Subject Area: Advanced Methods in Biotechnology and Biodiversity

Subject: Microorganisms in the environment and their use in biotechnology

Speciality: N/A  Status: Facultative  ECTS: 3

Department(s): Microbiology
Cooperating Department: Biochemistry

Form of teaching (Number of hours; Form of assessment: Exam or Credit) Credit

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<tr>
<th>Lectures</th>
<th>Seminars/Conversatoria</th>
<th>Practicals</th>
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<td>30</td>
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Staff:

SUBJECT COORDINATOR: Prof. Zofia Piotrowska-Seget PhD
LECTURE/CONVERSATORIA: -
PRACTICALS: Izabela Greń PhD, Regina Galimska-Stypa PhD

Contents:

Microorganisms in the environment; microbial products; bioremediation; bioaugmentation; bioreactors.

LECTURES: -

PRACTICALS:
Screening from natural and polluted environments for antibiotics producers, antracene-and phenanthrene utilising microorganisms, heavy metal resistant bacteria. Production of lactic acid, enzymes, biopolymer PHB by bacterial strains. Bioaccumulation of heavy metals by soil bacteria, desulphurication of coal by microorganisms, biodegradation of polyethylene films by microorganisms. Introduction of microorganisms into soil and water. Trickling filters, immobilisation of yeast cells, dynamics of biodegradation of phenol by mixed populations of activated sludge, bioreactor (fermenter) for aerobic continuos culture of microorganisms.

Methods and forms of teaching:
Laboratory practice computer aided with the use of scientific measuring equipment, use of databases.

Requirements: Basic knowledge of microbiology, biochemistry and molecular genetics.

Literature: