

<b>Course title</b> Chemia substancji zapachowych / Chemistry of fragrances		<b>ECTS code</b> 13.3.0436	
<b>Name of unit administrating study</b> Faculty of Chemistry			
<b>Studies</b>			
<b>Field of study</b>	<b>Type</b>	<b>Form</b>	
Chemistry	Bachelor	Full-time studies	
<b>Teaching staff</b> Dr Małgorzata Czerwicka-Pach			
<b>Forms of classes, the realization and number of hours</b>		<b>ECTS credits</b> 2	
<b>A. Forms of classes, in accordance with the UG Rector’s regulations</b> lecture, laboratory classes		classes - 30 h tutorial classes – 5 h student’s own work – 15 h	
<b>B. The realization of activities</b> in-class learning		Total: 50 h - 2 ECTS	
<b>C. Number of hours</b> 30 h (15 h lecture, 15 h laboratory classes)			
<b>The academic cycle</b> 2021/22 winter semester			
<b>Type of course</b> obligatory		<b>Language of instruction</b> Polish	
<b>Teaching methods</b>  Lecture with multimedia presentation Performing experiments		<b>Form and method of assessment and basic criteria for evaluation or examination requirements</b>	
		<b>A. Final evaluation, in accordance with the UG study regulations</b> course completion (with a grade)	
		<b>B. Assessment methods</b> <b>Lecture: test with open questions</b> Laboratory exercises: colloquium	
		<b>C. The basic criteria for evaluation</b> or exam requirements  Lecture:  - The condition for obtaining a positive rating is min. 51% of possible points from the written exam covering the scope of material realized during lectures and laboratory exercises - Negative grade can be improved on the basis of additional credit from the material realized during lectures and laboratory exercises (minimum 51% of possible points  Laboratory exercises:  • The grades from the laboratory exercises will consist of partial marks: - for the preparation and execution of the project, - for the final report preparation - For two partial colloquia.	
<b>Required courses and introductory requirements</b> Completed the course of organic chemistry and cosmetics chemistry Basic knowledge in the field of analytics of organic compounds and raw materials used in the production of cosmetics			

### Aims of education

- Familiarization students with the functioning of the sense of smell and the reception of aroma stimuli by the human body
- Familiarization students with the division of fragrances due to chemical structure or source of acquisition
- Familiarization students with the characteristics of selected fragrances in terms of their use and potential impact on human health
- Familiarization students with the basics of the analysis of fragrances
- The ability to independently perform quantitative and qualitative analysis of fragrances

### Course contents

#### A. Problems of the lecture

The sense of smell and its biological significance. The reaction of the human body to aroma stimuli. A brief outline of the historical fragrance and perfume chemistry. Division of fragrances due to chemical structure or source of sourcing (synthetic, natural - plant and animal). Characteristics of pheromones and attractants. Practical use of the influence of stereochemistry on odor. The role of fragrance in perfumery, cosmetics, household chemistry, food, aromatherapy and aroma marketing. Positive and negative odor impact on human health. Sensory analysis of fragrance substances. The principle of operation and the use of "artificial nose". Basics of quantitative and qualitative analysis of aromatic compounds using chromatographic and spectroscopic methods.

#### B. Problems of laboratory exercises:

Performing experiments covering issues related to the isolation and analysis of fragrances.

### Bibliography of literature

#### A. Literature required to pass the course

„Chemia piękna” Marcin Molski

"Chemia i technologia związków zapachowych" Janusz Kulesza, Józef Góra, Andrzej Tyczkowski

„The Chemistry of Fragrance” ed. by Charles Sell

A.2. studiowana samodzielnie przez studenta

„Chemia i technologia związków zapachowych" Janusz Kulesza, Józef Góra, Andrzej Tyczkowski

„Człowiek w świecie zapachów” Ewa Czerniakowska, Joanna Maria Czerniakowska - Far

#### B. Extracurricular readings

„Practical Analysis of Flavor and Fragrance Materials” ed. by Kevin Goodner, Russell Rouseff

### Knowledge

- The student explains the operation and meaning of the sense of smell
- The student knows the reactions (positive and negative) of the human body to smell
- The student classifies fragrances with due to chemical structure and also because of the source of acquisition
- The student characterizes and explains the effect of selected fragrances
- The student explains the role of fragrance in perfumery, cosmetics, household chemistry, food, aromatherapy and marketing
- The student lists and characterizes the methods of analysis of aromatic compounds

### Skills

- The student independently performs quantitative and qualitative analysis of selected fragrances
- The student independently searches for necessary information in professional literature, databases and other sources
- The student can present the results of research in the field of fragrance analysis in the form of a self-prepared report (report) containing a description, purpose, methodology, results, their interpretation and critical discussion of possible errors

### Social competence

- The student works independently and in a team
- The student is responsible for the effects of his work, he is careful in dealing with chemical substances and measuring apparatus, he is responsible for the safety of his own work and others
- The student is aware of the need for further learning, including through information retrieval in scientific literature and popular science journals