University of Gdańsk

Subject card

Subject name and code	Chemistry of pharmaceutical compounds, PG_00080735		
Field of study	Chemical Business		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2027/2028
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study Subject group related to scientific research in the field of study
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	6	ECTS credits	2.0
Learning profile	academic	Assessment form	credit
Conducting unit	Laboratory of Medical Chemistry -> Department of Biomedical Chemistry -> Faculty of Chemistry -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Marta Spodzieja	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	30.0	0.0	0.0	30

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	30	5.0	15.0	50

Subject objectives

- Familiarization of students with the problems pointed out in the content of laboratory course,
- Familiarization of students with laboratory technique used in analytical and organic chemistry, in micromolar scale work,
- Acquiring the ability to unaided planning of experimental work, performance of chemical analysis and problem solving during their realization.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BCHINŻ_U06] Proposes and makes simple devices, operations or unit processes related to the implementation of the technological process used in the chemical industry, taking into account material and energy balances.	student carries out a complex synthesis of an organic compound with properties medicinal products using the Polish-language literature procedure	[SU2] presentation/project/paper/ report
[BCHINŻ_K03] Independently sets or implements a set action plan specifying priorities for its implementation; critically assesses its progress.	student designs paths for distinguishing individual medicinal substances in a series of several compounds belonging to different structural groups	[SK5] implementation of a problem task [SK8] observation of student's independent or team work
[BCHINŻ_U09] Using the acquired knowledge, skills and various sources of scientific information independently prepares written papers and oral presentations.	student designs paths for distinguishing individual medicinal substances in a series of several compounds belonging to different structural groups	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU4] test/exam - oral or written [SU6] demonstration of practical skills
[BCHINŻ_K04] Demonstrates responsibility for the safety of her/ his own and others' work.	Student retains care during work with substances with putative biological/phamacological activity	[SK5] implementation of a problem task [SK8] observation of student's independent or team work
[BCHINŻ_U02] Uses basic methods, techniques and tools in formulating and solving engineering tasks in the field of chemistry.	student carries out a complex synthesis of an organic compound with properties medicinal products using the Polish-language literature procedure	[SU2] presentation/project/paper/ report [SU6] demonstration of practical skills
[BCHINŻ_W05] Describes the life cycle of devices, facilities and technical systems as well as modern environment-friendly technical solutions.	student argues judgments based on the collected experimental results and draws conclusions through logical reasoning	[SW4] test/exam - oral or written
[BCHINŻ_U05] Evaluates the usefulness and functioning of existing engineering and technical solutions as well as research and measurement methods in the chemical industry.	student carries out a complex synthesis of an organic compound with properties medicinal products using the Polish-language literature procedure	[SU6] demonstration of practical skills [SU8] observation of student's independent or team work
[BCHINŻ_W06] Enumerates basic unit processes and describes issues in the field of technology and chemical engineering.	student argues judgments based on the collected experimental results and draws conclusions through logical reasoning	[SW2] presentation/project/paper/ report

Subject contents

- Preparation of straight therapeutic compounds. Identity analysis of synthesis products. Assessment of purity of obtained compounds.
- Identification of active substances in unknown commercially available straight drugs, by qualitative chemical analysis. General methods of identification of therapeutic compounds of selected groups (alkaloids and their derivatives, steroids, tetracyclines, sulfonamides -lactam compounds, aniline and salicylic acid derivatives, barbiturates).
- Quantitative analysis of active substance in known straight drug. Detrmination of amount of the active substance in the single dose of commercially available single-component drug.

Prerequisites and co-requisites

Finished Organic Chemistry, General Chemistry and Analytical Chemistry courses.

- knowledge of a fundamental calculations applied in analytical chemistry,
- knowledge of the basic health and safety rules in chemical laboratory,
- ability to work with laboratory glass and principal laboratory apparatus applied in chemical synthesis and analysis

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
preparation and analysis of the results of each exercise (obtaining a positive grade in the reports is a necessary condition for passing)	51.0%	5.0%
passing of three tests ((on the synthesis of a medicinal product, on the qualitative analysis of organic ingredients and on the qualitative analysis of selected retail groups)	51.0%	95.0%

Recommended reading	Basic literature	Literature required to pass the course • R. Kasprzykowska, A.S. Kołodziejczyk, Chemiczna analiza środków leczniczych. Leki proste, Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2009. • R. Kasprzykowska, Preparatyka prostych środków leczniczych, materiały niepublikowane, udostępniane przez prowadzą-cych ćwiczenia. • R. Walczyna, J. Sokołowski, G. Kupryszewski, Analiza związków organicznych, Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 1996. Extracurricular readings • Graham L. Patrick. Chemia medyczna. Podstawowe zagadnienia, wyd. WNT, Warszawa, 2003 • Graham L. Patrick Krótkie wykłady. Chemia leków, wyd. PWN, Warszawa 2004. • R.B. Silverman, Chemia organiczna w projektowaniu leków, wyd. WNT, Warszawa, 2004 • Praca zbiorowa pod red. K. Kieć-Kononowicz, Wybrane zagadnienia z metod poszukiwania i otrzymywania ś
	Supplementary literature	• Zdzisław Markiewicz, Zbigniew A. Kwiatkowski Bakterie antybiotyki lekooporność, wyd. PWN, Warszawa 2001. \ • Alojzy Zgirski, Roman Gondko Obliczenia biochemiczne, wyd. PWN, Warszawa 1998. • Marianna Zając, Ewaryst Pawełczyk Chemia leków, Wydawnictwo Akademii Medycznej im. Karola Marcinkowskiego, Poznań 2000. • Alfred Zejca, Maria Gorczyca Chemia leków, wyd. PZWL, Warszawa 2004
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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