



Course syllabus

Subject	Improvement and conservation of forest genetic resources
Qualification	Degree in Forest Engineering and Natural Environment International Semester on Forestry
Language	English
Lecturers	Rosario Sierra de Grado
Contact details	e-mail ; rsierra@pvs.uva.es Phone: +34 979 108 418 Building E (office: E 2.02).
Tutorial hours	Tuesday 9:00 – 10:00 and 13:00 – 14:00; Wednesday and Thursday 12:00 – 14:00
Department	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, speaking and writing are needed.

2. 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.



3. General Outline of Topics Covered

Topics

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

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.biodiversityinternational.org/fileadmin/biodiversity/publications/pdfs/1167_Manual_of_Seed_Handling_in_Genebanks.pdf?cache=1374236853
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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. Assignments Submission

Individual assignments should be sent by email or Moodle (lecturer will indicate the preferred method).

The mandatory laboratory reports must follow the indicated format (an example will be given in class) and its submission will be mandatory in order to pass the course. They must be printed for submission.

The final report is also mandatory (following the format that will be delivered in class), as well as its defense through an oral presentation of about 10 minutes with visual support in PowerPoint or similar software. Instructions will be provided throughout the course. Final report must also be printed for submission.



6. Grading Criteria

Student assessment	Percentage of final grade	Type of activity	Comments
Lab work	10 %	Group activity	Mandatory assignments
Lab reports	20 %	Individual activity	
Assignments and participation in lessons	20 %	Individual activity	
Final report	30 %	Group activity	Mandatory assignment
Oral presentation	20 %	Group activity	Mandatory assignment

Students who do not reach the required minimum class attendance (**80% attendance**), who do not attend the field and laboratory practices, or who do not submit the compulsory assignments, must take an exam to pass the subject.

7. Course Policies

Attendance:

Lessons and laboratory work are a core component of this course. Students must ensure that they are available to attend lessons and arrive punctually. They should pay close attention to the class schedule and read the material prior to each lesson. They are welcome to share new ideas during lessons and are encouraged to read related papers. **Attendance at 80% of teaching hours is mandatory to pass the subject.**

Technology in classroom:

Mobile phones are not allowed, as long as the lecturer does not indicate otherwise. Please turn off your cell phone before lessons begin. You will be asked to leave the lesson if you are using your phone.

Policy on Academic Ethics and Honesty:

The University of Valladolid (UVa) regards plagiarisms and cheating as a serious academic offense. Anyone caught cheating will automatically receive a 0/10 for the quiz/exam/assignment and will be reported to the dean. Your responsibility, besides maintaining a high standard of personal honesty, includes taking precautions to prevent others from copying your work. A student's assessed work may be reviewed with plagiarisms detection computer software. The use of other authors' work in your assignments must be properly referred and/or acknowledged.