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| **Course title**  Food radiochemistry and radiation protection – ERASMUS  Radiochemia żywności i ochrona radiologiczna - ERASMUS | | | **ECTS code**  13.3.1268 |
| **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. Dagmara Strumińska-Parulska, prof. UG; dr Grzegorz Olszewski; mgr Aleksandra Moniakowska | | | |
| **Forms of classes, the realization and number of hours** | | **ECTS credits 4**  classes 30 h  tutorial classes 20 h  student’s own work 50 h  TOTAL: 100 h - 4 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**   30 h - laboratory | |
| **The academic cycle**  winter | | | |
| **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**  Acquaint the students with radiochemistry and radiation protection  **Convergent to:** physical chemistry, analytical chemistry, environmental sciences | | | |
| **Course contents**  Radioactive elements in nature. Ionizing radiation doses. Radiotoxicity and its groups. Sources of radioactive contamination in the natural environment. Human absorption of radionuclides from air, food and water, and assessment of radiation doses. Radiological effects of smoking cigarettes.  Laboratory experiments - 210Po, 234U, 238U and 239+240Pu activities determination in food samples | | | |
| **Bibliography of literature**  Frontasyeva M., Perelygin V., Vater P., Radionuclides and Heavy Metals in Environment, Springer, 2001  Stabin M., Radiation Protection and Dosimetry, Springer, 2007.  Skwarzec B., Determination of radionuclides in aquatic environment, Analytical measurements in aquatic environments, CRC Press, Taylor&Francis Group, 2010, | | | |
| **Knowledge**  1. has knowledge about the influence of ionizing radiation on living organisms,  2. knows the natural and artificial radioactive elements in the environment and sources of their origin,  3. understands the concept of radiotoxicity and knows its groups,  4. has knowledge about the origin of radionuclides in the human body,  5. understands the radiological effects of the collection of radionuclides by humans as a result of breathing, eating and smoking, | | | |
| **Skills**  1. understands the basic concepts of radiochemistry and radiotoxicology,  2. recognizes the most important natural and artificial radionuclides contained in man,  3. can assess the radiological consequences of human absorption of radionuclides from the air, water and food and as a result of smoking,  4. is able to assess the radiation doses coming from ingested radionuclides,  5. is able to assess radiological threats arising as a result of local or global contamination of radioactivity. | | | |
| **Social competence**  1. understands the need for further education in the field of monitoring of radiochemical contamination of the environment,  2. demonstrates creativity in limiting the absorption of radionuclides by humans and makes the society aware of the effects of excessive incorporation of radionuclides,  3. can transfer knowledge in the society about sources of radiochemical contamination in building materials, | | | |