UNIWERSYTET GDAŃSKI

Course title
Wykład monograficzny - Pobieranie i przygotowanie próbek do analiz / Monographic lecture - Sampling and its preparing for analysis

ECTS code
13.3.1028

Name of unit administrating study
Faculty of Chemistry

Studies

Field of study	Type	Form	
Chemical business	Master	Full-time studies	

Teaching staff
Dr Monika Paszkiewicz

Forms of classes, the realization and number of hours

A. Forms of classes, in accordance with the UG Rector's regulations
lecture

B. The realization of activities
in-class learning

C. Number of hours
30 h lecture

ECTS credits 3

classes - 30 h
tutorial classes – 10 h
student's own work – 35 h

Total: 75 h - 3 ECTS

The academic cycle
2020/21 winter semester

Type of course
obligatory

Language of instruction
Polish

Teaching methods

Lecture with multimedia presentation

Form and method of assessment and basic criteria for evaluation or examination requirements

A. Final evaluation, in accordance with the UG study regulations
course completion (with a grade)

B. Assessment methods
Colloquium
Establishing a final grade based on partial grades received during the semester

C. The basic criteria for evaluation or exam requirements
The final grade will be determined on the basis of the arithmetic mean of the 2 partial grades received during the semester. A negative final grade can be improved on the basis of an additional colloquium. Positive evaluation of the colloquium is min. 51% of possible points.

Required courses and introductory requirements
Chemistry, Organic chemistry, Analytical chemistry.
Knowledge of the basics of chemistry, organic chemistry, as well as chemical and instrumental analysis.

Aims of education
The aim of the lecture is to familiarize students with the issue of sampling and preparation of samples for further stages of chemical analysis. Knowledge of modern sampling and preparation techniques that are an integral part of the analytical process.

Course contents

The program includes discussion of issues related to the collection and preparation of air, water and soil samples as well as other selected materials as well as natural samples for further chemical analyzes. General principles of the sampling process, sample representativeness, sample components (matrix, analyte). Problems of trace analysis. Units used to express concentrations of trace analytes. Sampling in environmental analysis. Preservation and storage of samples and issues related to the loss of analytes. Matrixes and their impact on the preparation of samples for analysis. Preparation of samples for analysis with modern separation techniques: extraction techniques (among others liquid-liquid extraction, gas phase extraction, solid phase extraction, solid phase microextraction, extraction of solid samples), membrane techniques and chromatographic techniques. Examples of sampling and preparation of samples for analysis.

Bibliography of literature

A. Literature required to pass the course

• Pawliszyn J. *Sampling and sample preparation for field and laboratory: fundamentals and new directions in sample preparation*. Elsevier, 2002.
• Mitra S. *Sample preparation techniques in analytical chemistry.* Wiley, 2003.
• Namieśnik J., Jamrógiewicz Z., Pilarczyk M., Torres L. *Przygotowanie próbek środowiskowych do analiz*. WNT, Warszawa, 2000.
• Namieśnik J., Łukasiak J., Jamrógiewicz Z. *Pobieranie próbek środowiskowych do analiz*. PWN, Warszawa, 1995.
• Harvey D. *Modern analytical chemistry*. McGraw-Hill, USA, 2000.
• Zhang C.C. *Fundamentals of Environmental Sampling and Analysis*. Wiley, 2007.
• Popek E. P. *Sampling and analysis of environmental chemical pollutants*. Academic Press, California, USA, 2003.

B. Extracurricular readings

• Namieśnik J., Jamrógiewicz Z., Pilarczyk M., Torres L. *Przygotowanie próbek środowiskowych do analiz.* WNT, Warszawa, 2000.
• Namieśnik J., Łukasiak J., Jamrógiewicz Z. *Pobieranie próbek środowiskowych do analiz*. PWN, Warszawa, 1995.
• Stepnowski P., Synak E., Szafranek B., Kaczyński Z. *Techniki separacyjne*. Wydawnictwo UG 2010.