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| **Course title:** | Nature-Based Bioeconomy: Policy, Management, and Environmental Restoration |
| **Course title in Polish:** | Biogospodarka oparta na naturze: uwarunkowania polityczne, zarządzanie i odtwarzanie środowiska |
| **Course for discipline:** | envronmental engineering, mining and energetics, agriculture and horticulture, economy and finances, forestry, biology |

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| **Semester:** | 6 | **Status of course:** | faculty | **Language:** | English |
| **Academic year:** | | **Catalog number:** | | | |

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| **Coordinator of course:** | Nina Drejerska |
| **Lecturer od course:** | Nina Drejerska, Mateusz Grygoruk, Axel Schwerk, Arkadiusz Przybysz, Agnieszka Bańkowska-Sobczak, Daria Sikorska |
| **Executing unit:** | Centre for Climate Research |
| **Ordering unit:** | Doctoral School SGGW |
| **Assumptions, goals and description of the course:** | The purpose of the course is to familiarize students with contemporary trends in environmental management, taking into account economic, political and legislative considerations. During an interdisciplinary course covering several scientific disciplines (environmental engineering, economics and finance, forestry, agriculture and horticulture, and biology), students will gain a cross-cutting knowledge that will broaden their horizons. Lecture topics: (1) Basics of (circular) bioeconomy, (2) Principles and methods of ecosystem restoration, (3) Stakeholders in the environmental management process - simulation game, (4) Nature-based solutions - ideas, examples and evaluation of effectiveness, (5) Sustainable development. Upon completion of the course, the student is expected to embed his/her scientific approach in a broad contemporary social, economic and environmental context. |
| **Didactic form, number of hours:** | classes, 10 |
| **Teaching methods:** | case study, brain storming, team work, lecture, discussion, simulation game |
| **Limit of people in the group:** | 15 |

**Learning outcomes**

| **KNOWLEDGE - the graduate knows and understands:** | **SKILLS - the graduate is able to:** | **COMPETENCES - the graduate is ready to:** |
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| To the extent enabling to revise the existing pradigms in the field/discipline - the world achievments, gathering theoretical background as well as general and selected detailed issues | Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline | Critically evaluate the achievments in the field/discipline represented |
| Major general development trends in the field/discipline | | Recognise knowledge in solving cognitive and practical problems characteristic for the area of research (field/discipline) and in an interdisciplinary aspect |
| | | Support the ethos of scientific circles and conduct independent research |

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| **The method of verification of learning outcomes:** | essay |
| **Form of documentation of achieved learning outcomes:** | essay archiving, EHMS, attendance list |
| **Elements and weights of the final grade:** | essay 80%, individual activity during classes 20% |
| **Place of the course:** | SGGW campus |

**Basic and supplementary literature**

J.C.J.M. Van den Bergh & G. Kallis, 2012. Growth, A-Growth or Degrowth to Stay within Planetary Boundaries? Journal of Economic Issues 46(4):909-920
DOI: 10.2753/JEI0021-3624460404 ;
IUCN, 2020. Global Standard for Nature based Solutions. A user-friendly framework for the verification, design and scaling up of NbS;
Lanzerath D., Schurr U., Pinsdorf Ch., Stake M. (Eds.), 2023. Bioeconomy and Sustainability. Perspectives from Natural and Social Sciences, Economics and Ethics. Springer Cham. Handbook on the Bioeconomy, Edited by Davide Viaggi, 2025, Edward Elgar Publishing

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| **Comments:** | Students of all semesters of Doctoral School are encouraged to join the course. |

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| **Estimated number of hours of work of the doctoral student necessary to achieve the assumed learning outcomes:** | 25 |

**Leraning outcomes reference to the second degree characteristics of the National Qualification Framework (level 8) covering doctoral competences:**

| **Symbol:** | **Learning outcomes:** | **8 level NQF** |
|---|---|---|
| SD1_KW01 | To the extent enabling to revise the existing pradigms in the field/discipline - the world achievments, gathering theoretical background as well as general and selected detailed issues | P8S_WG |
| SD1_KW02 | Major general development trends in the field/discipline | P8S_WG |
| SD1_KU05 | Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline | P8S_UW |
| SD1_KK01 | Critically evaluate the achievments in the field/discipline represented | P8S_KK |
| SD1_KK03 | Recognise knowledge in solving cognitive and practical problems characteristic for the area of research (field/discipline) and in an interdisciplinary aspect | P8S_KK |
| SD1_KK08 | Support the ethos of scientific circles and conduct independent research | P8S_KR |