

## 60464 - Interdisciplinary seminars

### Información del Plan Docente

<b>Academic Year</b>	2016/17
<b>Academic center</b>	100 - Facultad de Ciencias
<b>Degree</b>	543 - Master's in Molecular Chemistry and Homogeneous Catalysis
<b>ECTS</b>	2.0
<b>Course</b>	1
<b>Period</b>	Annual
<b>Subject Type</b>	Optional
<b>Module</b>	---

### 1. Basic info

#### 1.1. Recommendations to take this course

Mastery of basic concepts in chemistry (bond, structure, thermodynamics and kinetics) is required.

Before each seminar, it is recommended to acquaint oneself with the topic from the complementary information and bibliography that will be distributed via the Master's website ( <http://masterqmch.unizar.es> ) and the University's web tool ( <https://moodle2.unizar.es/add> ).

#### 1.2. Activities and key dates for the course

The course consists of a series of seminars of scientific and technological content, ideally on a monthly basis, whose precise calendar will be set and communicated along the year.

The course will benefit, at least in part, from the conference series organized by the Faculty of Sciences and the ISQCH. In order to avoid overlapping with other lectures, and whenever logistical constraints of the lecturers permit it, the seminars will take place in the time slot set by the Faculty of Sciences for such activities.

### 2. Initiation

#### 2.1. Learning outcomes that define the subject

To pass the course, the student must demonstrate ability to:  
Provide context to the scientific research and its applications: background, objectives, etc.  
Identify strengths and weaknesses in scientific works.  
Recognize scientific and technological advances in molecular chemistry and catalysis.  
Formulate opinions and questions about research results.

#### 2.2. Introduction

The course consists of a series of conferences of varied scientific topics, preferably in the field of molecular chemistry and catalysis, approximately monthly, taught by scientists and technologists of excellence. The conferences will feature outreach introductions and results of ongoing investigations.

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The course puts students into contact with the frontier of scientific research and industrial practice in chemistry, in all its fronts.

### 3.Context and competences

#### 3.1.Goals

Success cases in different scientific and technologic topics will be presented to illustrate how research is planned, organized and developed, and how scientific conclusions are extracted and supported.

The course aims to develop students' criterion to identify frontier research and optimize their scientific and industrial practices.

#### 3.2.Context and meaning of the subject in the degree

The course is part of the optional module *Horizons in Molecular Chemistry and Catalysis* .

It is an annual course with a workload of 2 ECTS.

The course contextualizes the skills and technical knowledge acquired in other subjects, placing them in actual cases that illustrate how to coordinate its implementation and relativize their usefulness.

#### 3.3.Competences

After the course, the student will be more competent for:

Assimilating and evaluating scientific results.

Identifying the frontiers of research in molecular chemistry and catalysis.

Preparing reports, presentations and scientific articles in a clear and effective way.

Managing the scientific vocabulary and specific terminology of chemistry and catalysis.

#### 3.4.Importance of learning outcomes

The course shows students the usefulness and scope of the body of knowledge and skills acquired along the Master.

The course illustrates different perspectives of research and industrial practice, also showing that the perspective is often multidisciplinary.

The student becomes aware of the existence of an international scientific community to which he/she belongs.

### 4.Evaluation

The student must demonstrate the achievement of the intended learning goals through the following evaluation activities:

1. Attendance and participation in seminars (50%).

2. Preparation of a short (1 page) report for each of the seminars: providing a context for the research topics, a description of the objectives and methodological aspects of the work, and an assessment of the main scientific and/or technological results (50%).

For those students who have not passed such an evaluation or wish to improve their marks, a global test will be

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conducted in the June or September exam call. This test will consist of a written exam on theoretical or practical issues related to the topics of the seminars. The number of official examination calls per registration and their use will be subjected to the statements of the *Regulation of Permanence in Master Studies and [Regulation of the Learning Assessment](#)*. The latest document will also regulate the general design and scoring criteria of the assessment activities, as well as the exam schedules and timetable for the post-examination review.

### 5. Activities and resources

#### 5.1. General methodological presentation

The course coordinator will be responsible for selecting and programming the seminars. After confirming the date and place of each seminar, the process will be as follows:

Via e-mail, the Master's website ( <http://masterqmch.unizar.es> ) and the University's web tool ( <https://moodle2.unizar.es/add> ), the coordinator will make available to the students all details of the seminar: Lecturer, title and summary, as well as the recommended bibliography and any other pertinent additional information.

Seminar (face-to-face).

Preparation of the seminar report.

Tutoring.

#### 5.2. Learning activities

Seminars (face-to-face).

Preparation of the seminar reports.

Based on the seminars reports, the coordinator will provide tutoring, individually or in small groups, to explain and/or correct weaknesses.

#### 5.3. Program

The course will be completed after attending no less than 8 seminars and preparing their corresponding short reports. The topics and other details of the seminars are not available yet, but will be disseminated sufficiently in advance via e-mail, the Master's website ( <http://masterqmch.unizar.es> ) and the University's web tool ( <https://moodle2.unizar.es/add> ).

#### 5.4. Planning and scheduling

The seminars will be scheduled on an approximately monthly basis.

The seminars dates will be communicated to students well in advance, and the corresponding short reports should preferably be submitted along the week following each seminar.

If necessary, the dates for the global exams will be posted on the website of the Faculty of Sciences: <https://ciencias.unizar.es/calendario-y-horarios> .

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### 5.5. Bibliography and recommended resources

- Rothenberg, Gadi. Catalysis : concepts and green applications / Gadi Rothenberg Weinheim : Wiley-VCH, cop. 2008
- Chorkendorff, I.. Concepts of modern catalysis and kinetics / I. Chorkendorff, J. W. Niemantsverdriet . - 2nd rev. and enlarged ed. Weinheim : Wiley-VCH, cop. 2007
- Hagen, Jens. Industrial catalysis : a practical approach / Jens Hagen. - 2nd completely rev. and extended ed. Weinheim : Wiley-VCH, cop. 2006
- Catalysis for renewables : from feedstock to energy production / edited by Gabriele Centi and Rutger A. van Santen . - 1st ed., 1st rep. Weinheim : Wiley-VCH, 2008