

## Plant Breeding (IVth Year , VIIth SEMESTER)

**Credit value (ECTS) 5**

### Course category

Domain (Imposed)

### Course holder:

Associate Professor PhD. Dănuț Petru SIMIONIUC

### Discipline objectives (course and practical works)

The aim of the course is to help the students to acquire knowledges regarding the particularities of plant breeding for the main agricultural species.

Practical works seek to familiarize students with laboratory technical work, with the methods for the evaluation of the biological material used during the plant breeding process and with special techniques in laboratory or in the field.

The specific objectives are:

- knowing the germplasm categories, their values and uses for the activity of obtaining new cultivars and the ways for collection, study and preservation for all main agriculture;
- knowing the main objectives and plant breeding methods, classical or new, for each species;
- the main plant breeding techniques.
- presentation and practical demonstration regarding the identification and extraction of elite plants, biometric measurements, hybridation etc.

### Contents (syllabus)

Course (chapters/subchapters)
1. Breeding of self pollinated plants 1.1. Breeding of wheat 1.2. Breeding of triticals 1.3. Breeding of barley 1.4. Breeding of oat 1.5. Breeding of beans 1.6. Breeding of soja 1.7. Breeding of flax 1.8. Breeding of millet
2. Breeding of cross pollinated plants 2.1. Breeding of maize 2.2. Breeding of sorghum 2.3. Breeding of faba bean 2.4. Breeding of rye 2.5. Breeding of sunflower 2.6. Breeding of hemp 2.7. Breeding of sugar beet
3. Breeding of the plants with vegetative multiplication 3.1. Breeding of potatoes 3.2. Breeding of topinambour
4. Aspects regarding the breeding, production and economic aspects for some neglected species

Practical works
The examination of culinary qualities at potatoes
The examination of quality aspects at sugar beet
The examination of winter hardiness at wheat
The examination of quality aspects at wheat
The examination of quality aspects at barley
The examination of quality aspects at beans
The examination of falling capacity at cereals
The artificial pollination at cereals - wheat
The artificial pollination at legumes- peas, beans
Somatic embryogenesis
The obtaining and the fusion of protoplasts
“In vitro” propagation
DNA extraction. Marker Assisted Selection
Final test

### Bibliography

- Crețu A., Simioniuc D., Crețu L., 2000 – *Ameliorarea plantelor, producerea și multiplicarea semințelor și materialului săditor*. Ed. "Ion Ionescu de la Brad" Iași.
- Leonte C., 1996 – *Ameliorarea plantelor horticoale*. Ed. Did. Și Ped. București.
- Badea Elena Marcela, 2003 – *Plantele transgenice în cultură*. Broșură. București.
- Crețu A., 1995 – *Ameliorarea plantelor, producerea și multiplicarea semințelor*. Caiet de lucrări practice, Uz intern, U.A.M.V. Iași.
- Crețu L., 2004 – *Culturi “in vitro”*. Ed. "Ion Ionescu de la Brad" Iași.
- Leonte C., 2011 – *Tratat de ameliorarea plantelor*. Ed. Academiei, București.
- Savatti M. și colab., 2004 – *Tratat de ameliorarea plantelor*. Ed. Marineasa, Timișoara.

### Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	Writing examination	60%
Appreciation of the activity during the semester	Oral assessment during the semester, verification tests and final laboratory colloquium.	40%

### Contact

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