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| **Course title:** | Research trends in food biotechnology |
| **Course title in Polish:** | Współczesne trendy badawcze w biotechnologii żywności |
| **Course for discipline:** | Food technology and nutrition |

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| **Semester:** | 4 | **Status of course:** | faculty | **Language:** | english |
| **Academic year:** | | **Catalog number:** | | | |

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| **Coordinator of course:** | dr hab. Anna Bzducha-Wróbel, prof.. SGGW |
| **Lecturer od course:** | employees of the Department of Biotechnology and Food Microbiology, Institute of Food Sciences |
| **Executing unit:** | Department of Biotechnology and Food Microbiology |
| **Ordering unit:** | Doctoral School SGGW |
| **Assumptions, goals and description of the course:** | Providing the latest knowledge in the field of food biotechnology and food additives and ingredients of microbiological origin based on sustainable solutions. Practical use of modern research equipment in biotechnological processes to develop the research skills of doctoral students.<br>Topics of laboratory workshops:<br>To familiarize Ph.D. students with the methodology of planning biotechnological research on the example of a selected bioproduct that can be obtained based on the valorization of agri-food waste. The classes include the use of highly efficient screening of the growth conditions of selected microorganisms, the implementation of the biotechnological process in selected conditions and the analysis of its efficiency in model substrates and on media containing waste from the agri-food industry. |
| **Didactic form, number of hours:** | Laboratory classes, 10 hours |
| **Teaching methods:** | Theoretical introduction to the subject of classes - the use of audiovisual techniques. Laboratory workshops using modern research equipment, experience/experiment, discussion, problem solving, case study, individual consultations |
| **Limit of people in the group:** | 16 |

**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:** | Assessment in the form of a written test (colloquium points), completion of an individual written report on classes (points for the report), assessment of students' involvement and activity in classes resulting from the observation of the student's work (points for activity) |
| **Form of documentation of achieved learning outcomes:** | Content of test questions, lists of points for written tests (tests), reports and for activity in classes |
| **Elements and weights of the final grade:** | Assessment of theoretical preparation in written form – max. 5 points/test; assessment of an individual report on the implementation of the practical part of the course – max 4 points. / report; points for activity during classes (2 points/1 laboratory class). The sum of points obtained from colloquiums, reports and for activity - 100%. The condition for passing the exercises is to obtain at least 51% of the total number of points possible to obtain during the classes |
| **Place of the course:** | Teaching room of the Department of Biotechnology and Food Microbiology |

**Basic and supplementary literature**

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| **Comments:** | To pass the course it is necessary to obtain at least 51% of points possible to obtain under the indicated methods of verifying learning outcomes. |

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| **Estimated number of hours of work of the doctoral student necessary to achieve the assumed learning outcomes:** | 10 |

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

| **Symbol:** | **Learning outcomes:** | **8 level NQF** |
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| 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 |

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| 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 |