

**DOCTORAL SCHOOL OF WROCLAW UNIVERSITY OF SCIENCE AND
TECHNOLOGY**

SUPERVISOR DECLARING/CONDUCTING COURSE: Ewa Żymańczyk-Duda
DEPARTMENT: Department of Chemistry
SCIENTIFIC DISCIPLINE: Chemical Sciences

COURSE CARD

Course name in Polish: Biotechnologia – wybrane zagadnienia

Course name in English: Biotechnology – selected issues

Course language: ~~polish~~/ english

The course is intended for all PhD students: YES /NO

~~1) BASIC COURSE~~

2) SPECIALIST COURSE

~~3) SEMINAR~~

~~4) HUMANISTIC COURSE~~

~~5) LANGUAGE~~

~~6) RESEARCH SKILLS~~

Subject code: NCQ100261W

* delete as applicable

	Lecture	Foreign language course	Seminar	Mixed forms
Number of hours of organized classes in university (ZZU)	30			
Grading	Exam	Exam	Oral presentation	Exam, inspection, evaluation classes

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Fundamentals of biology and chemistry

COURSE OBJECTIVES

C1 Cognoscence of possibilities of application of living systems in industrial microbiology

C2 Cognoscence of possibilities of application of biotechnological sciences in medicine

PROGRAM CONTENTS

Lecture		Number of hours
W1	Biological systems - introduction	2
W2	Fundamentals: proteins – general structure and functions	2
W3	Fundamentals: – enzymes – classification and mode of action	2
W4	Fundamentals: – energy gaining cycle in living cells	2
W5	Fundamentals: – basics of microbiological techniques	2

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W6	Industrial processes with microbes - examples	2
W7	Industrial processes with microbes - examples	2
W8	Biotechnology for medicine – diagnostic markers I	2
W9	Biotechnology for medicine – diagnostic markers II	2
W10	RNA and DNA in nanotechnology cz. I	2
W11	RNA and DNA in nanotechnology cz. II	2
W12	Theranostics based upon nanotechnology	2
W13	Artificial cells in medicine	2
W14	Subjects repetitions. Final colloquium – I attempt.	2
W15	Subjects repetitions. Final colloquium – II attempt.	2
	Total hours	30

TEACHING TOOLS USED

N1. Multimedial presentation
N2.
N3.

ACHIEVED SUBJECT LEARNING OUTCOMES

Type of learning outcome	Code of learning outcome	Assessment of learning outcome
Related to knowledge	P8S_WG	colloquium

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

„Modern Industrial Microbiology and Biotechnology” Second Edition, Okafor Nduka; 2018, ISBN13

(EAN): 9781138550186

SECONDARY LITERATURE:

SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)

Prof. dr hab. inż. Ewa Żymańczyk-Duda, ewa.zymanczyk-duda@pwr.edu.pl