

SYLLABUS

REGARDING THE QUALIFICATION CYCLE FROM 2022 TO 2023

1. BASIC COURSE/MODULE INFORMATION

Course/Module title	Analytical Methods in Food Production
Course/Module code *	
Faculty (name of the unit offering the field of study)	Institute of Food Technology and Nutrition, College of Natural Sciences
Name of the unit running the course	Department of Bioenergetics, Food Analyses and Microbiology
Field of study	Food Technology And Human Nutrition
Qualification level	I degree
Profile	<i>academic</i>
Study mode	<i>Full-time</i>
Year and semester of studies	<i>2nd year, 4 semester</i>
Course type	<i>Lecture and laboratory classes</i>
Language of instruction	English
Coordinator	dr hab. inż. Grzegorz Zaguła, prof. UR
Course instructor	dr hab. inż. Grzegorz Zaguła, prof. UR

* - as agreed at the faculty

1.1. Learning format – number of hours and ECTS credits

Semester (no.)	Lectures	Classes	Colloquia	Lab classes	Seminars	Practical classes	Internships	others	ECTS credits
3		30						Reports of conducted experiments	5

1.2. Course delivery methods

- conducted in a traditional way as laboratory classes
- involving distance education methods and techniques

1.3. Course/Module assessment (exam, pass with a grade, pass without a grade)

pass with a grade

2. PREREQUISITES

Knowledge of general, organic and inorganic chemistry, physics and mathematical statistics, instrumental analysis / physicochemical methods in food analysis.

3. OBJECTIVES, LEARNING OUTCOMES, COURSE CONTENT, AND INSTRUCTIONAL METHODS

3.1. Course/Module objectives

O1	To familiarize students with the issues of instrumental food analysis.
O2	Acquisition by students of the ability to select analytical methods to determine the quality of various raw materials and food products.

3.2. COURSE/MODULE LEARNING OUTCOMES (TO BE COMPLETED BY THE COORDINATOR)

Learning Outcome	The description of the learning outcome defined for the course/module	Relation to the degree programme outcomes
LO_01	Students knows standards relevant for sampling and standards describing analytical procedures	
LO_02	Is able to choose a research method for a task in food technology, interpret results and draw conclusions	
LO_03	Is able to perform basic food analysis using the available equipment	
LO_04	Can interact and work in a group, taking on different roles in it	

3.3. Course content (to be completed by the coordinator)

A. Lectures

Content outline
Methods used in the analysis and evaluation of food quality.
Criteria for the selection and evaluation of the analytical method
Rules for collecting and preparing samples for analytical tests
Types of samples (definitions), number of samples.
Methods for preparing an average laboratory sample.

Stages of the analytical process.

B. Classes, tutorials/seminars, colloquia, laboratories, practical classes

Content outline
Preparation for trace analysis of environmental samples
The method of adding a standard to verify matrix effects
A method of analytical work using an internal standard to eliminate interference effects
Application of Certified Reference Materials in trace analysis
Determination of detection limits and measurement uncertainties in trace analysis
Verification of determination methods in trace analytics

3.4. Methods of Instruction

e.g.

Lecture: a problem-solving lecture/

Laboratory classes: designing and conducting experiments

4. Assessment techniques and criteria

Lecture: problem lecture, lecture with multimedia presentation

Exercises: group work, discussion

4.1 Methods of evaluating learning outcomes

Learning outcome	Methods of assessment of learning outcomes (e.g. test, oral exam, written exam, project, report, observation during classes)	Learning format (lectures, classes,...)
LO_01	Report of experiment, observation during classes	LECTURE, CLASSES
LO_02	Report of experiment, observation during classes	LECTURE, CLASSES
LO_03	Report of experiment, observation during classes	LECTURE, CLASSES
LO_04	observation during classes	LECTURE, CLASSES

4.2 Course assessment criteria

GRADE 3.0 51-65%, GRADE 3.5 66-75%, GRADE 4.0 76-85%, GRADE 4.5 86-95%, GRADE 5.0 96-100%

5. Total student workload needed to achieve the intended learning outcomes – number of hours and ECTS credits

Activity	Number of hours
Scheduled course contact hours	30
Other contact hours involving the teacher (consultation hours, examinations)	35
Non-contact hours - student's own work (preparation for classes or examinations, projects, etc.)	60
Total number of hours	125
Total number of ECTS credits	5

* One ECTS point corresponds to 25-30 hours of total student workload

6. Internships related to the course/module

Number of hours	
Internship regulations and procedures	

7. Instructional materials

Compulsory literature: STRUCTURED ANALYTIC TECHNIQUES FOR INTELLIGENCE ANALYSIS AUTORZY RICHARDS J. HEUER JR., RICHARDS J. HEUER, RANDOLPH H. PHERSON
Complementary literature: Chosen scientific papers

Approved by the Head of the Department or an authorised person