



Food Analysis  
Educational subject description sheet

**Basic information**

<b>Field of study</b> Food technology and human nutrition	<b>Education cycle</b> 2020/21	
<b>Speciality</b> -	<b>Subject code</b> WBiNoZNTZS.I4BO.0723.20	
<b>Department</b> The Faculty of Biotechnology and Food Science	<b>Lecture languages</b> english	
<b>Study level</b> First-cycle (engineer) programme	<b>Mandatory</b> optional	
<b>Study form</b> Full-time	<b>Block</b> major subjects (conducted) in foreign languages	
<b>Education profile</b> General academic	<b>Disciplines</b> Food technology and nutrition	
	<b>Subject related to scientific research</b> Yes	
	<b>Subject shaping practical skills</b> No	
<b>Teacher responsible for the subject</b>	Agnieszka Tajner-Czopek	
<b>Other teachers conducting classes</b>	Agnieszka Tajner-Czopek, Joanna Miedzianka	
<b>Period</b> Semester 3	<b>Examination</b> exam	<b>Number of ECTS points</b> 4.0
	<b>Activities and hours</b> lecture: 15 laboratory classes: 30	

## Goals

C1	The aim of the subject is to acquaint students with the basis of the food analysis. The lectures include topics relating to sensory analysis and organoleptic evaluation, food quality, standardization, as well as techniques for the determination of selected chemical components (eg.: water, ash), compounds, eg.: acrylamide and quality characteristics of food. At the laboratory exercises, students have the opportunity to assess the quality of selected raw materials and food products, the determination of the physicochemical properties of the foods, using appropriate methods.
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## Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
<b>Knowledge - Student knows and understands:</b>			
W1	Student knows and understands in an advanced level facts and concepts of chemistry, biochemistry, microbiology, mathematics, physics adapted to the direction of food technology and human nutrition.	NT_P6S_WG01	written exam, observation of student's work, practical training report
W2	Student knows and understands in an advanced level the issues related to the properties of raw materials and products of plant and animal origin.	NT_P6S_WG03	written exam, observation of student's work, practical training report
W3	Student knows and understands the techniques and methods used in food processing processes.	NT_P6S_WG07	written exam, observation of student's work, practical training report
W4	Student knows and understands basic techniques of food analysis (physicochemical, microbiological, toxicological, sensory) and the principles of food standardization	NT_P6S_WG12	written exam, observation of student's work, practical training report
<b>Skills - Student can:</b>			
U1	Student is able to apply appropriate physical, chemical, biological and sensory techniques using laboratory equipment and control and measurement apparatus used in food analysis and to prepare and interpret the obtained results.	NT_P6S_UW02	active participation, performing tasks, practical training report
U2	Student is able to interpret physicochemical and biological phenomena occurring during processing and storage of raw materials and food products.	NT_P6S_UW03	active participation, performing tasks, practical training report
<b>Social competences - Student is ready to:</b>			
K1	Student is ready to critical assessment of their knowledge and skills, is aware of the progress and developments in the disciplines of food technology and human nutrition	NT_P6S_KK01	active participation, performing tasks, practical training report
K2	Student is to demonstrate an active attitude and use of knowledge to address different challenges in food technology and human nutrition.	NT_P6S_KO02	active participation, performing tasks, practical training report

## Balance of ECTS points

Activity form	Activity hours*

lecture	15	
laboratory classes	30	
exam / credit preparation	20	
exam participation	1	
consultations	8	
lesson preparation	26	
report preparation	20	
<b>Student workload</b>	<b>Hours</b> 120	<b>ECTS</b> 4.0
<b>Workload involving teacher</b>	<b>Hours</b> 54	<b>ECTS</b> 2.0
<b>Practical workload</b>	<b>Hours</b> 50	<b>ECTS</b> 2.0

\* hour means 45 minutes

### Study content

No.	Course content	Activities
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1.	<p>Titles of lectures:</p> <ol style="list-style-type: none"> <li>1. The tasks of food analysis. Analytical laboratory (laboratory glassware).</li> <li>2. The quality of food products.</li> <li>3. Sensory analysis and organoleptic evaluation. Part I.</li> <li>4. The share of human senses in sensory analysis and organoleptic evaluation.</li> <li>5. Conditions for measuring of sensory analysis and organoleptic evaluation.</li> <li>6. Methods for determination of the dry matter content in food products.</li> <li>7. Determination of the density of liquid food products.</li> <li>8. Determination of the viscosity of food products.</li> <li>9. Determination of the acidity of food products.</li> <li>10. Determination of starch content in foods.</li> <li>11. Determination of non-starch polysaccharides (dietary fiber) content in food products.</li> <li>12. Determination of the selected vitamins content in food products.</li> <li>13. Methods for determining the ash content in food products.</li> <li>14. Protein characteristics and methods of their determination - Part I.</li> <li>15. Protein characteristics and methods of their determination - Part II.</li> </ol>	lecture
2.	<p>Titles of classes:</p> <ol style="list-style-type: none"> <li>1. Sensory analysis and sensory evaluation of foods. Part I</li> <li>2. Sensory analysis and sensory evaluation of foods. Part II</li> <li>3. Determination of dry matter and starch content in selected food products</li> <li>4. Determination of density, viscosity, acidity of selected food products</li> <li>5. Determination of non-starch polysaccharides content (including dietary fiber)</li> <li>6. Determination of ash content in selected food products</li> <li>7. Determination of vitamin C in selected food products</li> <li>8. Passing the course.</li> </ol>	laboratory classes

## Course advanced

### Teaching methods:

teamwork, lecture, classes

<b>Activities</b>	<b>Examination methods</b>	<b>Percentage in subject assessment</b>
lecture	written exam	60%
laboratory classes	observation of student's work, active participation, performing tasks, practical training report	40%

## **Literature**

### **Obligatory**

1. 1. Nielsen S., Food Analysis. 2010. Springer US. (pdf. available online).
2. 2. Nielsen S., Food Analysis. 2017. Springer US. (pdf. available online).
3. 3. Pomeranz Y., Meloan C.E. 1994. Food Analysis - Theory and practice. 3-rd Ed. Chapman 7 Hall, New York, London

### **Optional**

1. Selected the ISO standards

## Effects

Code	Content
NT_P6S_KK01	Critical assessment of their knowledge and skills, is aware of the progress and changes in the discipline of food technology and human nutrition
NT_P6S_KO02	Demonstrate an active attitude and use knowledge to solve various problems in food technology and human nutrition
NT_P6S_UW02	Apply appropriate physical, chemical, biological and sensory techniques using laboratory equipment and control-measuring devices used in food analysis, and develop and interpret the collected results
NT_P6S_UW03	Interpret physicochemical and biological phenomena occurring during the processing and storage of food raw materials and products
NT_P6S_WG01	At an advanced level facts and concepts in chemistry, biochemistry, microbiology, mathematics, physics adapted to the food technology and human nutrition
NT_P6S_WG03	At an advanced level, problems related to the properties of raw materials and products of plant and animal origin
NT_P6S_WG07	Techniques, methods and tools, unit operations and technologies used in food processing
NT_P6S_WG12	Basic techniques of food analysis (physicochemical, microbiological, toxicological, sensory) and principles of food standardization