

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	AGRICULTURE
1.5 Cycle of study	LICENSE
1.6 Study programme/Qualification	AGRICULTURE / AGRICULTURAL ENGINEERS

2. Information on the discipline

2.1 Name of discipline	GENETICS II						
2.2 Course holder	CONF. DR. LAZĂR ANDRA NICOLETA						
2.3 Seminar/Laboratory/Project holder	CONF. DR. LAZĂR ANDRA NICOLETA						
2.4 Year of study	II	2.5 Semester	IV	2.6 Type of evaluation	E	2.7 Regime of discipline	DF

(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:	4	3.2. course	2	3.3. laboraty/project	2
3.4 Total hours in the curriculum out of which:	56	3.5. course	28	3.6. laboratory/project	28
Time allotment					hours
Study assisted by manual, course support, bibliography and notes					25
Additional documentation in the library/ on specialised electronic platforms and in the field					20
Preparation of seminars/laboratories/ topics/reports, portfolios and essays					15
Tutorship					7
Examinations					2
Other activities.....					-
3.7 Total hours of individual study		69			
3.9 Total hours per semester		56			
3.10 Number of credits		5			

4. Prerequisites (where appropriate)

4.1 curriculum	Botany, Plant Physiology
4.2 competences	Microbiology, Biochemistry

5. Conditions (where appropriate)

5.1. related to course	Projector
5.2. related to seminar	Microscopes, laboratory kits, field trip

6. Specific competences acquired

Professional competences	<p>C1. Develop sustainable agricultural production technologies, organization and coordination to achieve production processes</p> <p>C4. Production of biological material quality for crop propagation</p> <p>C6. Providing advisory services and extension in agriculture</p>
Transversal competences	<p>CT1. Developing and following a schedule and achieve their tasks with professionalism and rigor</p>

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

7.1 General objective	The course aim is to give students basic knowledge of general genetics, with examples, if possible, in plant genetics of the species subject to improvement and production of seed of varieties of high biological value and high performance rays productive. It makes the presentation of hereditary phenomena and variability are entries in quantitative genetics, population genetics and ecological genetics and teach basic information on the use of modern biotechnology, including genetic engineering and horticultural crop improvement.
7.2 Specific objectives	Acquiring practical and theoretical knowledge to students, necessary for the implementation of modern technologies of reproduction, growth, improvement and operation of various plant species horticultural and ornamental different types of households and existing farms in our country. Selection, improvement, production and exploitation of biological material reproduction.

8. Content*/

8.1 Course	Methods of teaching	No. of hours/Remarks
Chromosomal theory of heredity (genes on chromosomes linear placement, the phenomenon of gene linkage (linkage) gene recombination between chromosomes pair (crossing-over) - exchange of genes, factors that alter the frequency of crossing-over, chromosome maps).	Modern lecture for student in accessible forms, combined with discussion followed by explanations that clarify the phenomena presented Active and participative methods	2
Heredity sexual characteristics (types of determinism chromosomal gender, type <i>Drosophila</i> , <i>Abraxas</i> type, type of determinism of the haploid male gender, other factors influencing the genetic determinism of gender, sex-linkage phenomenon).	Idem	2
Notions of molecular genetics (genetic nucleic acids and their role, the chemical structure of nucleic acids, deoxyribonucleic acid (DNA), ribonucleic acid (RNA), genetic code features of the genetic code, the functions of the genetic material and protein synthesis).	Idem	4
Gene structure and function (gene functions and the central dogma of genetics, genes overlapped jumping genes).	Idem	2
Heredity extra-nuclear (extra-nuclear heredity peculiarities and ways of pointing, manifestation of extra-chromosomal heredity, male sterility and fertility restoration).	Idem	2
Reproduction of crop plants (reproductive systems and their genetic implications).	Idem	4
Variability (units' diversity of the living world classification, classification units of intraspecific	Idem	4

genetic diversity, types and levels of genetic variability causes genetic variability).		
Introduction to quantitative genetics (genetic effects distribution and quantitative characters, heredity quantitative characters, the properties of a population in relation to quantitative characters, relations between genetic and environmental influences determine the expression of phenotype, genotype x environment interaction, stability, staple characters - quality).	Idem	4
Elements of population genetics (Mendelian genetic structure of populations, genetic balance, equilibrium modifiers genetic factors).	Idem	2
Introduction to Ecological genetics (basic concepts of ecological genetics, genetic system, reproductive system and ecological niche, adaptation, variability in relation to environmental gradients, Co-evolution in ecosystem).	Idem	2

Bibliography:

1. Ceapoiu N. 1976 “Genetica și evoluția populațiilor biologice” Editura Academiei Române, București
2. Crăciun T. 1970 “Genetica” Editura Didactică și Pedagogică, București;
3. Drăcea I. 1973 „Genetica” Editura Didactică și Pedagogică, București;
4. Enescu V. 1985 “Genetica ecologică” Editura Ceres, București;
5. Pamfil C. 1974 “Genetica” Editura Didactică și Pedagogică, București;
6. Savatti M., Andra Ienciu 2003 “Genetica agro-silvică” Editura AcademicPres, Cluj-Napoca;
7. Savatti M., Andra Ienciu, Savatti M. jr. 2004 „Genetica” Editura AcademicPres, Cluj-Napoca.

8.3. Laboratory	Methods of teaching	No. of hours/ Remarks
1.Characters with polygenic control	Exposure, talks with students working at the laboratory (interactive activities). Field trip	2
2. Linkage	Idem	2
3.Crossing-over	Idem	2
4. The genetic structure of populations. Hardy-Weinberg law	Idem	4
5. Genetic parameters of variability	Idem	2
6. Analysis of variance	Idem	4
7. Variance analysis. Heritability coefficient (h^2). Evaluation of genetic gain (DG)	Idem	4
8. Genotype correlations due to the environment.	Idem	2
9.Phenotypic correlations due to the environment.	Idem	2
10. Organ and cell cultures "in vitro".	Idem	2
11. Tissue culture "in vitro"	Idem	2

Bibliography:

1. Ceapoiu N. 1976 “Genetica și evoluția populațiilor biologice” Editura Academiei Române, București
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* 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

- By learning the theoretical concepts and practical aspects included in discipline approach Genetics, students acquire knowledge that consistent with partial competencies required for possible occupations provided in Grid 1 - NRQHE
- The course curriculum exists also, in universities and faculties in Romania.

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 session	Written exam	90%
10.6. Laboratory	Evaluation of laboratory work is under continuous evaluation.	Test, practical test	10%
10.8 Minimum standard of performance			
Knowledge and learning the basics correct encountered in genetic variability and understanding of hereditary phenomena, acquiring basic information on the use of modern biotechnology, including genetic engineering in plant breeding horticultural			

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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