KAPITAŁ LUDZKI
NARODOWA STRATEGIA SPÓJNOŚCI
Projekt współfinansowany przez Unię Europejską w ramach Europejskiego Funduszu Społecznego
UNIA EUROPEJSKA
EUROPEJSKI FUNDUSZ SPOŁECZNY

Course title	ECTS code
Transgenic plants (seminar)	13.1.0850

Name of unit administrating study

null

Studies

faculty	field of study		
Intercollegiate Faculty of Biotechnology UG-MUG	Biotechnology	type	second tier studies (MA)
		form	full-time
		specialty	all
		specialization	all

Teaching staff

dr Anna Ihnatowicz; prof. dr hab. Ewa Łojkowska; mgr Izabela Perkowska

Forms of classes, the realization and number of hours

Forms of classes

Proseminar

The realization of activities

classroom instruction

Number of hours

Proseminar: 15 hours

ECTS credits

2

The academic cycle

2021/2022 summer semester

Type of course

obligatory

Language of instruction

english

Teaching methods

- discussion
- multimedia presentations prepared by students

Form and method of assessment and basic criteria for eveluation or examination requirements

Final evaluation

Graded credit

Assessment methods

- assignment work – project or presentation
- graded course credit based on individual grades obtained during the semester

The basic criteria for evaluation

Each of the mentioned learning outcomes will be assessed. Students must obtain at least a satisfactory grade for each assessed learning outcome. The final grade will be established on the basis of observing students' work during the semester (record of grades: ability to participate in a discussion, formulate questions, active participation) and constituent grades obtained for multimedia presentations (assessment of contents value, selection of contents and illustrations, presentation style, language correctness and adequate terminology). Multimedia presentations will refer to the selected issues mentioned in the box ' Course Contents)

Method of verifying required learning outcomes

Required courses and introductory requirements

A. Formal requirements

B. Prerequisites

Knowledge in the field of Plant Tissue and Cell Cultures, Plant Biotechnology

Aims of education

Acquisition by students of the knowledge in the area of selected problems currently discussed in literature concerning application of biotechnology in constructing and breeding transgenic plants and the issues of related scientific domains and disciplines important in plant biotechnology (K_W03)
Acquiring by the student an ability to make use of scientific information, including information in English, concerning plant biotechnology and related

scientific areas and disciplines. Acquiring an ability to critically analyze and select information as well as make use of written, electronic resources and suitable databases indispensable in carrying out operations in the field of plant biotechnology and related scientific areas and disciplines (K_U02)
Acquiring an ability to use scientific language, including specialist terminology and notional apparatus suitable for biotechnology and related areas and disciplines (K_U06)
Acquiring an ability to prepare and present in Polish and/or English a short oral presentation concerning detailed issues in the field of plant biotechnology and to participate in a discussion (K_U07)
The student will acquire an awareness and understanding of advantages and threats connected with conducting scientific research on transgenic plants and implementing advanced technologies that make use of knowledge of plant biotechnology as well as will recognize and formulate ethical problems concerning plant biotechnology. He/she will also be aware of the social role of a biotechnology graduate, and in particular he will understand the necessity of relaying knowledge and opinions about the achievements of biotechnology in the field of breeding and the benefits to the society of culturing genetically modified plants. He will understand and recognize the significance of intellectual property and behave ethically (K_K04)

Course contents

The course content concerns the following issues
1. Methods of obtaining transgenic plants, selection and assessment of transformation effectiveness
2. *Arabidopsis thaliana* as a plant model to define functions of the newly found genes
3. Applications of RNA interference in plant biotechnology
4. Application of plant transformation to create varieties with new traits: resistance to biotic factors (pathogens and pests)
5. Application of plant transformation to create varieties with new traits: resistance to abiotic factors
6. Production of plants with enhanced utility-technological traits
7. Production of recombinant proteins and vaccines in transgenic plants.
8. Commercialization of genetically modified crops.
9. Legal regulations concerning transgenic plants in the EU, Poland and the world.
10. Ethical aspects of plant biotechnology and culturing transgenic plants.

Bibliography of literature

A. Literatura wymagana do ostatecznego zaliczenia zajęć (zdania egzaminu):
A.1. Literature used during classes
Biotechnologia roślin. Praca zbiorowa pod redakcją St. Malepszego. Wydawnictwo Naukowe PWN 2009.
Publikacje z wybranych czasopism zajmujących się szeroko rozumianą biologią i biotechnologią roślin.
A.2. Literature individually studied by students
Biotechnologia roślin. Praca zbiorowa pod redakcją St. Malepszego. Wydawnictwo Naukowe PWN 2009.
Publikacje z wybranych czasopism zajmujących się szeroko rozumianą biologią i biotechnologią roślin.

The learning outcomes (for the field of study and specialization)

K_W03
K_U02
K_U06
K_U07
K_K04

Knowledge

K_W03 Possesses knowledge in the field of selected issues currently discussed in biotechnological literature and problems concerning related scientific areas and disciplines significant for biotechnology

Skills

K_U02 - Has an ability to proficiently use scientific information, including information in English, concerning biotechnology and related scientific areas and disciplines; critically analyses and selects information, makes use of electronic resources; has an ability to apply suitable databases indispensable in carrying out operations in the field of biotechnology and related scientific areas and disciplines
K_U06 - Uses scientific language, including specialist terminology and notional apparatus proper for biotechnology and related areas and disciplines
K_U07 - Can prepare and present in Polish and/or English a short oral presentation concerning particular issues in the field of biotechnology and related areas and disciplines; has an ability to participate in a discussion

Social competence

K_K04 - Is aware and understands hazards and dilemmas connected with conducting scientific research and implementing advanced technologies that make use of biotechnological achievements, recognizes and formulates ethical problems concerning biotechnology; is aware of the social role of a biotechnology graduate, and understands the necessity of relaying the knowledge and opinions about the achievements of biotechnology to the society; understands and recognizes the significance of intellectual property; behaves ethically

Contact

anna.ihnatowicz@biotech.ug.edu.pl