UNIWERSYTET GDAŃSKI

Course title
Analiza produktów pochodzenia naturalnego / Analysis of natural origin products

ECTS code
13.3.1160

Name of unit administrating study
Faculty of Chemistry

Studies

Field of study	Type	Form	
Chemistry	Master	Full-time studies	

Teaching staff
Dr Ewa Mulkiewicz

Forms of classes, the realization and number of hours

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

B. The realization of activities
In-class learning

Laboratory classes 45 h

ECTS credits 2

classes 45 h
tutorial classes 2 h
student's own work 3 h
TOTAL: 50 h - 2 ECTS

The academic cycle
Second year, winter semester

Type of course
obligatory

Language of instruction
Polish

Teaching methods
Laboratory experiments

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)

C. Assessment methods
determining the final grade based on partial grades received during the semester
final test

C. The basic criteria for evaluation or exam requirements

The final grade will be a weighted average of grades of the final test covering laboratory issues (40%), partial tests (40%) and reports (20%).
Negative grade can be improved on the basis of an additional colloquium from the material covering the entire range of exercises (min 51% of points possible to obtain)

Required courses and introductory requirements

A. Formal requirements
General chemistry, Organic chemistry, Inorganic chemistry, Analytical chemistry

B. Prerequisites
Knowledge of basic issues in the field of chemistry, organic chemistry, inorganic chemistry and analytical chemistry

Aims of education
• familiarizing students with analytical techniques used to analyze compounds in natural products,
• acquiring the ability to independently perform the calculations necessary for the correct interpretation of the results of analyzes,

• developing the ability to independently select the appropriate analytical technique for a given purpose,
• obtaining practical skills related to the conduct in the chromatographic laboratory

Course contents

Extraction and determination of organic compound content in natural products. Qualitative and quantitative analysis using chromatographic and spectroscopic techniques such as gas chromatography, high performance liquid chromatography, thin layer chromatography, UV / Vis spectroscopy, mass spectrometry

Bibliography of literature

A. Literature required to pass the course

A.1. Literature used during classes

Stepnowski P., Synak E., Szafranek B., Kaczyński Z. *Techniki separacyjne*. Wydawnictwo UG 2010
Witkiewicz Z. *Podstawy chromatografii*, WNT, Warszawa, 2005.
Johnstone W. R. A., Rose M. E., *Spektrometria mas*, PWN, Warszawa 2001
Grajek W.(red.), *Przeciwutleniacze w żywności. Aspekty zdrowotne, technologiczne, molekularne i analityczne*. WNT, Warsza-wa, 2007,

A.2. Literature for individual studies

Stepnowski P., Synak E., Szafranek B., Kaczyński Z. *Techniki separacyjne*. Wydawnictwo UG 2010
Witkiewicz Z. *Podstawy chromatografii*, WNT, Warszawa, 2005.
R. M. Silverstein, F. X. Webster, D. J. Kiemle, *Spektroskopowe metody identyfikacji związków organicznych*, PWN, Warszawa 2007

B. Extracurricular readings

Kocjan R. *Chemia analityczna. Podręcznik dla studentów*. Tom 2. PZWL, Warszawa, 2000.
Szczepaniak W. *Metody instrumentalne w analizie chemiczne*j, PWN, Warszawa, 1996.
Witkiewicz Z., Hepter J. *Chromatografia gazowa*, WNT, Warszawa, 2009.
Minczewski J., Marczenko Z., *Chemia analityczna*, tom III, PWN, W-wa, 1986
Kohlmunzer S. *Farmakognozja*. Wydawnictwo Lekarskie PZWL. Warszawa, 1993.
Kączkowski J. *Biochemia roślin*. Wydawnictwo Naukowe PWN. Warszawa, 1993
Sikorski Z. E.(red.), *Chemia Żywności*, wyd. 4, WNT, Warszawa, 2002.
Klepacka M. (red.), *Analiza żywności*, Fundacja Rozwój SGGW, Warszawa 2005.

Knowledge

1. knows and describes selected techniques and research tools used in the analysis of compounds in natural products
2. knows the structure and principle of operation of selected research equipment
3. knows and describes the methods of determining selected analytes
4. can present methods of quantitative and qualitative analysis,
5. draws conclusions from experimental data,

Skills

1. is able to prepare a report on the performed experiments in Polish,
2. can independently operate the scientific and research equipment,
3. can plan and perform experiments in the analytical laboratory and analyze their results,
4. knows the need to follow established analytical procedures,
5. is able to perform quantitative and qualitative analyzes,
6. uses professional terminology in the discussion on analytical and instrumental chemistry.

Social competence

1. demonstrates responsibility for the work performed,
2. shows creativity in the work of the group by taking various roles in it,
3. observes the arrangements made,
4. is cautious / critical in expressing opinions,
5. appreciates the importance of constructive discussions,
6. understands the need for further development and education.