



МЕДИЦИНСКИ УНИВЕРСИТЕТ – ПЛОВДИВ
MEDICAL UNIVERSITY – PLOVDIV

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GENERAL AND INORGANIC CHEMISTRY

ACADEMIC STANDARD

1. Aim

The course aims to provide students with fundamental knowledge of the principles, theories and laws of chemistry, as well as the properties of chemical elements and their compounds. The course has a strong practical and problem-solving orientation and enables students to develop a broad range of fundamental chemical knowledge and laboratory skills required for the successful completion of subsequent chemistry-related courses.

The curriculum includes the atomic structure, chemical bonding, chemical systems and processes, the Periodic Table, and the physical, chemical and biological properties of chemical elements and their compounds.

The aims of the course are aligned with:

- the mission and strategic objectives of the University;
- the course workload and credit allocation in accordance with the European Credit Transfer and Accumulation System (ECTS);
- the qualification profile of the study programme;
- the requirements of the Master's degree programme.

As a fundamental first-semester course, General and Inorganic Chemistry provides the scientific basis for the subsequent study of Analytical Chemistry, Physical Chemistry, Organic Chemistry and other chemistry-related disciplines.

2. Educational Content

The syllabus, including lecture topics and laboratory classes, is published on the Department's website. The curriculum is structured progressively so that each lecture and corresponding laboratory exercise builds upon previously acquired knowledge, terminology and concepts, ensuring continuity and minimizing unnecessary overlap with related disciplines.

3. Prerequisites

As the course is taught during the first semester, students are expected to possess fundamental knowledge of chemistry, mathematics and physics acquired during their secondary education.

4. Academic Resources

The Department's academic staff comprises one Full Professor, two Associate Professors and six Assistant Professors.

Lectures are delivered by a qualified Professor or Associate Professor with extensive expertise in inorganic chemistry. Laboratory classes are conducted by academic staff members or doctoral students under the supervision of the teaching team.

5. Material Resources

The Department of Chemical Sciences provides modern facilities for teaching and laboratory training. The Department has six laboratories (one research laboratory and five teaching laboratories) with a total laboratory area of 282 m², fully equipped for experimental work.

Teaching activities are additionally supported by two classrooms equipped with multimedia and computer facilities, academic staff offices, high-speed Internet access and access to major scientific databases.

Students also have access to an extensive collection of rocks and minerals that supports the teaching of mineralogical and inorganic chemistry concepts.

6. Lectures

Lectures are supported by multimedia presentations, which are made available to students after each lecture. The structure, format and teaching methods employed are determined by the course coordinator in accordance with the learning objectives.

7. Laboratory Classes

Laboratory classes are conducted in small groups to ensure effective supervision and individual guidance.

Students receive laboratory manuals, methodological guidelines and laboratory safety instructions. Both individual and team-based practical and computational assignments are incorporated into the laboratory programme.

A laboratory exercise is considered successfully completed when the experimental results fall within the acceptable range of accuracy for the respective experiment. Following each laboratory session, students prepare a laboratory report, which is assessed by the laboratory instructor.

The teaching team places particular emphasis on integrating theoretical knowledge acquired during lectures with practical laboratory skills.

8. Information Resources and Recommended Literature

Students receive multimedia lecture presentations together with a list of recommended literature divided into **required** and **supplementary** resources.

The required literature consists of current textbooks available through the University Library and commercial publishers. Supplementary literature includes advanced textbooks and reference books covering topics beyond the scope of the course.

Required Literature

1. Burdge, J. *Chemistry*, 5th ed., McGraw-Hill Education, New York, 2019.
2. Zumdahl, S., Zumdahl, S. *Chemistry*, 9th ed., Cengage Learning, Boston, 2014.
3. Shriver, D., Weller, M., Overton, T., Rourke, J., Armstrong, F. *Inorganic Chemistry*, 6th ed., W. H. Freeman, New York, 2014.

9. Continuous Assessment

Student progress is monitored continuously throughout the semester.

Continuous assessment is conducted through written tests, quizzes and other assessment activities administered at least twice during the semester. Students receive timely feedback on their performance to support their learning and preparation for the final examination.

10. Independent Study

Independent study constitutes an essential component of the learning process. Academic staff guide students in selecting appropriate learning resources, developing effective study strategies and completing independent assignments.

11. Student–Staff Collaboration

Collaboration between students and the teaching staff is promoted through:

- academic advising and individual guidance;
- scheduled consultation hours;
- support for students experiencing learning difficulties;
- participation in research projects and scientific activities;
- opportunities for individual academic development.

12. Continuous Assessment Components

Continuous assessment includes:

1. laboratory performance, laboratory reports, coursework, independent assignments and participation in research activities, where applicable;
2. at least two written tests conducted during the semester.

13. Assessment Standards

Assessment criteria are transparent, objective and consistently applied to ensure fairness.

Excellent (6.00) – Outstanding knowledge and understanding of the subject; independent and critical thinking; creative problem-solving; excellent application of theoretical concepts; accurate scientific terminology; clear and well-structured presentation.

Very Good (5.00) – Very good knowledge and understanding of the subject; effective application of theoretical knowledge; appropriate use of scientific terminology; sound analytical skills.

Good (4.00) – Good overall understanding of the course material with minor inaccuracies; satisfactory application of knowledge; limited analytical ability.

Satisfactory (3.00) – Minimum acceptable knowledge of the subject; ability to reproduce essential concepts but limited understanding and application; significant deficiencies in scientific reasoning.

Poor (2.00) – Insufficient knowledge and understanding of the subject; serious conceptual errors; failure to meet the minimum learning outcomes of the course.

At the beginning of each academic year students are informed about the assessment criteria, examination procedures, continuous assessment requirements, recommended literature and opportunities for academic support and feedback.

14. Final Grade

The final grade is calculated using three assessment components:

- Continuous assessment (theoretical component) – 15%;
- Continuous assessment (laboratory component) – 15%;
- Final written examination – 70%.

The final grade is calculated as follows:

Final Grade = $0.15 \times \text{Theory Assessment} + 0.15 \times \text{Laboratory Assessment} + 0.70 \times \text{Final Written Examination}$

If any of the three assessment components is graded **Poor (2.00)**, the final course grade shall also be **Poor (2.00)**.

Examination papers are retained by the Department. Students have the right to review their examination papers, assessment results and grading criteria in accordance with the University's established procedures. Access is provided within five working days after the examination results have been announced.

This Academic Standard for the course **General and Inorganic Chemistry** was approved by the Departmental Council of the Department of Chemical Sciences (Minutes No. 5, 17 July 2026) and published on the official website of the Medical University of Plovdiv.

Prof. Kiril Gavazov, PhD

Head of the Department of Chemical Sciences