

DISCIPLINE DESCRIPTION

1. Information on the study programme

1.1 Academic institution	UNIVERSITY OF ORADEA
1.2 Faculty	FACULTY OF ENVIRONMENTAL PROTECTION
1.3 Department	AGRICULTURE, HORTICULTURE
1.4 Field of study	AGRONOMY
1.5 Cycle of study	LICENSE
1.6 Study programme/Qualification	AGRICULTURE / ENGINEER

2. Information on the discipline

2.1 Name of discipline	PLANT IMPROVEMENT I						
2.2 Course holder	Assoc. Prof. PhD LAZAR ANDRA NICOLETA						
2.3 Seminar/Laboratory/Project holder	Assoc. Prof. PhD LAZAR ANDRA NICOLETA						
2.4 Year of study	IV	2.5 Semester	VII	2.6 Type of evaluation	Ex	2.7 Regime of discipline	DD

(C) Compulsory; (O) Optional; (E) Elective

3. Total estimate time (hours per semester of didactic activities)

3.1 Number of hours per week out of which:	3	3.2. course	2	3.3. laboraty/project	1
3.4 Total hours in the curriculum out of which:	42	3.5. course	28	3.6. laboratory/project	14
Time allotment					hours
Study assisted by manual, course support, bibliography and notes					28
Additional documentation in the library/ on specialized electronic platforms and in the field					10
Preparation of seminars/laboratories/ topics/reports, portfolios and essays					10
Tutorship					8
Examinations					2
Other activities.....					-
3.7 Total hours of individual study					58
3.9 Total hours per semester					52
3.10 Number of credits					4

4. Prerequisites (where appropriate)

4.1 curriculum	Genetics, Botany, Plant Physiology
4.2 competences	Graduates will have the necessary knowledge to carry out improvement activities, especially the application of selection, to the main agricultural species.

5. Conditions (where appropriate)

5.1. related to course	Video projector, computer
5.2. related to seminar	Precision balances, germinators, ovens, seed counting plates, electronic humidometer

6. Specific competences acquired

Professional competences	<p>C4. Production of quality biological material for propagating crop plants</p> <p>C4.1 Description of technologies for the production of biological material for the reproduction of crop plants</p> <p>C4.2 Explanation of the specific conditions for the production of biological material corresponding to different species and biological links</p> <p>C4.3 Identification of risks in the production of biological material, development of improvement plans and their application</p> <p>C4.4 Realization of the fields of production of the biological material of reproduction corresponding to the biological category and application of the technology of the specific culture</p>
Transversal competences	<p>CT1. Elaboration and observance of a work program and accomplishment of one's own attributions with professionalism and rigor</p> <p>CT2 Application of efficient communication techniques in specific activities of teamwork; assuming a role within the team and respecting the principles of the division of labor</p> <p>CT3. Objective self-assessment of the need for continuous vocational training in order to constantly adapt and respond to the demands of economic development; the use of information and communication techniques and, at least, a language of international circulation.</p>

7. Objectives of discipline (coming from the specific competences acquired)

7.1 General objective	<p>The improvement of agricultural plants provides students with the theoretical and practical knowledge necessary for the efficient development of the breeding activity with the ultimate goal of obtaining new varieties and hybrids, high productivity, quality, resistant to diseases and pests, to maximize existing agro-ecosystems.</p> <p>The aim is to establish major objectives such as: productivity, quality, ripening period, winter hardiness, diseases and pests, drought, as well as special objectives characteristic of each group of plants.</p>
7.2 Specific objectives	<p>Knowledge of the methods of selection and challenge of variability applied in the improvement of agricultural species.</p> <p>Carrying out the various tests that are applied in the improvement process and learning some working techniques in the improvement field</p> <p>Graduates will have the necessary knowledge to carry out breeding activities, especially the application of selection, to the main agricultural species.</p>

8. Content*/

8.1 Course	Methods of teaching	No. of hours/ Remarks
1. Introductory notions. Objectives and methods of improvement	Presentation of theoretical aspects related to the topic, lecture, interactive discussions with students	2
2. The genetic basis of plant breeding. Initial material used in breeding.	Presentation of theoretical aspects related to the topic, lecture, interactive discussions with students	2
3. Selection as a method of improvement. Types of selection	Presentation of theoretical aspects related to the topic, lecture, interactive discussions with students	2
4. Genetic variability of plants, reproduction of crop plants; Autogamous and allogamous free pollination.	Presentation of theoretical aspects related to the topic, lecture, interactive discussions with students	2

5. The use of hybridization in plant improvement;	Presentation of theoretical aspects related to the topic, lecture, interactive discussions with students	2
6. Inbreeding;	Presentation of theoretical aspects related to the topic, lecture, interactive discussions with students	2
7. Mutations;	Presentation of theoretical aspects related to the topic, lecture, interactive discussions with students	2
8. Polyploidy;	Presentation of theoretical aspects related to the topic, lecture, interactive discussions with students	2
9. Unconventional methods used in plant breeding;	Presentation of theoretical aspects related to the topic, lecture, interactive discussions with students	2
10. Androsterility.	Presentation of theoretical aspects related to the topic, lecture, interactive discussions with students	2
11. Selection;	Presentation of theoretical aspects related to the topic, lecture, interactive discussions with students	2
12. Genetic vulnerability and improvement of disease resistance	Presentation of theoretical aspects related to the topic, lecture, interactive discussions with students	2
13. The genetic constitution of cultures;	Presentation of theoretical aspects related to the topic, lecture, interactive discussions with students	2
14. Genotype, phenotype, character.	Presentation of theoretical aspects related to the topic, lecture, interactive discussions with students	2

Bibliography:

1. T. Crăciun, T. Mureșan, 1996, *Metode de ameliorare și producere a semințelor* EDP București
2. M. Savatti, L. Muntean jr., 2002, *Caiet de lucrări practice la ameliorarea plantelor și producerea de sămânță*. Ed. AcademicPres Cluj-Napoca.
3. M. Savatti, M. M. Savatti jr., L. Muntean jr., 2003, *Ameliorarea plantelor – teorie și practică*, Ed. academicPres, Cluj-Napoca.
4. Savatti M., Nedelea G., Ardelean M., 2004, *Tratat de ameliorarea plantelor*, Ed. Marineasa, Timișoara;
5. Scheau Viorel, 2007, *Ameliorarea plantelor horticole*, Ed. Universității din Oradea

8.3. Laboratory	Methods of teaching	No. of hours/ Remarks
1. Peculiarities in the breeding field	Presentation of practical aspects related to the topic, interactive discussions with students	1
2. Principles of organizing field experiments with agricultural plants;	Presentation of practical aspects related to the topic, interactive discussions with students	1
3. Methods of setting experiences in the field;	Presentation of practical aspects related to the topic, interactive discussions with students	1
4. Randomized blocks;	Presentation of practical aspects related to the topic, interactive discussions with students	1

5. Calculation and interpretation of data in single-factor experiments: the Latin square method;	Presentation of practical aspects related to the topic, interactive discussions with students	1
6. Calculation and interpretation of data in multifactorial experiments	Presentation of practical aspects related to the topic, interactive discussions with students	1
7. Analysis of variance	Presentation of practical aspects related to the topic, interactive discussions with students	1
8. Capitalizing on the series of experiences.	Presentation of practical aspects related to the topic, interactive discussions with students	1
9. Testing the main skills in the improvement process	Presentation of practical aspects related to the topic, interactive discussions with students	1
10. General hybridization technique	Presentation of practical aspects related to the topic, interactive discussions with students	1
11. Inbreeding, practical aspects	Presentation of practical aspects related to the topic, interactive discussions with students	1
12. Genetic mutations, practical aspects	Presentation of practical aspects related to the topic, interactive discussions with students	1
13. Descendant's analysis, quality testing	Presentation of practical aspects related to the topic, interactive discussions with students	1
14. Verification of the knowledge acquired during the laboratory hours	Presentation of practical aspects related to the topic, interactive discussions with students	1
Bibliography: 1.T. Crăciun, T. Mureșan, 1996, Metode de ameliorare și producere a semințelor EDP București 2.M. Savatti, L. Muntean jr., 2002, Caiet de lucrări practice la ameliorarea plantelor și producerea de sămânță. Ed. AcademicPres Cluj-Napoca. 3.M. Savatti, M. M. Savatti jr., L. Muntean jr., 2003, Ameliorarea plantelor – teorie și practică, Ed. academicPres, Cluj-Napoca. 4.Savatti M., Nedelea G., Ardelean M., 2004, Tratat de ameliorarea plantelor, Ed.Marineasa, Timișoara; 5.Scheau Viorel, 2007, Ameliorarea plantelor horticoale, Ed. Universității din Oradea		

* The content, respectively the number of hours allocated to each course / seminar / laboratory / project will be detailed during the 14 weeks of each semester of the academic year.

9. Corroboration of discipline content with the expectations of the epistemic community, professional associations and representative employers from the field corresponding to the study programme

The content of the discipline is adapted and satisfies the requirements imposed by the labor market, being agreed by the social partners, professional associations and employers in the field related to the bachelor program. The content of the discipline is found in the curricula of the study programs of Agriculture and other university centers in Romania that have accredited these specializations, so the knowledge of the basic notions is a stringent requirement of employers in the agricultural field.

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the final grade
10.4 Course	Exam scheduled in the exam session	Written exam	70%

10.6. Laboratory	The evaluation in the laboratory works is a continuous evaluation.	Oral talk	30%
10.8 Minimum standard of performance			
Knowledge and appropriate use of specific notions about the organization and technique of the breeding process, the general principles of seed production and propagation in autogamous plants and allogamous plants.			

Date of completion

Signature of course holder

Signature of seminar holder

17.09.2020

Conf. univ. dr. biol. **Lazăr Andra Nicoleta**

Conf. univ. dr. biol. **Lazăr Andra Nicoleta**

Date of approval in the department

Signature of the Head of Department

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Prof. univ. dr. ing. Bandici Gheorghe-Emil

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Dean signature
Prof. dr. ing. Chereji Ioan

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** - Name, first name, academic degree and contact details (e-mail, web page, etc.) will be specified.
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