



## 1. General information

Course: INORGANIC CHEMISTRY I

Type: CORE COURSE

Degree: 398 - UNDERGRADUATE DEGREE PROGRAMME IN CHEMISTRY

Center: 1 - FACULTY OF SCIENCE AND CHEMICAL TECHNOLOGY

Year: 2

Main language: Spanish

Use of additional languages:

Web site:

Code: 57308

ECTS credits: 9

Academic year: 2020-21

Group(s): 20 23

Duration: AN

Second language: English

English Friendly: Y

Bilingual: N

Lecturer: FERNANDO CARRILLO HERMOSILLA - Group(s): 20 23				
Building/Office	Department	Phone number	Email	Office hours
SAN ALBERTO MAGNO	QUÍMICA INORG., ORG., Y BIOQ.	3417	fernando.carrillo@uclm.es	10.00-11.00 Every day
Lecturer: JUAN FERNANDEZ BAEZA - Group(s): 20 23				
Building/Office	Department	Phone number	Email	Office hours
Edificio San Alberto Magno	QUÍMICA INORG., ORG., Y BIOQ.	3472	juan.fbaeza@uclm.es	10.00-11.00 Every day
Lecturer: RAFAEL FERNANDEZ GALAN - Group(s): 20 23				
Building/Office	Department	Phone number	Email	Office hours
Edificio San Alberto Magno	QUÍMICA INORG., ORG., Y BIOQ.	3494	rafael.fgalan@uclm.es	10.00-11.00 Every day
Lecturer: SANTIAGO GARCIA YUSTE - Group(s): 20 23				
Building/Office	Department	Phone number	Email	Office hours
Edificio San Alberto Magno (primer piso)	QUÍMICA INORG., ORG., Y BIOQ.	3477	santiago.gyuste@uclm.es	10.00-11.00 Every day

## 2. Pre-Requisites

It is convenient to have passed the CHEMISTRY subject, first year, and at the same time take the Inorganic Chemistry II subject, second year. It is advisable that the student is familiar with the theories of chemical bonding, acid-base, redox and with the formulation in Inorganic Chemistry

## 3. Justification in the curriculum, relation to other subjects and to the profession

The subject is of an annual nature teaching the theory (6 ECTS) in the first semester and the practice (3 ECTS) in the second semester of the second year of the Degree in Chemistry and belongs to the Fundamentals of Chemistry Module (Inorganic Chemistry). Its character is mandatory. The student will learn the structure, reactivity and preparation (at the laboratory and industrial level) of the elements of the main groups of the periodic table and their main inorganic compounds. This knowledge is essential to understand the properties and practical applications of these substances and their impact on current applied chemistry. The acquisition of this knowledge is important to study the Inorganic Chemistry II subject and the Inorganic Compounds (3rd Course) subject, as well as other related subjects from higher courses

## 4. Degree competences achieved in this course

## Course competences

Code	Description
CB02	Apply their knowledge to their job or vocation in a professional manner and show that they have the competences to construct and justify arguments and solve problems within their subject area.
CB04	Transmit information, ideas, problems and solutions for both specialist and non-specialist audiences.
CB05	Have developed the necessary learning abilities to carry on studying autonomously
E01	Understand and use chemical terminology, nomenclature, conventions and units
E02	Deduce the variation of the properties of the chemical elements according to the Periodic Table
E03	Handle chemicals safely and with respect to the environment
E05	Know the chemical elements and their compounds, their forms of obtaining, structure, properties and reactivity, as well as the main techniques for their analysis
E07	Relate macroscopic properties with those of atoms, molecules and non-molecular chemical compounds
E15	Know how to handle the standard chemical instrumentation and be able to elaborate and manage standardized procedures of work in the laboratory and chemical industry
G01	Know the principles and theories of Chemistry, as well as the methodologies and applications characteristic of analytical chemistry, physical chemistry, inorganic chemistry and organic chemistry, understanding the physical and mathematical bases that require

G03	Know how to apply the theoretical-practical knowledge acquired in the different professional contexts of Chemistry
T03	Proper oral and written communication
T04	Ethical commitment and professional ethics
T05	Organization and planning capacity
T07	Ability to work as a team and, where appropriate, exercise leadership functions, fostering the entrepreneurial character
T08	Skills in interpersonal relationships
T09	Motivation for quality, job security and awareness of environmental issues, with knowledge of internationally recognized systems for the correct management of these aspects
T11	Ability to obtain bibliographic information, including Internet resources

## 5. Objectives or Learning Outcomes

### Course learning outcomes

#### Description

Learn to work autonomously in a laboratory and know how to interpret the experimental results.  
 Train the student for autonomous work and learning, as well as for personal initiative  
 Train the student to search for information, its analysis, interpretation and use for practical purposes.  
 Know systematically the main families of inorganic compounds and their reactivity.  
 Know the main properties of inorganic compounds and relate them to structural aspects.  
 Know the aspects of obtaining, structural, stability and reactivity of the elements.  
 Know the fundamental concepts of Inorganic Chemistry.  
 Know the most important theoretical principles of chemical bonding in inorganic compounds  
 Know the main methods of preparing inorganic compounds.  
 To develop in the student the capacity of initiative to pose and solve specific problems of Chemistry, as well as to interpret the obtained results.  
 Develop in the student the ability to synthesize, being critical and objective  
 Develop in the student the ability to work in a team.  
 Encourage and promote in the student all those values and attitudes inherent to scientific activity.

## 6. Units / Contents

**Unit 1: Group 18**  
**Unit 2: Hydrogen**  
**Unit 3: Group 17**  
**Unit 4: Group 16**  
**Unit 5: Group 15**  
**Unit 6: Group 14**  
**Unit 7: Group 13**  
**Unit 8: Group 1 & 2**  
**Unit 9: Group 12**  
**Unit 10: laboratory**

## 7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (practical) [ON-SITE]	Practical or hands-on activities	CB02 CB04 CB05 E05 E15 G01 G03 T03 T04 T07 T08 T09	1.6	40	Y	Y	
Workshops or seminars [ON-SITE]	Problem solving and exercises	CB02 CB04 CB05 E07 G03 T03 T04 T05 T08	0.6	15	N	-	
Group tutoring sessions [ON-SITE]	Group tutoring sessions	CB02 CB04 CB05 E05 G01 G03 T03	0.08	2	N	-	
Class Attendance (theory) [ON-SITE]	Lectures	CB02 CB04 CB05 E01 E02 E03 E05 E07 E15 G01 G03	1.2	30	N	-	
Progress test [ON-SITE]	Assessment tests	CB02 CB04 CB05 E07 G01 G03	0.16	4	Y	N	
Study and Exam Preparation [OFF-SITE]	Self-study	CB02 CB04 CB05 E07 G03 T03 T04 T05 T11	5.36	134	N	-	
<b>Total:</b>			<b>9</b>	<b>225</b>			
<b>Total credits of in-class work: 3.64</b>			<b>Total class time hours: 91</b>				
<b>Total credits of out of class work: 5.36</b>			<b>Total hours of out of class work: 134</b>				

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

## 8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Progress Tests	80.00%	80.00%	non-continuous evaluation with a final exam of the entire subject matter
Laboratory sessions	20.00%	20.00%	Theoretical final exam of the experiences carried out in the laboratory practices

**Total: 100.00% 100.00%**

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences).

#### Evaluation criteria for the final exam:

##### Continuous assessment:

The course may be passed through continuous assessment once the two parts, theoretical and practical, have been passed with 5.0 points in each of them. The qualification of the theoretical part will correspond to 6 points of the global qualification. Additionally, the practical part will involve the remaining 4 points up to a total of 10.

Laboratory practices are MANDATORY AND PRESENTIAL.

The Inorganic Chemistry I subject will have a theoretical evaluation of 60% and a practical evaluation of 40%, which together with the theoretical evaluation of 100% of the Inorganic Chemistry II subject, which make up the Inorganic Chemistry subject, generate an evaluation global theory of the subject of 80% and practice of 20%.

Q1 60/40

Q2 100/0

Total 60 + 100 = 160 160/2 = 80% theoretical

40 + 0 = 40 40/2 = 20% practice

The note necessary to consider a passed section must be 5 points out of 10.

The evaluation of the theoretical part of the inorganic chemical subject I is: (1) through continuous evaluation in the completion of two progress tests. (2) The realization of an ordinary exam of the subject corresponding to the globality of the subject in the theoretical part

##### Non-continuous evaluation:

Passing the final exam with a rating of 5.0 points out of 10

#### Specifications for the resit/retake exam:

If the student has not completed the subject through continuous assessment for just cause, they may take the extraordinary test

The qualification of the practical part will be maintained if it has been passed in the ordinary call only until the extraordinary call of the current academic year.

9. Assignments, course calendar and important dates	
<b>Not related to the syllabus/contents</b>	
<b>Hours</b>	<b>hours</b>
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	134
<b>Unit 1 (de 10): Group 18</b>	
<b>Activities</b>	<b>Hours</b>
Workshops or seminars [PRESENCIAL][Problem solving and exercises]	1
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Group 20:	
<b>Initial date:</b> 09/09/2019	<b>End date:</b> 12/09/2019
Group 23:	
<b>Initial date:</b> 09-09-2019	<b>End date:</b> 12-09-2019
<b>Unit 2 (de 10): Hydrogen</b>	
<b>Activities</b>	<b>Hours</b>
Workshops or seminars [PRESENCIAL][Problem solving and exercises]	1
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Group 20:	
<b>Initial date:</b> 16/09/2019	<b>End date:</b> 23/09/2019
Group 23:	
<b>Initial date:</b> 16/09/2019	<b>End date:</b> 23/09/2019
<b>Unit 3 (de 10): Group 17</b>	
<b>Activities</b>	<b>Hours</b>
Workshops or seminars [PRESENCIAL][Problem solving and exercises]	2
Class Attendance (theory) [PRESENCIAL][Lectures]	5
Group 20:	
<b>Initial date:</b> 24/09/2019	<b>End date:</b> 03/10/2019
Group 23:	
<b>Initial date:</b> 24/09/2019	<b>End date:</b> 03/10/2019
<b>Unit 4 (de 10): Group 16</b>	
<b>Activities</b>	<b>Hours</b>
Workshops or seminars [PRESENCIAL][Problem solving and exercises]	2
Class Attendance (theory) [PRESENCIAL][Lectures]	5
Group 20:	
<b>Initial date:</b> 07/10/2019	<b>End date:</b> 17/10/2019
Group 23:	
<b>Initial date:</b> 07/10/2019	<b>End date:</b> 17/10/2019
<b>Unit 5 (de 10): Group 15</b>	
<b>Activities</b>	<b>Hours</b>
Workshops or seminars [PRESENCIAL][Problem solving and exercises]	2
Class Attendance (theory) [PRESENCIAL][Lectures]	5
Group 20:	
<b>Initial date:</b> 21/10/2019	<b>End date:</b> 31/10/2019
Group 23:	

<b>Initial date:</b> 21/10/2019	<b>End date:</b> 31/10/2019
<b>Unit 6 (de 10): Group 14</b>	
<b>Activities</b>	<b>Hours</b>
Workshops or seminars [PRESENCIAL][Problem solving and exercises]	1
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	1
Progress test [PRESENCIAL][Assessment tests]	4
Group 20:	
<b>Initial date:</b> 05/11/2019	<b>End date:</b> 19/11/2019
Group 23:	
<b>Initial date:</b> 05/11/2019	<b>End date:</b> 19/11/2019
<b>Unit 7 (de 10): Group 13</b>	
<b>Activities</b>	<b>Hours</b>
Workshops or seminars [PRESENCIAL][Problem solving and exercises]	1
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Group 20:	
<b>Initial date:</b> 20/11/2019	<b>End date:</b> 28/11/2019
Group 23:	
<b>Initial date:</b> 20-11-2019	<b>End date:</b> 28-11-2019
<b>Unit 8 (de 10): Group 1 &amp; 2</b>	
<b>Activities</b>	<b>Hours</b>
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	1
Progress test [PRESENCIAL][Assessment tests]	2
Group 20:	
<b>Initial date:</b> 03/12/2019	<b>End date:</b> 10/07/2019
Group 23:	
<b>Initial date:</b> 03/12/2019	<b>End date:</b> 10/12/2019
<b>Unit 9 (de 10): Group 12</b>	
<b>Activities</b>	<b>Hours</b>
Workshops or seminars [PRESENCIAL][Problem solving and exercises]	1
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	1
Progress test [PRESENCIAL][Assessment tests]	2
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Group 20:	
<b>Initial date:</b> 11/12/2019	<b>End date:</b> 17-12-2019
Group 23:	
<b>Initial date:</b> 11/12/2019	<b>End date:</b> 17-12-2019
<b>Unit 10 (de 10): laboratory</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	40
Progress test [PRESENCIAL][Assessment tests]	1
Group 20:	
<b>Initial date:</b> 10/02/2020	<b>End date:</b> 21/02/2020
Group 23:	
<b>Initial date:</b> 10/02/2020	<b>End date:</b> 21/02/2020
<b>Global activity</b>	
<b>Activities</b>	<b>hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	26
Progress test [PRESENCIAL][Assessment tests]	9
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	40
Workshops or seminars [PRESENCIAL][Problem solving and exercises]	11
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	5
Study and Exam Preparation [AUTÓNOMA][Self-study]	134
<b>Total horas: 225</b>	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	City	ISBN	Year	Description
Housecroft, Catherine E.	Inorganic Chemistry	Prentice hall		0-582-31080-6	2001	
Housecroft, Catherine E.; Sharpe, A. G	Inorganic Chemistry	4th ed. Harlow : Pearson			2012	
Bochmann, Manfredd	Advanced Inorganic Chemistry	Jhon Willey & Oxford : Oxford University Press,		0-471-19957-5	1999	
Shriver, Duward F..	Inorganic Chemistry	Pearson new international edition. Harlow : Pearson		0-19-926463-5.	2006	
Miessler, Gary L.; Fischer, Paul J.; Tarr, Donald A	Inorganic Chemistry	Prentice hall		0-13--841891-8	2014	
Miessler, Gary L.	Inorganic Chemistry	Prentice hall		0-13--841891-8		