



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Organic Chemistry

Course

Field of study

Pharmaceutical Engineering

Area of study (specialization)

-

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

1/2

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

Number of hours

Lecture

15

Laboratory classes

0

Other (e.g. online)

0

Tutorials

15

Projects/seminars

0

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

dr hab. n. farm. Barbara Bednarczyk-Cwynar

Responsible for the course/lecturer:

Prerequisites

Knowledge of organic chemistry in high school

Course objective

Acquiring and extending the already existing knowledge of the leading groups of organic compounds: ways of naming them, obtaining, reactivity and practical significance.

Course-related learning outcomes

Knowledge



K_W1. Has ordered, theoretically founded general knowledge in the field of organic chemistry, which allows understanding, description and study of phenomena and chemical processes related to pharmaceutical engineering;

K_W9. Has knowledge of the basic conceptual categories and terminology used in pharmaceutical engineering and related industries;

K_W13. Has knowledge of natural and synthetic raw materials, products and processes used in the pharmaceutical industry;

K_W24. Has basic knowledge in the field of methods of searching for new medicinal substances, plant and synthetic medicine as well as their biochemical and molecular gripping points, pharmacopoeial standards and norms related to pharmaceutical engineering; knows methods and techniques for researching medicinal products in chemical, pharmaceutical and toxicological terms;

K_W26. Has knowledge of the risks associated with the implementation of chemical processes and risk assessment principles, knows international regulations and EU directives in the field of technical safety, and knows the principles of the organization of the chemical products market (REACH).

Skills

K_U1. Understands literature in the field of pharmaceutical engineering in Polish; reads and understands uncomplicated scientific and technical texts in a foreign language, is able to obtain information from literature, databases and other sources related to pharmaceutical engineering, also in a foreign language, integrate them, interpret them, draw conclusions and form opinions;

K_U2. Based on general knowledge, explains the basic phenomena associated with significant processes, distinguishes between types of chemical reactions and has the ability to select them for chemical processes, can characterize various states of matter, the structure of chemical compounds, including medicinal substances, using theories used to describe them, methods and experimental techniques

K_U3. Uses correct chemical and pharmaceutical terminology and nomenclature of chemical compounds, also in a foreign language;

K_U24. Has the ability to self-study.

Social competences

K_K1. Is ready to critically assess his knowledge, understands the need for further education, supplementing specialized knowledge and raising his professional, personal and social competences, understands the importance of knowledge in solving problems and is ready to seek expert opinions;

K_K2. Is ready to make independent decisions and lead a team, critically assess his own actions and those of the team, take responsibility for the effects of these activities and is able to cooperate and work in a group, inspire and integrate the professional environment;



K_K5. Is able to properly set priorities for the implementation of the task specified by himself or others, has a habit of supporting assistance and remedial actions, is responsible for the safety of own and other work, knows how to act in an emergency.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Verification Methods:

Active discussion solving problems. Observation of the student's work, his skills for independent work and teamwork. And:

Knowledge acquired during the seminar classes is verified by six short written tests. Each test consists of three short closed questions.

Knowledge acquired during lectures is verified at the end of semester III in the form of a written exam. It consists of 20 short closed questions.

Assessment Criteria:

Seminars: Each question is rated on a scale of 2.0 - 5.0, with no grade 2.5. Passing threshold: giving a positive grade for two out of three questions and at the same time average grade of three questions equal or higher 3.00.

Lecture: Each question is rated on a scale of 2.0 - 5.0, with 2.5 not rated. Passing threshold: giving a positive grade for at least 11 out of 20 questions and at the same time an average grade of twenty questions equal or higher 3.00.

Programme content

Seminars: During the course, students learn the rules for naming basic organic compounds and monovalent and multivalent groups derived therefrom, which are treated as substituents. Common names of some organic compounds are also learned. In the case of more complex compounds, which include more than one functional group, great emphasis is placed on the ability to choose the main unit that is the basic core of the chemical name. The CAS system used in organic chemistry is discussed. For chemical compounds that are substances used in pharmacy, attention is drawn to the name in the INN system and the pharmacopoeial name.

Lectures: Discussion of the following issues:

- basic types of chemical reactions
- the ability to control the response by selecting appropriate external conditions
- division of organic compounds due to the presence of a functional group



- methods of preparation, reactivity of individual groups of organic compounds, their practical significance and use in industry

Teaching methods

Seminaries: 15 hours conducted in the form of discussions and practical exercises.

Lectures: 30h / semester are lectures using multimedia techniques.

Bibliography

Basic

1. Briuce P.Y. Organic chemistry. Global Edition. , Pearson, 2007.
2. Clayden J. Greeves N., Warren S. Organic chemistry. Second Ed. , Oxford University Press, 2012.
3. Mc Murry J. Chemia Organiczna , PWN, 2005.
4. Morrison R.T., Boyd R.N., Chemia organiczna, t. 1 i 2, Wydawnictwo Naukowe PWN.

Additional

1. J. Clayden, N. Greeves, S. Warren, Organic Chemistry, Oxford University Press, eng. ;
2. Mąkosza M., Fedoryński M. Podstawy chemii organicznej , Oficyna Wydawnicza Politechniki Warszawskiej, 2006.
3. Przewodnik do nomenklatury związków organicznych Zalecenia 1993. PTChem, Warszawa 1994.

Breakdown of average student's workload

	Hours	ECTS
Total workload	60	2,0
Classes requiring direct contact with the teacher	35	1,2
Student's own work (literature studies, preparation for tutorials, preparation for tests/exam) ¹	25	0,8

¹ delete or add other activities as appropriate