INFORMATION ABOUT THE COURSE

1. Basic information

Course name	**Biological Progress in Agriculture**
Field of study	Agriculture
Study level	Second cycle
Study profile	Academic
Study form	Full time
Speciality	Agronomy and Agribusiness Environmental Management
Unit running the course	Department of Agrotechnology
Name(s) and scientific degree (title) of teacher(s)	J. Prusiński, prof.
Introductory courses	Plant Breeding and Seed Science, Agriculture, Seed production Technology
Prerequisites	Basic theoretical and practical knowledge about cultivars and country/world agriculture progress

2. Semester schedule of classes

Semester	Lectures	Classes	Laboratories	Project	Seminars	Field practice	ECTS
II	30		15				5

3. EDUCATIONAL OUTCOMES (acc. to National Qualification Framework)

No.	Description of the outcomes	References to the major specific outcomes of education	References to the area specific outcomes of education
KNOWLEDGE			
W1	Student has an extensive knowledge of plant biology, including biological progress in agriculture	K_W01	R2A_W01
W2	Student has an extensive knowledge of crop biology, plant and seed production technology	K_W13	R2A_W01 R2A_W04 R2A_W05
W3	Student has extensive knowledge of ecosystems, including agricultural ecosystems and their environmental impact, crop yield and quality of crop varieties	K_W07	R2A_W04 R2A_W06 R2A_W07
SKILLS			
U1	Student is able to independently acquire knowledge and develop professional skills in understanding and shaping the external conditions and environmental effects and effects of seed production, and creatively use this knowledge	K_U01	R2A_U01
U2	Student is able to plan, control and evaluate seed production conditions and the effects of biological progress of arable crops, and to use seed evaluation and treatment methods	K_U12	R2A_U05 R2A_U06
U3	Student has the ability to independently design and perform research tasks in the field of agriculture, their	K_U04	R2A_U04

	interpretation and presentation		
SOCIAL COMPETENCES			
K1	Student recognizes the progress of knowledge, technology and changes in legal regulations, understands the need for them to follow through the permanent learning and can inspire and organize the process of teaching others	K_K01	R2A_K01
K2	Student is convinced of the need and role of agricultural activity, is ready to take up new tasks, is persistent and diligent in action, is guided by ethical principles in business	K_K03	R2A_K04,
K3	Student is able to work individually and in a group and is prepared to perform various roles in carrying out his professional and social tasks	K_K07	R2A_K02

4. TECHING METHODS

Multimedia lecture, laboratory exercises, demonstration, discussion

5. METHODS OF EXAMINATION

Written test, project preparation

6. TEACHING CONTENTS

Lectures	History and origin of cultivated plants. Systems of soil and plants cultivation. Biological progress and its history. The stages of the development of biological progress and its impact on the history of mankind. Contemporary agricultural systems and biological progress. Agro-technical aspects of the use of biological progress. Biological progress in the production of starch, protein, fat and energy. Biological progress under climate change and needs in ecological balance of agroecosystems. Use of biological progress in practice. New/alternative directions and methods of development and introduction of biological progress.
Labs	Concept of different agricultural progress and its types. Factors affecting biological progress. Study and evaluation of varieties. Quantitative and qualitative traits of new varieties. Biological progress in breeding of cereals, sugar beet and fodder crops, potatoes, rape, special crops, legumes and for species/varieties for energy purposes.

7. VALIDATION OF LEARNING OUTCOMES

Effect	Evaluation form					
	Oral exam	Written exam	Colloquium	Project	Report	Other
W1		x				
W2		x				
W3		x				
U1		x		x		
U2				x		
U3				x		
K1				x		
K2				x		
K3				x		

8. LITERATURE

Basic literature	Progress of plant breeding activities. *www.fao.org/docrep/006/y4751e/y4751e09.htm* Progress in plant breeding. *Edited by G.E. Russell, ELSEVIER,* Copyright © 2017 Common Catalogue of Varieties of Agricultural Plant Species CCA) – http://eur-lex.europa.eu.legal- Periodicals dealing with the achievements in plant breeding in the history of mankind and agriculture around Europe and World
Supplementary literature	Periodicals dealing with the achievements of plant breeding of agriculture plants around Europe and World Current research results on the Internet; Eurostat – Agriculture - http://epp.eurostat.ec.europa.eu; FAO – http://www.fao.org/

9. STUDENT'S WORK – BALANCE OF HOURS AND ECTS POINTS

Student's performance	Number of hours
Class attendance specified in p. 2	45
Involvement in classes	20
Study of literature	30
Other (preparation for exams, tests, carrying out a project etc)	30
Student's total performance	125
Number of points proposed by NA	5
Final number of ECTS points (determined by the Educational Board)	5