Teaching Guide				
Identifying Data				2020/21
Subject (*)	Intermediate Organic Chemistry		Code	610G01028
Study programme	Grao en Química			
Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	1st four-month period	Third	Obligatory	6
Language	Spanish			
Teaching method	Hybrid			
Prerequisites				
Department	Química			
Coordinador	Rodriguez Gonzalez, Jaime	E-mail	jaime.rodriguez@udc.es	
Lecturers	Maestro Saavedra, Miguel Anxo Rodriguez Gonzalez, Jaime	E-mail	miguel.maestro@udc.es jaime.rodriguez@udc.es	
Web				
General description	Intermediate Organic Chemistry is a subject module of Organic Chemistry, which focuses on the study of nomenclature, structure, properties, reactivity and the main methods of synthesis of derivatives of carboxylic acids, enols and enolates, difunctional organic compounds, with nitrogen multiple bonds, and heterocyclic rings and also with biological significance, such as carbohydrates, amino acids, peptides and nucleic acids			
Contingency plan	1. Changes in content There will be no modification 2. Methodologies * Teaching methodologies that are modified Initial activities, Master Session, Seminars through Teams Final written non-face-to-face test online, where students must solve in limited time, problems similar to those carried out during the seminar classes and oral presentation. The exam will be written to deliver on the same Teams platform. 3. Mechanisms for personalized attention to students Tutoring and resolution of doubts through Teams. Questions via email Assessment remarks: Exam 70%. Final written non-contact test online. Seminars and class participation (25% + 5%) Qualification obtained in the continuous evaluation during the seminars and in the expository classes.			

Study programme competences / results	
Code	Study programme competences / results
A1	Ability to use chemistry terminology, nomenclature, conventions and units
A4	Knowledge of main types of chemical reaction and characteristics of each
A6	Knowledge of chemical elements and their compounds, synthesis, structure, properties and reactivity
A9	Knowledge of structural characteristics of chemical and stereochemical compounds, and basic methods of structural analysis and research
A10	Knowledge of chemical kinetics, catalysis and reaction mechanisms
A14	Ability to demonstrate knowledge and understanding of concepts, principles and theories in chemistry
A15	Ability to recognise and analyse new problems and develop solution strategies
A21	Understanding of qualitative and quantitative aspects of chemical problems

A25	Ability to recognise and analyse link between chemistry and other disciplines, and presence of chemical processes in everyday life
B2	Effective problem solving
B3	Application of logical, critical, creative thinking
B4	Working independently on own initiative
C1	Ability to express oneself accurately in the official languages of Galicia (oral and in written)
C8	Understanding role of research, innovation and technology in socio-economic and cultural development

Learning outcomes			
Learning outcomes	Study programme competences / results		
Resolution and exposure problems associated with the structure, reactivity and the synthesis of difunctional organic compounds with nitrogen multiple bonds, or heterocyclic important biological nature such as carbohydrates, amino acids, peptides and nucleic acids.	A1 A4 A6 A9 A14 A15 A25	B2 B3 B4	C1 C8
Knowledge of nomenclature, structure, properties, reactivity and the main methods for the synthesis of: carbonyl compounds, difunctional compounds, compounds containing multiple bond with nitrogen, heterocyclic compounds and those with biological relevance as carbohydrates, amino acids, peptides and nucleic acids.	A1 A4 A6 A9 A10 A14 A21	B3 B4	

Contents	
Topic	Sub-topic
Theme 1. Carboxylic acid derivatives	Clasification and general reactivity: addition-elimination. Esters. Amides. Acid halides and anhydrides. Nitriles.
Theme 2. Alpha Reactivity of Carboniyl Compounds	Enols and enolates: tautomerism, acidity, regioselectivity of enolate formation. Reactivity: halogenation, alkylation, aldol condensation, the Mannich reaction, the Stork reaction, the Claisen reaction, the Dieckmann reaction, the Reformatsky reaction.
Theme 3. Bifunctional Compounds	Diols and hydroxycarbonyl compounds. Dicarbonyl compounds. Alpha, beta-unsaturated carbonyl compounds.
Theme 4. Nitrogen Compuounds	Nitrocompounds. Diazonium salts. Sandmeyer reaction.
Theme 5. Heterocyclic Compounds	Reactions of heterocycles. Ring-closing reactions. Aromatic heterocycles with five- and six-members: pyrrol, furane, thiophene and pyridine. Benzoderivatives: indole, quinoline and isoquinoline.
Theme 6. Carbohydrates and Nucleic Acids	Carbohydrates, clssification: monossacharides, oligosaccarhides and polisaccarhidess. Nucleosides and nucleotides. Polynucleotides and nucleic acids.
Theme 7. Amino Acids, Peptides and Proteins	Amino Acids: structure, propieties, reactivity and synthesis. Peptides: structure and synthesis. Proteins: structure and classification.

Planning				
Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours
Introductory activities	A1	1	0	1

Guest lecture / keynote speech	A1 A4 A6 A9 A10 A25 B3 B4 C1 C8	30	60	90
Mixed objective/subjective test	A1 A4 A6 A10 A15 A21 B2 B3 B4 C1	4	4	8
Seminar	A1 A4 A6 A9 A10 A14 A15 A21 B2 B3 B4 C1 C8	12	36	48
Personalized attention		1	0	1
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	**Description**
Introductory activities	In the initial session teachers will be presented and the course will be described. The most important in relation to the content, planning, methodologies, assessment methods and literature aspects are discussed.
Guest lecture / keynote speech	30 theoretical sessions are scheduled in one group, in which the teacher will develop the fundamental contents of the program through theoretical explanations, type resolution problems and practical examples. The scripts of the content and / or develop presentations will be available on the website of the matter (moodle) prior to the development of lessons. With the help of these materials and other resources (bibliographic, internet ...) students will prepare lessons prior to your delivery way. Student participation will be encouraged through the development of questions or e-mails directed to the teacher before, during or after the lesson.
Mixed objective/subjective test	One final written examination is programmed final, which will objectively assess the degree of assimilation and the applicability of the contents of the subject by the student program. The objective test will include a single type of questions, which will be related to the structure, reactivity and synthesis of organic compounds, and that will determine whether the answers are correct.
Seminar	It will be conducted in 12 interactive small group sessions in which students will actively participate in the analysis and resolution of the problems posed by the teacher. Questionnaires solving exercises will be available on the website of the matter (moodle) prior to the development of the classes. Students will work on the analysis and resolution of problems prior to the delivery of seminar sessions.

Personalized attention	
Methodologies	**Description**
Seminar	The students will have personalized attention in the schedule of tutorials for clarification of the key concepts of the subject exposed in large groups, the resolution of individual issues raised in the workshops and keynote sessions. In addition, students can receive personalized information on any aspect of the matter during the hours of tutorials.

Assessment			
Methodologies	**Competencies / Results**	**Description**	**Qualification**
Seminar	A1 A4 A6 A9 A10 A14 A15 A21 B2 B3 B4 C1 C8	Attendance and active participation of students in the analysis and resolution of the problems posed by the teacher and asking questions during interactive sessions or before and after the development of the same by e-mail will be assessed.	25
Mixed objective/subjective test	A1 A4 A6 A10 A15 A21 B2 B3 B4 C1	Final written examination, where students must solve in limited time without support materials similar to those raised during seminar sessions and oral presentation problems.	70

Guest lecture / keynote speech	A1 A4 A6 A9 A10 A25 B3 B4 C1 C8	Attendance and active participation of the students by asking questions or by e-mail before or after the exhibition sessions were evaluated.	5

Assessment comments
The assessment by the objective test (first or second chance) will contribute 70% of the final grade. In this regard,the score on the second occasion (July) replace the obtained at the first opportunity (February). Continuous evaluation (the work done in the master classes, seminars and oral presentations and by assessing writing solutions to problem sets) will contribute 30% of the final grade. The score on continuous assessment during the course may be stored on the second occasion (July). To qualify PASS will be necessary (1) to reach 40% of the score of the objective tests and (2) to 50% of the overall score. Students who do not participate in activities that account for more than 25% of the final score will be graded as NOTFILED. Students who takemore than 25% of classroom activities and after presenting the evidence does not reach 40% of the points in the same or 50% of the overall score will receive the grade of FAIL. According to the academic regulations, students are evaluated on the second occasion shall be eligible for Honorous Distinction if the maximum number of these was not completed in its entirety at the first opportunity. According to the recommendation of the Commission on Quality of the Faculty of Science, the Honours students who achieve the highest marks in the first opportunities will be granted. The students tested on the second occasion shall be eligible for honors if the maximum number of licenses for the corresponding course has not been fully covered at the first opportunity. Students with recognition of dedication and part-time and academic exemption of assistance, the professor may fully or partly exempt to attending the continuous evaluation process. Students in this circumstance must pass a specific test that leaves no doubt about achieving the powers of matter on two occasions.

Sources of information	
Basic	
Complementary	

Recommendations
Subjects that it is recommended to have taken before
Organic Chemistry 1/610G01026 Organic Chemistry 2/610G01027
Subjects that are recommended to be taken simultaneously
Subjects that continue the syllabus
Experimental Organic Chemistry/610G01029 Advanced Organic Chemistry/610G01030
Other comments

(*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.