year	Semester
2502444 Chemistry	OT	4	A

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

Contact

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Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

Other comments on languages

The talks are in Catalan and Spanish depending on the speaker. 4th year students have to present their final project in English. Some assignments are in English.

Teachers

Ramón Muñoz Tapia
Gael Sentís Herrera

Prerequisites

There are no prerequisites.

It is recommended, however, a certain familiarity with the computer environment since most of the activities will be done virtually through the Moodle classroom and the virtual campus, in particular, mathematical text processing programs, creation of graphics, generation of documents in PDF etc.

Objectives and Contextualisation

This subject is taught simultaneously as a first-year subject (compulsory) in the degrees of Mathematics and, Physics and as a fourth year subject (optional) in the degrees of Chemistry, Environmental Sciences, Nanoscience and Nanotechnology (from the Faculty of Sciences) and in the degrees of Biology, Microbiology and Genetics (of the Faculty of Biosciences).

The training objectives are the same, but there will be aspects of the subject (type of work, assessments ...) that may be different depending on the course (first or fourth) and the degree of the student.

Training objectives:

Expand the vision and interest of the student towards different fields of science, beyond the specialty they are studying.

Acquire an interdisciplinary vision of science.

Analyze and reflect on the relationships between science, gender, culture and society.

Provide the student with keys to the knowledge and basic understanding of frontier topics in current science, presented with an informative nature.

Acquire transversal competences.

Learn to write a scientific work that complies with formal quality standards and know how to present it in public.

Reflect on the nature of science.

Competences

- Be ethically committed.
- Communicate clearly in English.
- Communicate orally and in writing in ones own language.
- Learn autonomously.
- Manage, analyse and synthesise information.
- Obtain information, including by digital means.
- Reason in a critical manner
- Show sensitivity for environmental issues.
- Use IT to treat and present information.
- Use the English language properly in the field of chemistry.

Learning Outcomes

1. Be ethically committed.
2. Communicate clearly in English.
3. Communicate orally and in writing in ones own language.
4. Design effective information search strategies in any research subject.
5. Learn autonomously.
6. Manage, analyse and synthesise information.
7. Obtain information, including by digital means.
8. Reason in a critical manner
9. Show sensitivity for environmental issues.
10. Use IT to treat and present information.

Content

The subject (which is taught jointly in various degrees) is structured around a series of 11 conferences given by renowned specialists in different subjects. The students of the degree of chemistry, that follow a reduced version of 3 ECTS of a subject of 6 ECTS, shared with other degrees, will be able to choose to attend and do the activities of the first or the second semester of the course.

The topics of the conferences are

Curie and Einstein: science and society

Evolution and genome

Mathematical Models for COVID

Planets inhabitable beyond the Solar System

Blockchain and cryptomonedes

Paradoxical games

Science and gender

Ultra-fine atoms

Molecules that heal

Climate change

Nanotechnology for Biosensors

Methodology

The students of the degree of chemistry (subject of 3 ECTS) will have to follow the classes and do the assessment activities corresponding to one of the two semesters of the course (to be chosen).

Presential learning activities

- Conferences(master classes). They are usually held in the Conference room of the Science Faculty by a guest specialist. This academic year 2020/201 due to the pandemic circumstances, during the first semester all activities will be done remotely. *Mechanisms will be established so that students who so wish can attend the sessions online.*
- Seminars (complementary sessions for discussion and preparation of work). They will be open sessions of discussion and / or debate that will be held the week after the conference. The professor will also present the bibliography and proposals for topics for the preparation of the final work. Attendance at the seminars is highly recommended, since it will facilitate the preparation of the student's portfolio, and in any case, at least, at least, the attendance at the session on which the student will have chosen to do will be compulsory the final work Exceptionally, the non-presencial students who are unable to attend them can arrange a personal interview with the teachers to prepare the final work in schedule to be agreed. This academic year 2020/201 due to the pandemic circumstances, during the first semester all activities will be done remotely. Mechanisms will be established so that students who so wish can attend the sessions online.

Supervised learning activities

- Preparation of a portfolio. Throughout the course, students will have to periodically deliver a series of activities and / or exercises and problems about the subjects covered in the conferences through the Moodle classroom. These deliveries (obligatory in all cases) will constitute the student's portfolio, a collection of the evidence of the student's learning. These tasks may be different for the first and fourth year students, adapting to their level of knowledge.
- Final work The student will have to prepare a final work, compulsorily made in a group (of 3 or 4 people), on one of the topics proposed in the seminars of the conferences. The work will be supervised by the lecturer and the teachers of the subject. In the case of fourth year students, the work can not be done on the subjects directly related to the degree that the student is studying, and must be drafted and presented in English. All the works will be presented in public in front of a committee. In especial cases of students being abroad the presentation of those can be done remotely. *This academic year depending on the pandemic situation, all presentations may have to be done remotely.*

Autonomous learning activities

The student will have to consult bibliography (books, scientific journals) and conduct information searches via the Internet in order to do the tasks that will be asked in the student's portfolio and the final work. There will be a schedule for the tutorials in which the students will be able to contact the professors of the subject to solve doubts and to keep track of the preparation of the portfolio and of the final work. Attendees will also focus on ICT resources for the writing of scientific texts.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Conferences	12	0.48	2, 1, 7, 8
Seminars	12	0.48	6, 1, 9, 8

Type: Supervised

Final project	30	1.2	2, 3, 4, 6, 7, 10
Portfolio	5	0.2	5, 4, 6, 7, 8
Type: Autonomous			
Autonomous work	12	0.48	5, 4, 9, 7, 8

Assessment

The students of the degree of chemistry (subject of 3 ECTS) can choose to follow the classes and do the assessment activities corresponding to one of the two semesters of the course.

Chemistry students are considered as non-attending students and will have some differentiated evaluation mechanisms.

There are three types of evaluation activities:

A) Individual short objective tests (20% of the final grade). These are tests to be completed via Moodle during some days after the conference. These tests will assess the degree of attention and understanding of the subject. Non-attendance students will have to follow the lectures via the recordings and materials of the Virtual Campus and perform a specific test about them for the Moodle classroom. Students must follow all the lectures and answer all the tests. Failure to complete more than three tests will automatically be considered as a abandonment of the course.

B) Student portfolio (35% of the final grade). The student will have to update a virtual portfolio in the Moodle classroom, where they will receive the deliveries of the exercises and compulsory activities that will be proposed during the course. There will also be a selection of materials that will keep track of their involvement in the discussion sessions of the conferences, reflecting their personal opinions and their own searches. Depending on the type of exercise proposed, cross-curricular skills such as critical thinking, autonomous learning, the ability to analyze synthetise, etc. will be valued and may be different for first and fourth year students, adapting to their levelofstudies.

C) Final project (45% of the final mark) Each student will have to participate in the preparation of a final project, compulsorily drafted in groups of between three and four students. The topic will be chosen among those that will be proposed by the teachers of the different sessions. The work must be submitted to the Moddle classroom within the marked periods and must conform to the formal and content characteristics of a scientific work, fulfilling the criteria that will be presented at the beginning of the course in a specific informational session. In the case of fourth year students, this work must be written in English, with the structure of a scientific research article and can not be done on the subjects directly related to the degree that the student is studying.

Throughout the course there will be several public sessions for the oral presentations, on dates that will be announced in the calendar of sessions. All the members of the group have to present a part of the work. The evaluation will be done by a committee of professors that will evaluate the capacity of communication, the capacity of organization, etc. A timetable will be proposed so that all students can make the presentation, which is strictly compulsory. For students abroad there is the possibility of doing their part of the presentation by videoconference. This year all the presentations may be done remotely.

The qualification of the final work will take into account both the submitted text and the presentation. The mark can not be less than 4 to be able to pass the course.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
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Final project	0,45	4	0.16	2, 3, 4, 6, 7, 8, 10
Invidual short tests	0,2	0	0	6, 9, 8
Portfolio	0,35	0	0	5, 6, 1, 7, 8

Bibliography

The bibliography of each specific subject will be given to the complementary or seminar session of the corresponding conference.

The transparencies of the conferences will be available on the Virtual campus.

About the writing of scientific articles see (for example): Cargill, Margaret and O'Connior, Patrick. Writing scientific research articles: strategy ans steps. Wiley-Blackwell, 2009

Software

Familiarity with advanced text processors such as LaTeX may be convenient for the realizaion of the final project in some of the topics of the course.