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| **Course title**  Food chemistry and analysis – ERASMUS  Chemia i analiza żywności – ERASMUS | | | **ECTS code**  13.3.1267 |
| **Name of unit administrating study**  Faculty Chemistry | | | |
| **Studies**   |  |  |  |  | | --- | --- | --- | --- | | **Field of study** | **Type** | **Form** |  | | Chemistry | Bachelor | Full-time studies |  | | Chemistry | Master | Full-time studies |  | | | | |
| **Teaching staff**  dr hab. Jolanta Kumirska, prof. UG | | | |
| **Forms of classes, the realization and number of hours** | | **ECTS credits 5**  classes 45 h  tutorial classes 30 h  student’s own work 50 h  TOTAL: 125 h - 5 ECTS | |
| 1. **Forms of classes, in accordance with the UG Rector’s regulations**   laboratory classes | |
| 1. **The realization of activities**   In-class | |
| 1. **Number of hours**   45 h - laboratory | |
| **The academic cycle**  summer | | | |
| **Type of course**  facultative | **Language of instruction**  English | | |
| **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) | | |
| **B. Assessment methods**  Writing test | | |
| **C. The basic criteria for evaluation** or exam requirements  Evaluation criteria in accordance with the UG Studies Regulations; | | |
| **Required courses and introductory requirements**  no requirements | | | |
| **Aims of education**  To introduce students with the techniques used in food analysis.  Introducing students to the basics of calculations necessary for correct interpretation of analysis results.  To develop the ability to independently select the right analytical technique for the goal.  **Convergent to:** organic chemistry, analytical chemistry | | | |
| **Course contents**  Chemical composition of food. Physical, chemical and biological properties of food ingredients, food additives and food contamination. Transformation of these compounds during storage and processing of raw materials and food products. The role of individual components in creating sensory attributes of food products. Understanding some of the mechanisms and effects of chemical and biochemical reactions taking place in food on the sensory properties and health quality of food products. Chemical, instrumental and sensory analysis techniques used to control and evaluate food quality. Methods for the determination of basic food ingredients and food additives. Methods of detecting adulteration and food contamination. Methods for the determination of selected carcinogenic and anti-carcinogenic compounds in food products. Examples of the use of chromatographic methods, spectrophotometric methods and mass spectrometry for food analysis. Evaluation of the quality of raw materials and food products. Preparation, statistical evaluation and interpretation of analysis results.  Laboratory experiments - Preparation of food samples for proper analysis. Qualitative and quantitative analysis using chemical methods and instrumental methods such as: gas chromatography, high performance liquid chromatography and UV / Vis spectroscopy for food analysis. Practical application of selected sensory analysis methods to assess the quality of food products | | | |
| **Bibliography of literature**  Kumirska J., Gołębiowski M., Paszkiewicz M., Bychowska A. Analiza żywności Wydawnictwo UG, Gdańsk 2010 | | | |
| **Knowledge**  1. Student understands the main goals and importance of food analysis and the most important food ingredients that shape the quality of nutritional products.  2. Student knows the basic rules of sampling and preparation of samples for food analysis and the physical, chemical and biological properties of food ingredients, food additives and food contamination.  3. Student knows and describes methods for determining the main nutrients and food additives.  4. Student knows and describes the methods of food contamination determination and methods of detecting food adulteration.  5. Student knows and describes methods for the determination of selected carcinogens and anti-carcinogens present in food products.  6. Student understands the basic issues related to the control and evaluation of food quality. | | | |
| **Skills**  1. Student demonstrates the ability to carry out determinations of basic food ingredients, selected food contaminants, detection of certain food adulterations by analytical and instrumental methods.  2. Student observes established analytical procedures in the determination of food ingredients, food additives, etc.  3. Student assesses the results obtained using basic statistical tools.  4. Student formulates opinions on issues related to food analysis. | | | |
| **Social competence**  1. Student understands the need for further education,  2. Student shows responsibility for the effects of the team's work,  3. Student is responsible for the safety of his own and others' work: student knows how to proceed in states of danger; student is careful in dealing with chemicals; student is careful in dealing with measuring apparatus | | | |