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| **Course title**  Nuclear advanced laboratory – ERASMUS  Zaawansowana pracownia jądrowa – ERASMUS | | | **ECTS code**  13.3.1366 |
| **Name of unit administrating study**  Faculty Chemistry | | | |
| **Studies**   |  |  |  |  | | --- | --- | --- | --- | | **Field of study** | **Type** | **Form** |  | | Chemistry | Bachelor | Full-time studies |  | | Chemistry | Master | Full-time studies |  | | Environmental sciences | Bachelor | 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 6**  classes 45 h  tutorial classes 40 h  student’s own work 65 h  TOTAL: 150 h - 6 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**  Laboratory exercise: conducting experiments, report preparation (in the form of poster and oral poster presentation) | | |
| **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 gain knowledge in the field of basic and nuclear chemistry  • To gain knowledge in the field of radiochemistry  • To gain knowledge in the field of radiation protection  **Convergent to:** physical chemistry, analytical chemistry, environmental sciences | | | |
| **Course contents**  Laboratory experiments  Performing a series of practical exercises in the field of nuclear and elementary physics, methods of measuring isotope properties and impact ionizing radiation on matter and other phenomena at the nuclear level. | | | |
| **Bibliography of literature**  Dahlgaard H., Nordic Radioecology: The Transfer of Radionuclides through Nordic Ecosystems to Man, Elsevier, 1994,  Matishov D., Matishov G., Radioecology in Northern European Seas, Springer, 2004,  Skwarzec B., Kabat K., Procedury i procesy w analizie radiochemicznej, 2009  Skwarzec B., Boryło A., Strumińska-Parulska D., Olszewski G., Przewodnik do ćwiczeń laboratoryjnych z chemii jądrowej, radiochemii oraz bezpieczeństwa jądrowego i monitoringu skażeń promieniotwórczych, 2017 | | | |
| **Knowledge**  1. knows and understands the basic concepts of nuclear reactions,  2. has knowledge about the natural and artificial radioactive elements in the environment,  3. understands the idea of radiometric methods,  4. knows the impact of ionizing radiation on matter,  5. knows the goals and tasks of monitoring environmental radioactive contamination. | | | |
| **Skills**  1. understands the basic concepts of radiochemistry and nuclear reactions,  2. recognizes the most important natural and artificial radionuclides contained in environment,  3. can determine the most important radionuclides and explain the nuclear reactions  4. understands the impact of ionizing radiation on matter,  5. is able to assess radiological threats arising from the ionizing radiation. | | | |
| **Social competence**  1. understands the need for further education in the field of nuclear monitoring,  2. demonstrates creativity in limiting the absorption of radionuclides by humans,  3. can transfer knowledge in the society about sources of radiochemical contamination and nuclear reactions in living organisms, | | | |