Course name:
Analysis and evaluation of food quality

ECTS	*7*
Course status	*obligatory*
Course final assessment /evaluation of outcomes	*Exam*
Prerequisite	*no prerequisites*

Main field of study*:*
Food Technology

Educational profile	General academic
Code of studies and education level	bachelor
Semester of studies	summer
Language of instruction	English

Course offered by:

Name of faculty offering the course	Faculty of Food Technology
Name of department offering the course	Department of Analysis and Evaluation of Food Quality
Course coordinator	dr hab. inż. Sławomir Pietrzyk, prof. URK

Learning outcomes:

Symbol of outcome	Description of the learning outcome	Reference to main field of study outcomes	Area symbol*
KNOWLEDGE – student knows and understands			
AOJ_W1	the basic phenomena, concepts and laws in the field of mathematical and natural sciences used in food analysis	TŻ1_W01	RT
AOJ_W2	the analytical methods: physical, chemical, physicochemical and sensory ones used in the study of quality of food products	TŻ1_W01	RT
SKILLS – student is able to			
AOJ_U1	interpret the obtained results (make appropriate mathematical calculations, apply basic information technologies)	TŻ1_U01	RT
AOJ_U2	perform the basic analyzes on the chemical composition and quality of food and to conduct the sensory analysis of food according to the adequate methods, prepare a report, correctly interpreting the results and formulating the conclusions	TŻ1_U03 TŻ1_U07	RT
AOJ_U3	prepare the worksite, select the laboratory equipment for a given analytical procedure and operate it correctly	TŻ1_U04 TŻ1_U10	RT
AOJ_U4	apply health and safety rules, and good laboratory practices	TŻ1_U06	RT
SOCIAL COMPETENCIES – student is ready to:			
AOJ_K1	continuous training and improvement of professional qualifications and personal development	TŻ1_K01	RT
AOJ_K2	demonstrate responsibility for the work of himself and others	TŻ1_K02	RT
AOJ_K3	working in a group and leading a small team	TŻ1_K02	RT

Teaching contents

Lectures		20 hours
Topics	Introduction to the subject, purpose and scope of the subject. Principles of collecting and preparing the samples for analysis. Basic laboratory glassware and small laboratory equipment. Errors in food analysis. Determination of density of food products. Determination of viscosity by the viscometric methods. Determination of fats content and quality, evaluation of physical and chemical properties of fats. Determination of acidity of the raw materials and food products and methods of its expression. Determination of water and dry matter content in food, the types of water and its presence in food. The extract and methods of its determination. The methods for determining the content of nitrogen compounds, with particular emphasis on proteins. Determination of the simple sugars and oligosaccharides. Determination of the polysaccharides (starch, pectin and fiber). The principles of sensory analysis, the methods and conditions of its implementation.	
Accomplished learning outcomes		AOJ_W1, AOJ_W2
Means of verification, rules and criteria of assessment		*Passing in written form (positive assessment for min. 51% points)* *Participation in the final evaluation of the module 50%*

Classes: 30 hours		
Topics	The introductory exercises: health and safety regulations, familiarization with the basic laboratory equipment. The density measurements: aerometric and pycnometric. Determination of viscosity using capillary and ball viscometers. Determination of dry matter and water content using the physical and chemical methods. Determination of the real extract. Determination of protein content using the direct and indirect methods. Determination of fat content using a Soxhlet method. Evaluation of fat quality. Determination of reducing sugars and sucrose content. Determination of starch, fiber and pectin content. Determination of ethanol content. Determination of ash content and the selected minerals components. Determination of vitamin C content. Detection and determination of the preservatives. Sensory analysis: tests for taste and smell sensitivity, scoring of the selected food products.	
Accomplished learning outcomes		AOJ_U1, AOJ_U2, AOJ_U3, AOJ_U4, AOJ_K1, AOJ_K2, AOJ_K3
Means of verification, rules and criteria of assessment		*Passing laboratory classes on the basis of:* - *correctly performed tasks in the laboratory'* - *laboratory work reports,* - *partial tests in the field of classes (positive assessment for at least all points possible to receive)* *Participation in the final evaluation of the module 50%*

References:

Basic	*1. Nollet L.M.L. (Ed.) Handbook of Food Analysis, 2d ed., Marcel Dekker Inc., New York, Basel, 2004.* *2. Otles S. Methods of Analysis of Food Components and Additives, CRC Press, 2005.* *3. Materials for classes prepared in English based on the script: Fortuna T. (Ed.) Podstawy analizy i oceny żywności, 3th ed., Wydawnictwo UR, Kraków, 2018.*
Supplementary	*1. Nielsen Suzanne S. : Food Analysis, Springer, 2017.* 2. *Edgar C*hambers IV: Analysis of Sensory *Properties in Foods, MDPI, 2019.* *3. Nollet Leo M. L., Toldrá, F.: Handbook of food analysis. Volume I, CRC Press, 2015.*

Structure of learning outcomes

Area of academic study: R – Agricultural, forestry and veterinary sciences	ECTS **
Area of academic study: T – technological sciences	7,0 ECTS**

Structure of student activity

Contact hours		54	hrs.	2,2	ECTS**
Including:	lectures	20	hrs.		
	classes and seminars	30	hrs.		
	consultations	2	hrs.		
	participation in research	0	hrs.		
	obligatory traineeships	0	hrs.		
	participation in examination	0	hrs.		
e-learning		0	hrs.	0	ECTS**
student own work		121	hrs.	4,8	ECTS**

*Areas of academic study in the fields of: H- humanities; S - social studies; P – biological sciences; T – technological sciences; M- medical, sport and health sciences; R – Agricultural, forestry and veterinary sciences; A – the arts
** stated with an accuracy to 0.1ECTS, where 1 ECTS = 25 - 30 hours of classes