***Course name:***
Protection of soils, biodiversity and geological heritage

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|---|---|
| ECTS | 6.0 |
| Course status | *optional* |
| Course final assessment /evaluation of outcomes | *Exam / graded credit* |
| Prerequisite | Basic knowledge of nature and soil science |

***Main field of study****:*
***Environmental protection***

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| Educational profile | General academic |
| Code of studies and education level | ***SI/SM*** |
| Semester of studies | Summer0 |
| Language of instruction | English |

**Course offered by**:

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|---|---|
| Name of faculty offering the course | Agriculture and Economics |
| Name of department offering the course | Soil Science and Agrophysics |
| Course coordinator | Krystyna Ciarkowska/ Tomasz Zaleski |

**Learning outcomes**:

| Symbol of outcome | Description of the learning outcome | Reference to main field of study outcomes | Area symbol* |
|---|---|---|---|
| KNOWLEDGE – student knows and understands | | | |
| *PSGH _W02* | the effect of human activities on soils and biodiversity | *RO2_W11* | 0521 |
| *PSGH_W01* | knows threats of soils and biodiversity in Poland | *RO2_W08 RO2_W21* | 0521 |
| SKILLS – student is able to | | | |
| *PSGH _U01* | evaluate hazards to the natural soil and biodiversity environment, and manage them | *RO2_U07*, *RO2_U08*, *RO2_U12*, | 0521 |
| *PSGH _U02* | predict the effects of environmentally harmful decisions | *RO2_U01*, *RO2_U05* | 0521 |
| SOCIAL COMPETENCIES – student is ready to: | | | |
| *PSGH _K01* | understands the relation between different anthropogenic factors affecting soils | *RO2_K07* | 0521 |
| *PSGH _K01* | organizes and participates in the work of research teams designed to perform a specific experiment | *RO2_K02* | 0521 |

**Teaching contents**

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| Lectures | 28 hours |
| Topics | |

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| | 1. Multifunctional role of soils in the environment. Basic terms related to soil protection and conservation.<br>2. Soil erosion.<br>3. Physical deterioration of soils, geotechnical deformations.<br>4. Chemical degradation – soil pollution with organic and inorganic materials.<br>5. Biological degradation – organic matter decline<br>6. Definition of the biological diversity. Main resolutions of the Biodiversity Convention.<br>7. Threats and protection of species: red lists and books, protection "in situ" and "ex situ", protection of the threatened weed species.<br>8. Biodiversity protection on the ecosystems level – renaturalization of changed and degraded ecosystems.<br>9. Seminatural plant communities protection.<br>10. Importance of territorial protection in the preservation of ecosystem diversity. Natura 2000 net.<br>11. Paneuropean Strategy of Biodiversity Protection. State and protection strategy of biodiversity in Poland.<br>12. Nature reservations and national parks in Poland. Landscape parks, protected landscape areas in Poland.<br>13. Monuments of nature, stands for completing documentation ecological lands, nature-landscape complexes in Poland.<br>14. Geological heritage. The Geosites net and proposals of the European Geoparks on the area of Poland. |

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| Accomplished learning outcomes | *PSGH _W01, PSGH _W02, PSGH _W03, PSGH _W04* |
| Means of verification, rules and criteria of assessment | written tests |
| Classes: | 32 hours |
| Topics | 1. Properties of soils with different resistance against degradation processes: determinations of organic carbon, pH values and grain size distribution. |

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| | 2. Buffer capacities determination.<br>3. Determination of cation exchange capacities.<br>4. Analysis of results and summary.<br>5. Realization of biodiversity protection idea in particular countries.<br>6. Trip to the Nida Basin are to examine geological heritage, and/or trip to Ojców National Park to examine nature protection and geology, and/or trip to the Pieniny National Park to examine, soils, geological heritage and semi-natural grasslands under protection |

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| Accomplished learning outcomes | *PSGH _U01, PSGH _U20, PSGH _U03, PSGH _K01, PSGH _K02* |
| Means of verification, rules and criteria of assessment | Field reports, laboratory reports, presentations |

**References**:

| | |
|---|---|
| Basic | Troeh F. R. Soil and water conservation : productivity and environmental protection, New Jersey, 1999.<br>2. Haan F., Reynweld M.I.V. Soil pollution and soil protection, International Book Distributing Co, 2004.<br>3. Elli Louka 2002. Biodiversity and human rights: the international rules for the protection of biodiversity |
| Supplementary | Andrew S. Pullin Conservation Biology. Cambridge; New York : Cambridge University Press, 2002.<br>Mirsal I.A. Soil pollution: origin, monitoring and remediation, Springer Verlag 2009 |

**Structure of learning outcomes**

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|---|---|
| Area of academic study: R – Agricultural, forestry and veterinary sciences | 3 ECTS |
| Area of academic study: T – technological sciences | 3 ECTS |

**Structure of student activity**

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|---|---|---|---|---|
| Contact hours | | … 60 | hrs. | 5.7. ECTS** |
| Including: | lectures | … 28 | hrs. | |
| | classes and seminars | … 32 | hrs. | |

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| | consultations | … 2 | hrs. | | |
| | participation in research | … | hrs. | | |
| | obligatory traineeships | … | hrs. | | |
| | participation in examination | … 2 | hrs. | | |
| e-learning | | … | hrs. | …. | ECTS** |
| student own work | | … 10 | hrs. | 0.3…. | ECTS** |

*Areas of academic study in the fields of: H- humanities; S - social studies; P – biological sciences; T – technological sciences; M- medical, sport and health sciences; R – Agricultural, forestry and veterinary sciences; A – the arts
** stated with an accuracy to 0.1 ECTS, where 1 ECTS = 25 - 30 hours of classes