

## Informacje ogólne o kierunku studiów

Nazwa kierunku studiów	FARMACJA
Poziom kształcenia	jednolite studia magisterskie
Liczba semestrów i liczba punktów ECTS konieczna do ukończenia studiów na danym poziomie	11, 360 ECTS
Profil kształcenia	ogólnoakademicki
Formy studiów	stacjonarne i niestacjonarne
Tytuł zawodowy uzyskany przez absolwenta	magister farmacji
Poziom Polskiej Ramy Kwalifikacji	VII

## General information about the field of study

Name of field of study	PHARMACY– English Division
The level of education	Uniform Master's studies
The number of semesters and the number of ECTS points necessary to complete studies at a given level	11, 360 ECTS
Education profile	Generally academic
Forms of study	Full-time
Professional title obtained by the graduate	magister farmacji
Polish Qualifications Framework level	VII

Module / Subject	ECTS	Total number of hours	semester 1						semester 2						Manner of obtaining credit	Course content	Symbols of learning outcomes
			Number of hours						Number of hours								
			lectures	seminars	exercise	laboratories	practical training	self-study	lectures	seminars	exercise	laboratories	practical training	self-study			
Anatomy	3	32	17		11	4								Credit with mark	The structure and topography of organs of the human body in the context of their role and belonging to functional systems: skeletal and muscular, circulatory, nervous, respiratory, digestive and urogenital.	1.1.2.,1.2.11.,1.2.8.,1.3.2.,1.3.7.,A.U3,A.U4,A.W4,	
Basic Polish I	4	60			30					30				Credit	Greeting, introducing, numbers, personal information, nationalities, professions, family members, verbs (hobbies, routines - present forms), food and drinks, transport, days of the week, colours, adjectives (shape, size, quality), time expressions.	1.2.11., 1.3.2.,E.U32	
Biology and genetics	6	60	15		34	11								Exam	The course focuses on cell biology and genetics basics. Students will follow cell organization, interplay between cell structures, basics of biochemical processes mediated by cells and their localization, basics of genetics.	1.3.2., 1.3.8.,A.U2,A.W1,A.W2,A.W3,A.W8,A.W9	
Biophysics	2	25								19	6			Credit with mark	Basic measurements of biophysical parameters for medicine and pharmacy. Problems giving deeper insight into physical basis of experimental methods.	1.3.8.,B.U1,B.U2,B.W1,B.W2,B.W3,B.W4,	
Botany	8	85						19	6	45	15			Exam	The histology, morphology,organography systematics of vascular plants. Making a herbarium.	1.3.2.,1.3.8.,A.U16,A.U17,A.W24,A.W25,A.W26,C.U29,C.U30,	
General and inorganic chemistry	9	95	25		53	17								Exam	Structure of matter, elementary particles, chemical laws, properties of elements and chemicals. Basic laboratory techniques, calculations and qualitative analysis.	1.3.8.,B.U4,B.U5,B.W10,B.W5,B.W6,B.W7,B.W8,B.W9,	
History of pharmacy	1	15	15											Credit with mark	History of the pharmacy from the antiquity to the present; history of the pharmacist profession, history of the selected drug discoveries.	1.2.9.,1.3.2.,1.3.7.,1.3.9.,E.U25,E.W27,E.W8,F.U3	
History of philosophy	1	15							15					Credit	Development of philosophical problems, methods of practicing philosophy, philosophical views, trends (currents), schools, systems and philosophical faculties over the centuries.	1.1.1.,1.1.2.,1.1.8.,1.2.8.,1.3.1.,1.3.2.,1.3.3.,1.3.5.,1.3.7.A.U20,A.W28,E.U31,E.W28,	

Hygiene and epidemiology	2	30							10	20					Credit with mark	The aim of the course is to acquaint students with the importance and methodology of epidemiological research in the prevention and control of diseases, and the basics of pharmacoepidemiology.	1.3.6., 1.3.7., E.U20, E.U29, E.W24, E.W25, E.W26, F.U3,
Information literacy		2	2												Credit	Presentation of the Library regulations and the rules of using Library resources and services, mostly the ways of searching for and ordering literature needed during the studies.	1.3.7., F.U3
Latin language classes	4	60			30						30				Credit with mark	Selected topics from botany, pharmacology, chemistry. Latin pharmaceutical terminology, prescriptions, abbreviations. Anatomy, body systems, diseases. Medical wordbuilding using Latin and Greek prefixes and suffixes. Latin proverbs.	C.U4, 1.3.2.
Mathematics	2	30			30										Credit with mark	The student know basic elementary functions, the concept of inverse, complex, diverse, monotonic, even, and odd functions as well as one-to-one function. Elements of differential and integral calculus.	B.W24, 1.3.7., 1.2.8., 1.2.9., 1.3.2.
Physical chemistry	9	95							30	5	45	15			Exam	Thermodynamics; Phase systems; Surface phenomena and dispersion systems; Electrochemistry; Kinetics and pharmacokinetics; Quantum mechanics; Methods in structural chemistry	B.U8, B.U9, B.U1, B.W16, B.W15,
Physical education		60			30						30				Credit	Exercises to strengthen the postural muscles responsible for vertical posture, exercise of varying intensity including strength training, endurance, high-speed, and reducing body fat. Strengthening exercises and stretching various muscle groups.	A.W4, E.W30
Propaedeutics of pharmaceutical practice	2	30	14						16						Credit	Presentation of pharmacy as a interdisciplinary field of science. Practical use of knowledge obtained during particular courses will be emphasised.	D.W7, D.W35, D.W27, D.W21, D.W13, C.W42, C.W3, C.W25, C.W13, C.W10, C.W1, B.W7, B.W17, B.W12, A.W9, A.W6, A.W11, 1.1.8., 1.1.4., 1.1.3.
Psychology and sociology	1	15								15					Credit with mark	The classes will discuss the main psychological trends and the most important sociological concepts in relation to selected health and illness problems.	A.W29, A.U19, A.U21, 1.3.1., A.W30, A.W31
Safety and Good Work Practice		4	4												Credit	Lectures during safety training, students learn about the risk factors in the environment (biological, chemical, physical) accidents and potentially by accident situations, the issues of fire protection and first aid techniques.	1.3.2., 1.3.10., A.U18, D.W26, C.W33, B.W2, B.W10, A.W27
Statistics	2	30									30				Credit with mark	Student acquires skills needed to describe real-life natural processes in mathematical and statistical terms; use statistical methods and models in medical sciences.	B.U11, B.U12, 1.3.8., B.W25, B.W26, 1.2.11., 1.2.8., 1.2.9., 1.3.2., 1.3.7.
Elective subjects	4	45													Credit		

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Module / Subject	ECTS	Total number of hours	semester 3						semester 4						Manner of obtaining credit	Course content	Symbols of learning outcomes
			Number of hours						Number of hours								
			lectures	seminars	exercise	laboratories	practical training	self-study	lectures	seminars	exercise	laboratories	practical training	self-study			
Analytical chemistry	10	115	25	10	23	7					38	12			Exam	Characteristics of chemical and instrumental analytical methods. Stages of analytical procedure. Calibration and validation of analytical methods. Calculations in chemical analysis.	B.U7,B.U6,B.W8,B.W7,B.W23,B.W14,B.W13,B.W12,B.W11,
Basic Polish II	5	60			30						30				Credit	Upgrading communicative skills, vocabulary and grammar to interact effectively in everyday situations (with cultural background). Verbs - present and past forms. Basic medical and pharmaceutical terms (anatomy, hospital setting, medications).	1.3.2., E.U32, 1.2.11.
Biochemistry	9	100							40		45	15			Exam	Proteins, enzymes, bioenergetics and oxidative phosphorylation, metabolism of carbohydrates, lipids and nitrogen compounds, cholesterol metabolism, detoxification, cell signaling.	1.3.8.,A.W11,A.W8,A.W9,
Immunology	3	35							20		11	4			Credit	They allow you to understand: the body's defenses mechanisms, interaction with the external environment, functional disorders and applications in diagnostics and therapy	1.3.7.,1.3.8.,A.U13,A.U9,A.W12,A.W13,C.W21,
Information technology	1	15									15				Credit	Using the e-learning platform. Word text editor - formatting and editing the document, inserting tables, graphics, formulas. Excel - calculations, charts. Multimedia presentations in Power Point.	E.U15, B.U12
Intellectual property protection	2	15							15						Credit	Intellectual property rights. Patent, methods of transferring patents, licenses. Copyrights.	C.W14

Microbiology	7	80	20		45	15									Exam	Identification, observation, cultivation of microorganisms, ultrastructure, environmental requirements, life functions, threats and the role in the functioning of the higher organisms	1.3.7.,1.3.8.,1.3.9.,A.U11,A.U12,A.U13,A.U14,A.U15,A.U16,A.W18,A.W19,A.W20,A.W21,A.W22,A.W23,
Molecular biology	3	40	10	15	11	4									Credit	DNA replication, mutation and repair, transcription, translation, protein folding, regulation of gene expression, cell cycle, apoptosis, cancer transformation, genetic engineering	1.3.7.,1.3.8.,A.U10,A.W10,A.W14,A.W15,A.W16,A.W17,A.W32,
Organic chemistry	12	140	40								75	25			Exam	Student gets acquainted with the main concepts and rules of organic chemistry, organic compounds classification, structure and its correlation with physical and chemical properties, methods of synthesis and analysis.	B.W19,B.W20,B.W21,B.W22,B.W23,B.W6,B.W8,
Physiology	6	75	30		34	11									Exam	The objective of the course is to make students aware of physiological mechanisms securing normal function of the human organism, especially regulation processes and the involved structures and chemical agents.	1.3.1.,1.3.2.,1.3.6.,1.3.8.,A.U18,A.U4,A.W12,A.W4,A.W7,B.W1,D.U18,
Elective subjects	2	30													Credit		

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Module / Subject	ECTS	Total number of hours	semester 5						semester 6						Manner of obtaining credit	Course content	Symbols of learning outcomes
			Number of hours						Number of hours								
			lectures	seminars	exercise	laboratories	practical training	self-study	lectures	seminars	exercise	laboratories	practical training	self-study			
Immunology	3	30	18		9	3									Credit with mark	They allow you to understand: the body's defenses, interaction with the external environment, functional disorders and use in diagnostics and therapy	A.U11.,A.U12.,A.U17.,A.W13.A.W14.,B.K1.,B.K2.,
Qualified first aid	2	35								15	10	10			Exam	To familiarize students with the principles of qualified first aid in a life and health emergency.	A.K2.,A.U21.,A.W26.,B.K2.,B.K3.,
Microbiology	5	90	25		49	16									Exam	Identification, observation, cultivation of microorganisms, ultrastructure, environmental requirements, life functions, threats and the role in the functioning of the higher organisms	A.U15.,A.U16.,A.U17.,A.U18.,A.U19.,A.W16.,A.W18.,A.W19.,A.W20.,A.W23.,B.K1.,B.K2.,B.K3.,
Pathophysiology	5	75	30	45											Exam	Pathophysiology is a science about the causes, mechanisms and course of diseases.	A.U1.,A.U7.,A.U8.,A.W4.,A.W6.,A.W7.,A.W8.,
Pharmaceutical chemistry	14	205	50		79	26			20		23	7			Exam	Drug substances in the ATC system. Structure-activity of drugs (QSAR). Analytical quality control of drugs according to the Polish and European Pharmacopoeia. Physicochemical and metabolic stability of drugs.	A.W12.,B.K1.,B.K2.,B.K3.,B.U5.,B.W10.,B.W12.,B.W13.,B.W14.,C.U1.,C.U17.,C.U18.,C.U38.,C.W1.,C.W3.,C.W6.,C.W8.,D.U11.,D.W12.,D.W13.,D.W16.,D.W17.,E.W45.F.U3.,F.U4.,
Pharmaceutical technology I *	9	150	25						15		55	55			Credit	The aim of the course is to prepare for the compounding, dispensing and quality control of medicinal products, in particular liquid and semi-solid forms and pharmacy compounded drugs	C.U38.,A.K3.,A.K1.,C.U34.,C.U30.,C.U29.,C.U28.,C.U27.,C.U13.,C.U12.,C.U11.,C.U10.,C.W33.,C.W32.,C.W31.,C.W30.,C.W29.,C.W28.,C.W27.,C.W26.,C.W25.,C.W24.,C.W23.,C.W22.,
Pharmacognosy	10	150	30		34	11			30		34	11			Exam	The student is familiarized with origin, occurrence, conditions of harvesting, drying, storage, chemical composition, activity and application of mainly plant raw materials as well as methods of their standardization and evaluation of their quality.	A.K3.,A.U1.,A.U20.,A.W21.,A.W22.,A.W23.,B.K1.,B.K2.,B.K3.,B.U10.,B.U17.,B.U7.,B.W14.,B.W21.,B.W22.,C.U14.,C.U15.,C.U16.,C.U17.,C.U18.,C.U21.,C.U22.,C.U23.,C.U25.,C.U26.,C.U27.,C.U33.,C.U34.,C.U35.,C.U36.,C.U37.,C.U38.,C.W19.,C.W2.,C.W20.,C.W21.,C.W22.,C.W23.,C.W29.,C.W3.,C.W30.,C.W9.,D.U34.,D.U37.,D.U43.,D.U44.,D.U47.,D.U48.,D.U49.,D.U52.,D.U53.,D.U54.,D.U56.,D.U64.,D.U66.,D.U67.,D.U68.,D.U69.,D.W12.,D.W13.,D.W15.,D.W16.,D.W17.,D.W18.,D.W19.,D.W2.,D.W28.,D.W37.,D.W41.,D.W42.,D.W43.,E.U52.,E.W18.,E.W44.,E.W45.,F.U4.,F.U5.,F.U6.,F.W1.,F.W2.,

Pharmacology and pharmacodynamics	5	65							20	45					credit	Basic principles and definitions in general pharmacology. Detailed issues in pharmacology - autacoids, drugs acting on autonomic system, used in infectious diseases, drugs affecting motor and sensory nerve endings, local anesthetics	D.U9.,D.U7.,D.U67.,D.U66.,D.U63.,D.U52.,D.U51.,D.U50.,D.U49.,D.U48.,D.U47.,D.U46.,D.U45.,D.U44.,D.U43.,D.U39.,D.U19.,D.U18.,D.U17.,D.U16.,D.U15.,D.U14.,D.U13.,D.U12.,D.U11.,D.U10.,
Pharmacy pre-training		5									4	1			Credit	The student has knowledge and skills regarding the types of medicines and their pharmaceutical form, including herbal medicines	A.K3,B.K1,D.U43,D.U44,D.U51,E.U1,E.U13,E.U2,E.U25,E.U41,E.W18,E.W2,E.W3,E.W33,E.W44,E.W50,E.W55,
Elective subjects	2	30													Credit		
* One-month summer training at open pharmacy	5	160													Credit	Provides students interns with an overview of the community pharmacy environment, with focus on organization policy, current standards (with emphasis on pharmaceutical compounding), administration procedures, equipment and local requirements.	B.K3,A.K1,E.U53,E.U30,E.U28,E.U25,C.U29,C.U28,C.U11,E.W1,A.W29,E.W36,E.W33,E.W44,E.W55,E.W18,E.U41,E.U26,E.U4,E.U3,E.U27,E.U13,E.U2,A.K3,A.K2,E.U29,C.U30,E.W5,E.W43,E.W4,E.W3,E.W2

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