

Course title:	The planning, recording, processing, and management (chemometrics) of the data obtained from selected experimental methods.
Course title in Polish:	Planowanie, rejestracja, przetwarzanie i zarządzanie danymi (chemometria) uzyskanymi przy pomocy wybranych metod analitycznych.
Course for discipline:	Food technology and nutrition

Semester:	6	Status of course:	faculty	Language:	english
Academic year:	2027/28	Catalog number:	108/2025/26		

Coordinator of course:	prof. dr hab. Piotr Koczoń
Lecturer od course:	prof. dr hab. Piotr Koczoń
Executing unit:	Institute of Food Technology
Ordering unit:	Doctoral School SGGW
Assumptions, goals and description of the course:	Significant figures. Rounding off. Uncertainty sources (systematic and random errors). Uncertain values processing. Calorimetry. Calorific value determination and comparison to the heat of combustion. Methods of mixture analysis. Separation techniques: crystallization, distillation, extraction, chromatography. Elemental analysis, empirical and molecular formula, HDI (hydrogen deficiency index) calculation, and full displayed formula determination. Non-separation techniques. FT-IR spectroscopy. Chemometrics. Discriminant analysis. Reference analysis. Analytical results reporting.
Didactic form, number of hours:	15 hours
Teaching methods:	Problem lecture, conversation, discussion, students' self-work
Limit of people in the group:	up to 6

Learning outcomes

KNOWLEDGE - the graduate knows and understands:	SKILLS - the graduate is able to:	COMPETENCES - the graduate is ready to:
To the extent enabling to revise the existing pradisms in the field/discipline - the world achievements, gathering theoretical background as well as general and selected detailed issues	Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline	Critically evaluate the achievements in the field/discipline represented
Major general development trends in the field/discipline		Recognise knowledge in solving cognitive and practical problems characteristic for the area of research (field/discipline) and in an interdisciplinary aspect
		Support the ethos of scientific circles and conduct independent research
The method of verification of learning outcomes:	Final test, theoretical experiment report	
Form of documentation of achieved learning outcomes:	final test, report	
Elements and weights of the final grade:	Final test 80 %, report 20%	
Place of the course:	Rooms available in the WULS campus	

Basic and supplementary literature

- (1) DEA Website announcement of synthetic drug crackdown: <http://www.justice.gov/dea/divisions/hq/2014/hq050714.shtml>.
- SWGDRUG Recommendations Edition 6.1 (2013-11-01), www.swgdrug.org, (2013-11-01).
- Sun Da-Wen. Elsevier INC. 2009. Book. "Infrared Spectroscopy for food Analysis and Control" and gross amount of source citations in there.
- E.G. Bartick, in Handbook of Vibrational Spectroscopy, J.M. Chalmers and P.R. Griffiths, Eds. (John Wiley and Sons, Ltd., New York, 2002), pp. 2993–3004.
- B. Lavine, A. Fasasi, N. Mirjankar, K. Nishikida, and J. Cambell, Appl. Spectrosc. 68, 608–615, (2014).
- S. Kumar, P. Joshi, and A. Raivanshi, Internet Journal of Forensic Science 4, (2008)
- E. Bukowski and J. Monti, Am. Lab. 39, 16–19 (2007).
- C. Goh, W. van Bronswijk, and C. Priddis, Appl. Spectrosc. 62, 640–648 (2008).
- G. Everrett, W. Stanton, and M. Bradley, Thermo Scientific Application Note 52418, (2012).

Comments:	
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Estimated number of hours of work of the doctoral student necessary to achieve the assumed learning outcomes:	30
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Learning outcomes reference to the second degree characteristics of the National Qualification Framework (level 8) covering doctoral competences:

Symbol:	Learning outcomes:	8 level NQF
SD1_KW01	To the extent enabling to revise the existing pradisms in the field/discipline - the world achievements, gathering theoretical background as well as general and selected detailed issues	P8S_WG
SD1_KW02	Major general development trends in the field/discipline	P8S_WG
SD1_KU05	Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline	P8S_UW
SD1_KK01	Critically evaluate the achievements in the field/discipline represented	P8S_KK

SD1_KK03	Recognise knowledge in solving cognitive and practical problems characteristic for the area of research (field/discipline) and in an interdisciplinary aspect	P8S_KK
SD1_KK08	Support the ethos of scientific circles and conduct independent research	P8S_KR