Universidad de Valladolid

Syllabus
Proyecto/Guía docente de la asignatura

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 variabilty 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.

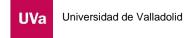5. Principles of genetic improvement.

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.bioversityinternational.org/fileadmin/bioversity/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. Bioversity 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	50 %	Minimum class attendance 80%
Written Exam	50%	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.