University of Gdańsk

Subject card

Subject name and code	Chemistry of fragrances, PG_00082054						
Field of study	Chemistry						
Date of commencement of studies	October 2024		Academic year of realisation of subject	2026/2027			
Education level	Bachelor's studies		Subject group	Obligatory subject group 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 Polish			
Semester of study	5		ECTS credits	1.0			
Learning profile	academic		Assessment form	credit			
Conducting unit	Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. Zbigniew Kaczyński				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	15.0	0.0	0.0	15
	E-learning hours included: 0.0						
	Additional information: Performing experiments						

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	15	2.0	8.0	25

Subject objectives	• Familiarisation with the olfactory system and the perception of olfactory stimuli by the human body. • Familiarisation with the classification of aromatic substances according to their chemical structure or source of origin. • Familiarisation with the characteristics of selected aromatic compounds in terms of their use and potential effects on human health. • Familiarisation with the basics of analytical analysis of aromatic substances. • Development of the ability to perform quantitative and qualitative analysis of aromatic compounds.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[CHEML3_W02] Describes the properties of elements and the most important chemical compounds, enumerates the methods of their preparation and methods of analysis.	Explains the function and importance of the sense of smell Understands how the human body reacts (positively and negatively) to odour. Classifies odorous substances according to their chemical structure and source of origin. Characterise and explain the effects of selected odorous substances. Explains the role of odour in perfumery, cosmetics, household chemistry, food, aromatherapy and marketing	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
[CHEML3_K05] Observes established procedures in laboratory work and is responsible for the safety of her/his and others' work.	Demonstrates responsibility for the results of his/her work, is cautious in his/her handling of chemical substances and measuring apparatus, is responsible for his/her own work and that of others	[SK8] observation of student's independent or team work
[CHEML3_W04] Characterises the basic methods of chemical compound analysis.	Lists and characterises methods of analysis of fragrance compounds	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
[CHEML3_U02] Performs analyses using experimental methods and draws conclusions based on them.	Independently performs quantitative and qualitative analysis of selected aroma compounds	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[CHEML3_U04] Plans and performs simple chemical experiments and analyses the results obtained.	Independently searches for necessary information in literature, databases and other sources	[SU2] presentation/project/paper/ report [SU3] text preparation/written work
[CHEML3_U07] Prepares documented elaboration on a specific problem in the field of selected chemical and physical issues.	Is able to present the results of the analysis of odoriferous substances in the form of a self-prepared report including a description, the aim of the work, the methodology applied, the results, their interpretation and a critical discussion of any errors	[SU2] presentation/project/paper/ report [SU3] text preparation/written work
[CHEML3_K01] Identifies the level of her/his own knowledge and skills and the need for continuous learning and personal development.	Is conscious of the need for further learning, e.g. by searching for information in scientific literature and journals	[SK1] oral statement/conversation/ discussion
[CHEML3_K02] Works individually demonstrating initiative and independence of activity and cooperates in a team fulfilling various roles in it.	Works independently and as a member of a team	[SK8] observation of student's independent or team work

Subject contents

The sense of smell and its biological significance. Reaction of the human body to olfactory stimuli. Brief historical sketch of the chemistry of smell and perfume. Classification of fragrances according to their chemical structure or source (synthetic, natural - plant and animal). Characteristics of pheromones and attractants. Practical use of the influence of stereochemistry on smell. Role of fragrance in perfumery, cosmetics, household chemicals, food, aromatherapy and aromamarketing. Positive and negative effects of fragrance on human health. Sensory analysis of fragrances. Principle of operation and application of the "artificial nose". Basics of quantitative and qualitative analysis of aroma compounds using chromatographic and spectroscopic methods.

Prerequisites and co-requisites

Basic knowledge of the analytics of organic compounds and of the raw materials used in the manufacture of cosmetics

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Reports	51.0%	20.0%
Tests	51.0%	80.0%

Recommended reading	Basic literature	• Chemia piekna - Marcin Molski • Chemia i technologia zwiazkow zapachowych - Janusz Kulesza, Jozef Gora, Andrzej Tyczkowski • The Chemistry of Fragrance - Charles Sell • Człowiek w swiecie zapachow - Ewa Czerniakowska, Joanna Maria CzerniakowskaFar
	Supplementary literature	• Practical Analysis of Flavor and Fragrance Materials - Kevin Goodner, Russell Rouseff
	eResources addresses	
Example issues/ example questions/ tasks being completed	Describe one method of obtaining essential oils.	
Work placement	Not applicable	

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