

**Proyecto/Guía docente de la asignatura Adaptada a la Nueva Normalidad**

Se debe indicar de forma fiel como va a ser desarrollada la docencia en la Nueva Normalidad. Esta guía debe ser elaborada teniendo en cuenta todos los profesores de la asignatura. Conocidos los espacios y profesorado disponible, se debe buscar la máxima presencialidad posible del estudiante siempre respetando las capacidades de los espacios asignados por el centro y justificando todas las adaptaciones que se realicen respecto a la memoria de verificación. Si la docencia de alguna asignatura fuese en parte online, deben respetarse los horarios tanto de clase como de tutorías).

Course Syllabus

Subject Name	MOLECULAR MARKERS & DIAGNOSTIC OF PLANT DISEASES		
Module	OPTIONAL		
Qualification	BACHELOR'S DEGREE IN FOREST & NATURAL ENVIRONMENT ENGINEERING		
Plan	449	Código	42197
Teaching Period	2º SEMESTER	Tipo/Carácter	OP
Level/Stage	BACHELOR	Curso	3º
ECTs Credits	3		
Language of Instruction	ENGLISH		
Lecturers in charge			
Contact details (e-mail, telephone ...)			
Tutorial Timetable	TO BE CONSULTED AT http://www5.uva.es/etsiiaa/ AND http://campusvirtual2017.uva.es/		
Department	DEPARTMENT OF PLANT PRODUCTION AND NATURAL RESOURCES iuFOR (UNIVERSITARY INSTITUTE OF FOREST RESOURCES CONSERVATION & USE)		
Fecha de revisión por el Comité de Título			



1. Situación / Course

1.1 Context

Instrumental techniques and molecular diagnostics fall into biotechnological applications which have become in recent decades fundamental tools in all knowledge of living things, from the management of the simplest microorganism to more complex medical applications.

In the field of forest resources, knowledge and use of molecular techniques are particularly valuable: typing and genetic resources certification, control and diagnosis of pests and diseases, traceability of products, environmental monitoring of invasive species, are some of the many potential applications of these techniques.

Knowledge of these new technologies is essential from the professional point of view and the acquisition of the skills and abilities related to these techniques are completely essential for a scientific research career.

1.2 Relation to other courses

This course has special relation with basic courses like Forest Biology and Botany and to other more specific courses like Conservation and Breeding of Genetic Resources; Forest Pests and diseases; Integrate Management of Pests and Diseases...

1.3 Previous knowledge requested

Advises:

To have overcome all courses from the Basic Module and the following ones: Forest Botany, Zoology, Pests & Diseases.

2. Competences

2.1 General

All general competences (G1 to G27) will be fulfilled.

More specifically, in this course, competences G3, G5 and G156 will be assessed. G3: To be able to analyze and synthesize. G5: To be able to communicate orally and writing as well in specialized meetings and with non-specialized people. G15: To show critic reasoning.

2.2 Specific

To understand the basis of the available molecular and genetic techniques to identify organisms as MFR, pathogens and pests ...etc.

To know the ways of application of these techniques to manage sanitary problems in forests

3. Objectives

GENERAL

Knowledge:

- To become familiar with specific vocabulary
- To understand and assimilate the main concepts and principles



- To know present situation and future perspectives
- To acquire an integrate view on knowledges and applications

Abilities:

- To practice the basic skills and abilities: observation, sampling, experimentation and data analysis.
- To use scientific information resources: Books, reviews, dissemination articles...etc.
- To practice reasoning capacities and concepts relation
- To develop a clear and coherent exposition style
- To develop individual work skills like responsibility and autonomy

Attitude:

- Intellectual curiosity, critical spirit, learning pleasure and accepting knowledge challenges
- Acquire attitudes for group work like leadership, cooperation, critical and constructive discussions
- To recognize and accept knowledge limits and interdisciplinary problems, and to develop the ability to cooperate with specialists in other domains.
- Methodological work
- Interest for Scientific Dissemination

SPECIFIC

1. To differentiate convenience for the application of the different instrumental techniques to forest problems
2. To determine the convenient molecular methods to be applied to specific phytosanitary forest problems.
3. To design application of molecular techniques specifically to either prevent or protect against damage caused by harmful biotic agents, compatible with uses and demands of present sustainable forest management
4. To understand the importance and particularities of molecular identification of organisms vs other identification methods

4. Contents

- Concepts & strategies in the use of molecular techniques in Forest Science
- Potential and operational techniques in molecular identification
- Molecular identification of pathogen organisms: hybridization, Polymerase Chain Reaction
- Uses of microsatellites and other markers based on PCR
- Application of molecular identification to avoid exotic organisms introduction
- Resistance to pests and diseases and breeding
- Biological control through hypo virulence: hypo viruses identification in chestnut canker
- Genetic Engineering

5. Teaching methods

Lectures based on "flipped classes" strategy (promote questions on students through reads and videos before answering through discussions and practical cases)

Lab practice



Seminars
Group work
Field practice

6. Work Plan

IN PERSON ACTIVITIES	HOURS	OTHER PERSONAL ACTIVITIES	HOURS
Theoretical Lectures	10	Study and personal work	35
Laboratory practices	20	Group work	10
Total in person	30	Total other	45

7. Assessment

INSTRUMENT	GLOBAL WEIGHT	OBSERVATIONS
Written exam	30%	
Lab report	40%	
Seminars	30%	

8. Final considerations

Seminars will involve an oral presentation and a written report, a copy of which will be delivered. The final grade will follow criteria defined at the beginning of the course that will be published in Moodle.

In the second and following calls, a written exam will account for the practical (70%) part of the course on the practical activities and seminars.

Adenda a la Guía Docente de la asignatura

La adenda debe reflejar las adaptaciones sobre cómo se desarrollaría la formación si tuviese que ser desarrollada en modalidad online por mandato de autoridades competentes. Se deben conservar los horarios de asignaturas y tutorías publicados en la web de la UVa, indicar el método de contacto y suministrar un tiempo razonable de respuesta a las peticiones de tutoría (2-4 días lectivos). Describir el modo en que se desarrollarán las actividades prácticas. En el caso de TFG/TFM, desarrollar detalladamente los sistemas de tutorías y tutela de los trabajos.

A4. Contenidos y/o bloques temáticos

No se modificarán los contenidos previstos en la presente guía docente

A5. Métodos docentes y principios metodológicos

Las clases teóricas y los seminarios se impartirán con el mismo calendario y en los mismos horarios a través de la plataforma CISCO-WEBEX o similar

Las prácticas de laboratorio y las visitas a centros de investigación serán sustituidas por demostraciones o videos grabados previamente o procedentes de Internet, que se explicarán y discutirán en sesiones online en los horarios y fechas previstas.

**A6. Tabla de dedicación del estudiante a la asignatura**

IN PERSON ACTIVITIES	HOURS	OTHER PERSONAL ACTIVITIES	HOURS
Theoretical Lectures	10	Study and personal work	35
Laboratory practices	20	Group work	10
Total in person	30	Total other	45

(2) Actividad presencial a distancia en este contexto es cuando el grupo sigue por videoconferencia la clase impartida por el profesor en el horario publicado para la asignatura.

A7. Sistema y características de la evaluación

Criterio: cuando más del 50% de los días lectivos del cuatrimestre transcurran en situación de contingencia, se asumirán como criterios de evaluación los indicados en la adenda.

INSTRUMENT	GLOBAL WEIGHT	OBSERVATIONS
Written exam	30%	
Lab report	40%	
Seminars	30%	

CRITERIOS DE CALIFICACIÓN

- **Convocatoria ordinaria:**
 - Se mantienen los instrumentos y el peso de cada actividad de evaluación. El examen podrá ser oral, si el número de estudiantes lo permite (menos de 20 estudiantes)
- **Convocatoria extraordinaria:**
 - El examen tendrá el 100 % del peso de la nota