

SYLLABUS

Name: History of chemistry (WTCCXCSI-HoCh)

Name in Polish:

Name in English: History of Chemistry

Information on course:

Course offered by department: Faculty of Advanced Technologies and Chemistry

Course for department: Faculty of Advanced Technologies and Chemistry

Term: Summer semester 2025/2026 Year

Cordinator of course edition: dr inż. Mateusz Szala

Default type of course examination report:

Graded pass

Language:

English

Course homepage:

<http://www.wtc.wat.edu.pl>

Short description:

Students will be acquainted with the broadly understood roots of modern chemistry. At the beginning, the synthesis of elements in the universe will be discussed, followed by the first observations and chemical achievements of antiquity (alchemy). Particular emphasis will be placed on the achievements of chemistry after 1661 (R. Boyle). The development of techniques for the separation of substances and analysis as well as their influence on the development of views on chemistry and the structure of chemical compounds will be presented. The evolution of nomenclature and symbols of elements and chemical compounds will be discussed. The history of Mendeleev's periodic table, kinetic and thermodynamic studies will be presented. Particular emphasis will be placed on the rapid development of organic chemistry and synthesis in the 20th century and its impact on the emergence of molecular biology.

Description:

1. Nucleosynthesis, the formation of elements in the Universe. Alchemy in Egypt, China and India (2h).

2. Nature of the matter: from Aristotle to Boyle (2h).

3. Development of chemistry: from Joseph Black to Stanislao Cannizzaro (4h).

4. Organic chemistry: from Berzelius to drug design (4h).

5. Physical chemistry: from Lavoisier to Einstein and Feynman (4h).

6. Analytical chemistry from Joseph Proust to Paul Lauterbur (4h).

Bibliography:

J. Hudson, History of Chemistry Chapman & Hall, NY, 1992

W. H. Brock, The Fontana History of Chemistry, Fontana Press, Wiesbaden 1997

D. Lowe, The chemistry book: from gunpowder to graphene, 250 milestones in the history of chemistry, Sterling publ., NY, 2016

C. Cobb, M. Fetterolf, H. Goldwhite, The history of alchemy: from dragon's lood to donkey dung, how chemistry was forged, Prometheus books, NY, 2014

Learning outcomes:

K_W01 - global scientific and technological achievements including theoretical foundations as well as general issues and selected specific issues - appropriate for a given scientific discipline

K_U01 - development trends in the scientific discipline

K_U01 - obtain the necessary information related to the conducted research, using sources, including English-language ones

K_U01 - independent research extending the existing scientific and creative achievements

Assessment methods and assessment criteria:

The course ends with a final exam.

The condition for passing the course is obtaining a positive note in the colloquium (in the form of a multiple choice test) and passing

The test questions concern the knowledge provided during lectures and acquired by the student independently while studying the subject lectures. The test contains 10 questions with four answers for choice. The student's task is to indicate the correct answer(s). For each correct answer, the student receives 1 point, for each incorrect answer - zero. Maximal

the number of points for the test is 10. Grades: 5 points - C, 6 points - C+, 7 points - B, 8 points - B+, 9-10 points - A note.

The achievement of W1 and W2 outcomes is verified during a colloquium of lectures and activities during classes.

The achievement of U1, K1 outcomes is checked during seminars, based on the implementation of assigned tasks and as a result of evaluation of completed reports.

A very good grade is awarded to a student who has acquired the knowledge, skills and competences required by the learning outcomes to a very high degree

good, and also shows interest in the subject, approaches assigned tasks in a creative way and demonstrates self-efficacy independence in acquiring knowledge. Demonstrates perseverance, independence in overcoming difficulties and systematicity work.

A good grade is awarded to a student who has acquired the knowledge and skills provided for in the learning outcomes to a good extent. He can solve

tasks and problems of medium difficulty.

A satisfactory grade is awarded to a student who has acquired the knowledge and skills provided for in the learning outcomes to a sufficient extent.

Independently solves tasks and problems of low difficulty. There are noticeable gaps in his knowledge and skills however, complete it under the teacher's guidance.

A student who does not have the knowledge, skills and competences in the field of necessary requirements receives an unsatisfactory grade.

The final grade for the course consists of: the grade from the colloquium, the grades from the seminars and the student's involvement and approach to science.

Practical placement:

N/A
Mode of study
full-time studies
Form of study
first-cycle studies
Course
elective
Introductory subjects
General chemistry Inorganic chemistry
Programs
Group of general education content
Form of course / number of hours / final requirement
Lecture: 20h + Seminars: 10h +
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dr Mateusz Szala
ECTS balance
1. Lectures 20 2. Seminars 10 3. Independent studies of lecture topics 15 4. Independent preparation for the seminar 5 5. Participation in consultations 2 6. Preparation for the exam 5 Total student workload: 57/2 Tasks involving teachers: 30 /1 Tasks related to scientific activity: 57 / 2.0 ECTS
Information on course edition:
Default type of course examination report:
Graded pass
Bibliography:
<i>missing bibliography in English</i>