

**Syllabus adapted to the New Normality**
Proyecto/Guía docente de la asignatura Adaptada a la Nueva Normalidad

Asignatura	CONSERVATION AND IMPROVEMENT OF FOREST GENETIC RESOURCES		
Materia			
Módulo	Optativo		
Titulación	Degree in Forest Engineering and Natural Environment International Semester on Forestry		
Plan	449 /903	Código	47138 / 75033
Periodo de impartición	2nd semestre	Tipo/Carácter	OP
Nivel/Ciclo	Bachelor	Curso	4º
Créditos ECTS	3		
Lengua en que se imparte	English		
Profesor/es responsable/s	Rosario Sierra de Grado		
Datos de contacto (E-mail, teléfono...)	rsierra@pvs.uva.es +34979108418		
Departamento	Plant production and forest resources		

1. General course description

1.1 Scope

Genetic variability is the basis for the conservation and evolution of populations and species since adaptation to new environmental conditions depends on it. In addition, these genetic resources are the raw material for breeding programs. Improvement and conservation programs can be closely related. Identifying genetic risks in vulnerable species and populations, deciding which conservation strategy is the most appropriate and prioritizing the most efficient actions to improve the conservation status in each case is crucial to develop efficient conservation programs.

1.2 Pre-requisites

Basic concepts of Biology and Forest Ecology are needed.
English language skills for reading, writing and oral communication are needed.



1.3 Course Objectives and Student learning outcomes

By the end of the course, students:

- Be aware of the situation of the forest genetic resources in the world, and the main drivers of their loss.
- Understand the role of genetic variability in the evolution of the populations and their sustainable management.
- Know the basic methods of the genetic conservation and improvement programs.
- Should be able to critically decide on the best strategy of conservation for different threatened populations.
- Should be able to introduce genetic considerations into forest management.

2. General Outline of Topics Covered

Topics

1. Forest genetic resources in the world: Relevance, current status, drivers of loss
2. Conservation strategies: In situ, ex situ, circa situm.
3. Actions
4. Techniques for the conservation of germplasm: Seed banks, In vitro collections, Live collections.
5. Principles of genetic improvement.

Technical visit

In Vitro culture lab and germplasm collection

Recommended readings

- ERIKSSON G, CLAPHAM ED 2006 An introduction to forest genetics.
<http://www.slu.se/Forest-Genetics-online>
- FAO, FLD, IPGRI. 2004. Forest genetic resources conservation and management. Vol. 3: In plantations and genebanks (ex situ). International Plant Genetic Resources Institute, Rome, Italy.
http://www.biodiversityinternational.org/fileadmin/biodiversity/publications/pdfs/1053_Forest_genetic_resources_conservation_and_management_In_plantations_and_genebanks_ex_situ_-_Vol._3.pdf?cache=1374236071
- IPBES 2019 Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services - ADVANCE UNEDITED VERSION – 6 May 2019
- Rao NK, Hanson J, Dulloo ME, Ghosh K, Nowell D and Larinde M. 2006. Manual of seed handling in genebanks. Handbooks for Genebanks No. 8. Biodiversity International, Rome, Italy



http://www.bioversityinternational.org/fileadmin/bioversity/publications/pdfs/1167_Manual_of_Seed_Handling_in_Genebanks.pdf?cache=1374236853

4. Didactic strategy

This course is mainly based on the analysis of case studies of threatened species or populations. The students must read and prepare some information required in advance, and propose strategies of conservation and select the most efficient actions to enhance the situation in each case study. With this previous work, we will have classroom discussions, where the different strategies will be compared and theoretical and practical aspects will be introduced and clarified.

5. Evaluation

Student assessment	Percentage of final grade	Observations
Assignments and participation	70 %	Minimum class attendance 80%
Written Exam	30%	A minimum score of 4 out of 10 is required.

To pass the course, the weighted average of the two previous grades must be equal to or greater than 5 out of 10.



Addendum

If the training had to be carried out online by mandate of the competent authorities, we will follow the following guidelines.

A1. Contents

The contents and thematic blocks will be kept the same as in the teaching guide, and the class schedules will be kept online.

For tutorials, both group and individual, it will be necessary to contact the teacher in advance at email rsierra@pvs.uva.es to arrange a day and time for the virtual tutorial, through BBCollaborate in the Moodle platform as far as possible.

A2. Teaching methods and methodological principles

The face-to-face classes will be replaced by synchronous classes (by videoconference) or asynchronous ones (recorded presentations or written indications) in the same schedule than the face-to face. The teaching materials will be published in the moodle under labels with the date of the day of the class to which they correspond.

Field practices and laboratory practices will be replaced by virtual visits at the same scheduled time.

A3. Assessment system and evaluation

The same as in the teaching guide.