

27208 - Inorganic Chemistry I

Syllabus Information

Academic year: 2023/24

Subject: 27208 - Inorganic Chemistry I

Faculty / School: 100 - Facultad de Ciencias

Degree: 452 - Degree in Chemistry

ECTS: 9.0

Year: 2

Semester: Annual

Subject type: Compulsory

Module:

1. General information

In this subject the student is expected to know the basics of inorganic chemistry so that they can relate bonding, structure and properties of inorganic compound and to acquire a general overview of the current state of knowledge of inorganic chemistry, focusing on the representative elements and their compounds.

These approaches and objectives are aligned with the Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>); specifically, the planned learning activities will contribute to the achievement of goals 3, 4, 5, 6, 7, 8, 9, 9, 10, 12 and 13.

2. Learning results

- Understand and use the basic bibliography of Inorganic Chemistry.
- Know the fundamentals and characteristics of the main reactions of Inorganic Chemistry.
- Use bonding models and theories to explain the chemical properties of inorganic compounds and predict them reasonably.
- Know the chemistry of representative elements and their compounds, their synthesis, applications and reactivity
- Analyse the chemical behaviour of representative elements and their compounds in terms of their periodic properties.
- Predict the outcome of different chemical reactions as a function of starting products and reaction conditions.
- Solve and critically discuss problems and questions on structure and reactivity of simple inorganic compounds.

3. Syllabus

Topic 1. Acids and bases.

Topic 2. Oxidation and reduction.

Topic 3. Structure and energetics of metallic and ionic solids.

Topic 4. Hydrogen and its compounds.

Topic 5. Group 17 elements and their compounds.

Topic 6. Group 16 elements and their compounds.

Topic 7. Group 15 elements and their compounds.

Topic 8. Group 14 elements and their compounds.

Topic 9. Group 13 elements and their compounds.

Topic 10. Alkali metals and their compounds.

Topic 11. Alkaline earth metals and their compounds.

Topic 12. Noble gases.

Topic 13. Introduction to molecular symmetry.

4. Academic activities

Lectures: 70 hours

Theoretical-practical sessions in which the contents of the subject will be explained.

Problem solving and case studies: 20 hours

Problem solving and seminar questions

Personal study: 130 hours

Assessment tests. 5 hours

5. Assessment system

1.-Continuous evaluation

Tests. There will be several tests (Cn) throughout the term that do not eliminate topics, but may represent up to 20% of the grade.

Midterm exams There will be two exams (E1 and E2), at the end of each semester, respectively. If the student passes any of these exams with a grade equal to or higher than 5 (out of 10), this grade will be saved for that part of the global test, both in the 1st and 2nd call. In case of passing the two exams (E1 and E2) the final grade will be calculated as indicated in point 2.

2.- Global test (PG)

It is structured in two midterm exams, one for each semester (E1 and E2). Students who have not passed E1 and/or E2 tests in the continuous evaluation, must take the exam corresponding to the part/s not passed (E1 and/or E2) in the global test. Students who, having passed the continuous evaluation, wish to improve their grade may take the exam corresponding to any of the midterm exams or take the complete global test, always respecting the best grade obtained. As a general rule, it is necessary to pass the exam of each midterm independently, with a minimum grade of 5 out of 10. As an exception, if a grade equal to or higher than 4 is obtained in one of them in the overall test, it may be averaged with the grade obtained in the other exam.

The grade for the subject will be the sum of the best grades of each semester, taking into account or not the tests:

Grade **S1C** = C1 (10 %) + C2 (10 %) + E1 (80 %); Grade **S1** = E1

Grade **S2C** = C3 (10 %) + C4 (10 %) + E2 (80 %); Grade **S2** = E2

Final Grade = [(best between **S1C** or **S1**) (50 %) + (best between **S2C** or **S2**) (50 %)]

(**S1C** or **S1**: grade of the 1st semester; **S2C** or **S2**: grade of the 2nd semester; Cn: Control n, n=1, 2, 3, 4; E1: grade of the 1st midterm; E2: grade of the 2nd midterm)