## Welcome to Nancy !

♦ An urban area of 260 000 inhabitants and 47 000 students (Université de Lorraine and 10 Engineering schools).

♦ Easy access from Paris by *TGV* (high speed train), and close to Germany, Belgium, and Luxembourg.

♦ Nancy has a great architectural history (part of the UNESCO World Heritage) including the *Art Nouveau* period, and is surrounded by forests and hills ideal for recreational activities.

♦ Many cultural and entertainment events all year round (e.g. NJP Jazz festival, le Livre sur la Place book fair).

More info at: **www.nancy-tourisme.fr**

## European and International partnerships

♦ Université de Lorraine, AgroParisTech and INRAE are members of the **NFZ forest network** (Nancy–Freiburg–Zürich) for higher education and research www.nfz-forestnet.eu

♦ AgroParisTech belongs to the **consortium Erasmus Mundus MSc *European Forestry*** and offers the major *Forests and their Environment* as the educational support for the 2nd year http://www.uef.fi/europeanforestry/

♦ Université de Lorraine, INRAE and AgroParisTech are members of the **European Forest Institute (EFI)**

♦ AgroParisTech and the **University of Valladolid** (Palencia, Spain) have a double degree agreement.

## Application and Admission

**The Forests and their Environment major seeks to recruit up to 20 students on selective bases.**

Depending on their education, applicants should justify a **1st-year MSc level (M1) or a master's degree or equivalent (M2)**, as acknowledged in the EHEA (European Higher Education Area), and educational background in the fields of **forestry, plant science, ecology, ecophysiology, or environmental science**.

**A B2 level in English** is required. See the self-assessment grid of Common European Framework of Reference (CEFR). Equivalent qualifications are: IELTS >5, TOIEC >700, TOEFL IBT > 90, or Cambridge FCE.

Applications should include 1) the ***Europass* documents** available at https://europass.cedefop.europa.eu/en/home, 2) **marks** obtained in the **previous educational year**, 3) a **letter of application**, and 4) **one letter of recommendation from a senior professor or scientist** of earlier educational courses or internships.

## Contacts & Informations


Education managers:

**Pierrick PRIAULT** – Université de Lorraine
e-mail: **pierrick.priault@univ-lorraine.fr**

**Paulina PINTO GONZALEZ** – AgroParisTech
e-mail: **paulina.pinto@agroparistech.fr**

School secretariats:
**Laetitia HARY**
**master-aetpf-contact@univ-lorraine.fr**
Université de Lorraine
Faculté des Sciences et Technologies - BP 70239
F-54506 Vandoeuvre-les-Nancy

**Laetitia THIRIET**
**masteraetpf-nancy@agroparistech.fr**
AgroParisTech – 14 rue Girardet – CS 14216
F-54042 Nancy Cedex



UNIVERSITÉ DE LORRAINE

AgroParisTech



**Decipher the functioning and dynamics of temperate forest ecosystems and develop quantitative tools for their sustainable management in a context of global environmental changes.**

## Concept and objectives

This MSc major (M2) offers a broad perspective and in-depth training on the functioning and dynamics of European forests, providing a basis to address challenges arising from environmental constraints and forest management.

The objective is to prepare for 1) **professional careers in R&D or expert positions in the environmental diagnosis and management of forest ecosystems** in private/public national/ international institutions, 2) **scientific careers in research institutions conducting programs in forest ecology and management**.

**An introductory session** gives an overview of European forests and the major issues related to their management.

The core of the major provides **fundamental and applied knowledge on the functioning and dynamics of forest ecosystems** and communities, including tree physiology, biogeochemistry and ecology.

**A "tools & methods" session** provides knowledge and training on the **main quantitative tools used in ecosystem diagnosis and experiment analysis**, including GIS, statistics, and modelling.

## Institutional framework and connection to research

**The MSc program provides a research-driven approach** to the understanding and management of forest ecosystems. The teaching staff includes more than 30 professors and senior scientists from 9 research labs at Université de Lorraine (UL), AgroParisTech and Institut National de Recherche Agronomique (INRAE)

In addition to the balance between fundamental and practical knowledge, **practitioners from organizations involved in forest management and R&D** will also provide a connection to forest management issues, and ensure both a professional and academic education.

## Master curriculum

Teaching units in the first semester (S9) focus on acquiring skills in data management and analysis, as well as in diagnosing forest ecosystems and their resources.

**The first semester** (S9) includes **9 training units** for a total of **30 ECTS credits**.

### Fundamental and applied knowledge

*- Forest economics and the economic evaluation of ecosystem services**

*- Dynamics of forest plant and tree communities*

*- Understanding tree structure and functions*

*- Biogeochemical cycles in forest ecosystems*

*- Forests and forestry in a context of global change*

*- Temperate forest sylviculture and industry*

### Tools and methodology

*- Research or professional project on forest science : an interdisciplinary approach**

*- Managing collective innovation projects*

*- Advanced statistics*

*- GIS for forest science and forest ecology*

*- Models for forest research and management*

* compulsory training units

**The second semester** (S10) consists of **a 5-6 month internship** evaluated through a written dissertation and an oral defence for **30 ECTS credits**. The internship takes place either in a research laboratory or institutions, companies, NGO, local authority or associations of relevant fields of application. Internships can be proposed by students.

## Support Research and Teaching Institutions and Departments

- **Silva** Laboratory (UMR1434) , UL--AgroParisTech-INRAE
- **BETA** (Bureau for Economic Theory and Applications), INRAE-CNRS-AgroParisTech-UL-UniStra
- **BEF** (Biogeochemical Cycles in Forest Ecosystems), INRAE
- **LIF** (Laboratory of Forest Inventory), **IGN** (National Institute of Geographic and Forest Information)

## Examples of internships completed

- Analysis of IGN LIDAR data's potential in forest inventory (IGN, France)
- Assessing coupled process-based models' performance in predicting tree mortality under climate change (Silva Lab, France)
- Leaf-to-canopy accuracy investigation in leaf water $^{18}O$ enrichment variations predicted with eddy-covariance measurements (Kyoto University, Japan)
- Modelling tree species future distribution in a context of climate change to develop decision-making tool for restoration projects: the case study of Atlantic Forest in Brazil (ISEM Montpellier, France)
- Soil organic carbon and functionality 5 years after thinning and slash burning (CTFC, Catalonia, Spain).
- Growth comparison of crown-released and untreated beech trees (Fagus sylvatica L.) in management strategy (Blieskastel city's forest estate, Germany).
- Stepping into the European Union Deforestation Regulation (EUDR): alingment assesment of Costa rica's cofee production. (Preferred by Nature, Danemark).