



European  
Engineering Learning Innovation  
& Science Alliance

February 2022



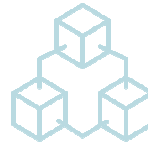
## Sustainable and Green Finance Program Ecole des Ponts ParisTech

# A world-class institution

A public engineering school, founded in 1747, recognized for the excellence of its graduate studies



International outlook



Embedded in the industry ecosystem

**2000** students

33% female,  
45% international  
students,  
45 nationalities



2022 International QS Rankings  
#245 worldwide  
#1 France for international students



2022 THE (Times Higher Education)  
#251-300 worldwide  
#6 France / #1 univ < 5000 students

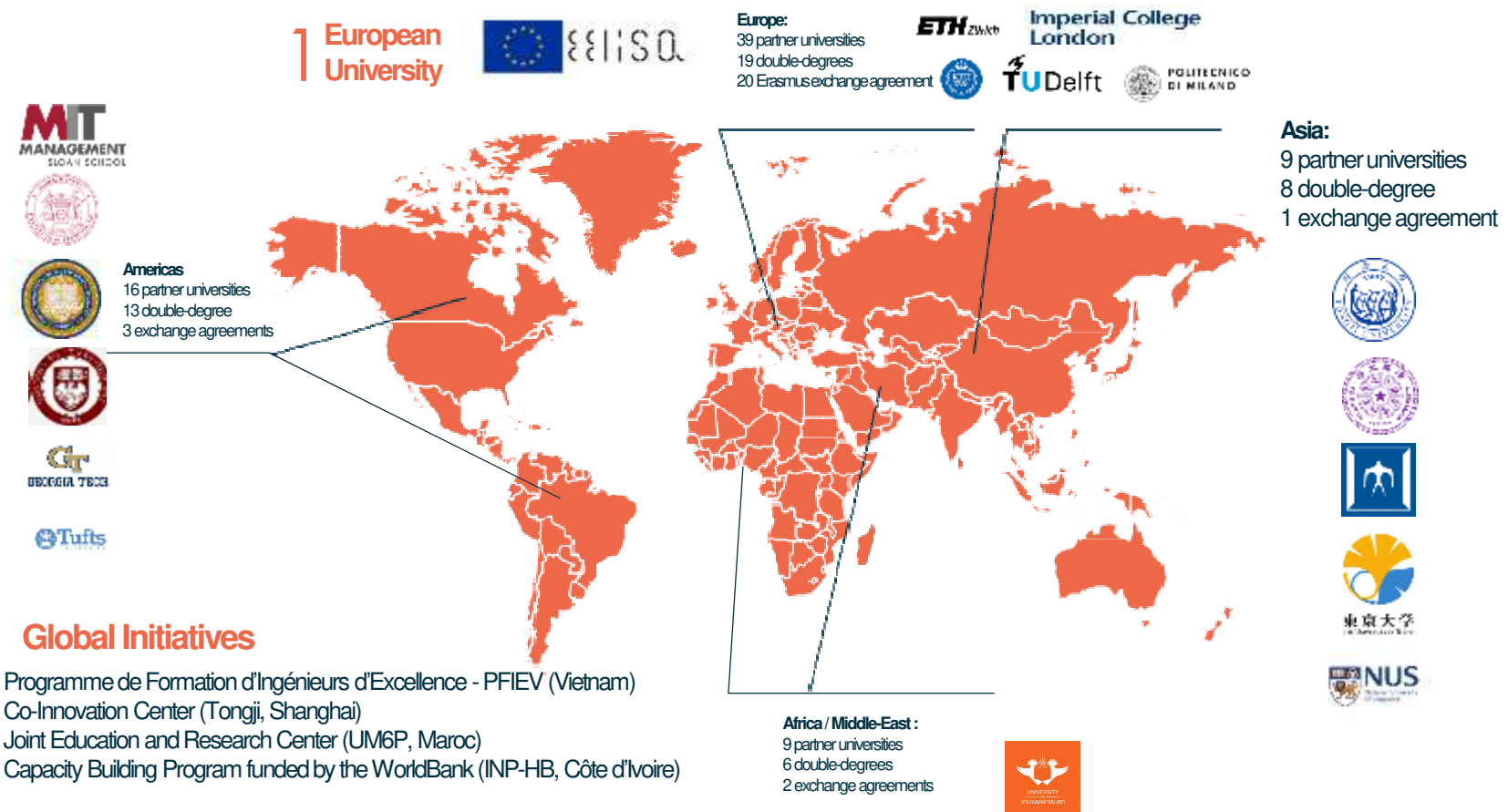
Leading to executive careers addressing the ecological and digital transitions



École des Ponts  
ParisTech

# International partnerships

71 partner universities IN 35 countries ON 4 continents 47 double-degree agreements with universities IN 25 countries





École des Ponts  
ParisTech

# Close links with industries



Transportation,  
environment,  
urban services



Consulting



Energy



Construction



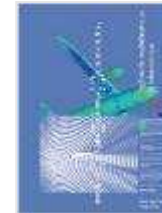
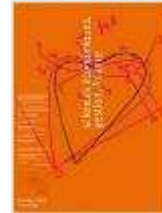
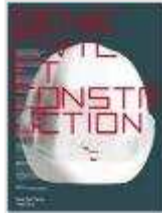
Industry



Finance



# Addressing the ecological transition



6 academic department at the master level training high-level engineers with an excellent S&T background able to take responsible and ethical decisions in a complex world

Interdependences

Uncertainty

Irreversibility

Complexity

Mistrust

Research &  
Analyze

Be creative

Observe, measure,  
evaluate

Think for different  
scales

Trade off between  
efficiency and  
robustness

Optimize towards  
sobriety

Take into account all  
stakeholders' point of  
view

Model

# Comprehensive pedagogy

High level scientific and technical education

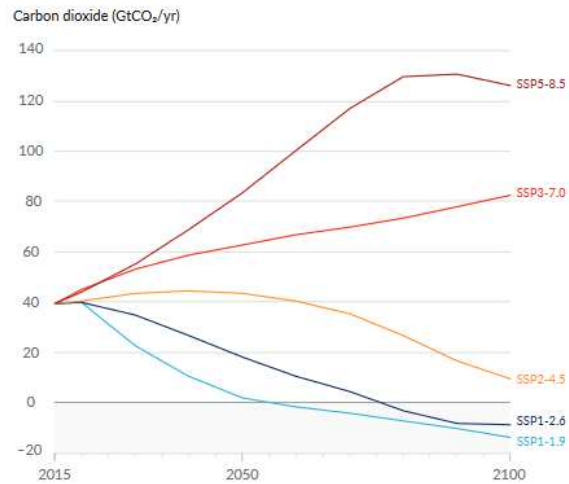
Project based learning

Development of managerial and soft skills

Development of multilingual and multicultural skills

To support  
the ecological  
transition

# Financing the transition



Source: IPCC AR6 (2021)

## GREEN BOND MARKET

**\$3bn**  
in 2011

**\$163bn**  
in 2018

**\$895bn** in 2018  
including climate-aligned  
bonds

Source: Climate Bonds Initiative (2018<sub>est</sub>)



## GREEN BOND MARKET

**<1%**  
of the \$100tn global bond  
market is invested in green  
bonds

Source: G20 Green Finance Study  
Group (2016<sub>est</sub>)

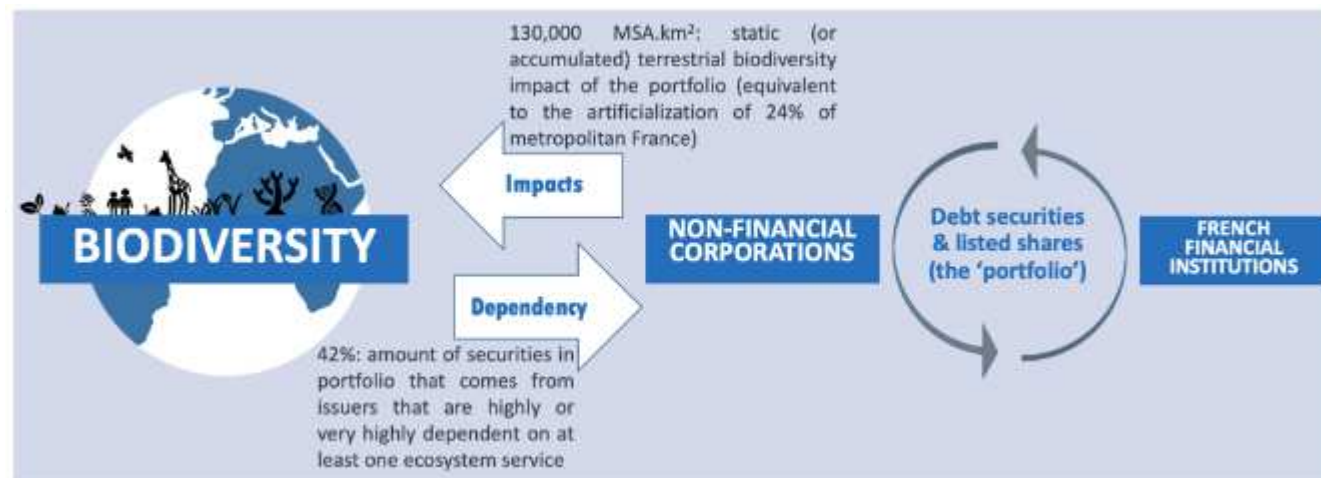


## INFRASTRUCTURE INVESTMENT NEEDS

**\$6.3tn** is  
needed/year to 2030 to  
meet development goals

**\$6.9tn** to meet  
the Paris Agreement goals

Source: OECD (2017<sub>est</sub>)



Source: Banque de France (2021)

# Financing the transition

This is a scientific issue .... At the top of the political agenda



**Marc Carney**  
"Climate change is the  
Tragedy of the Horizon"  
2015



**Christine Lagarde**  
"The ECB will act  
within its mandate to  
contribute to mitigating  
and averting climate  
change" 2021



**Ursula von der Leyen**  
A green deal of 1tn  
for the decade. 2020

That will change how firms operate and are being financed.



# The issues to be addressed

- ① Defining a “green” project : what to measure, how to measure ?
- ② Beyond climate, biodiversity and dealing with environment as a whole. Beyond the environment, ESG issues
- ③ Defining and modelling scenarios
- ④ New financial risks that could become systemic : characterizing, measuring and modelling them
- ⑤ Designing and implementing new financial regulations

# Sustainable and Green Finance

**Contribute to the ecological transitions within companies, financial institutions and international organizations**

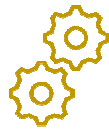
Understand the challenges of energy and ecological transitions, from the point of view of physical phenomena addressed by engineering sciences (climate, biodiversity, etc.) but also from an economic and financial point of view (carbon market, etc.).

Analyze the different technical, economic and financial dimensions associated with the implementation of sustainable projects (and in particular the measurement of positive spin-offs associated with them).

Measure and evaluate the risks associated with projects, at the project level and also at the macro-economic level.

Master the standard financial framework as well as the tools (green bonds, impact investing, ESG reporting, etc...) and the specific dimensions relating to sustainable and green finance.

# Sustainable and Green Finance



## ENGINEERING SCIENCES

ECTS

Climate Change Sciences

1,5

Climate Risk Assessment and Management

1,5

Life Cycle Assessment

2



## ECONOMICS

Energy economics

3

Credit Risk

4



## FINANCE

ESG Analysis

1,5

Financial regulation for Green Finance

1,5

Project Finance

3

Green Financing

1,5



## CONFERENCE CYCLE

1



## CAPSTONE PROJECT

5

Total: 25,5 ECTS to be completed by other classes in the school if required

# The capstone project

## Société Générale

Understanding the legislation of energy regulation for buildings and its impact on credit policy

## BNP Parisbas

Develop a tool to assess the carbon impact of sovereign bonds

## Banque de France

Measuring the imported deforestation in Europe and its impact on the financial system

## Accuracy

Understanding what is behind ESG ratings and applications for firm management

# Facts & Figures

## FACULTY PROFILE



1/3 Researchers  
1/3 Private sector  
1/3 Public sector

Paris as the leading financial  
center for green finance

1 semester

Early  
September -  
End of  
January

## CAREERS OPPORTUNITIES



- Industry: Veolia, Gérard Bertrand (wine), EDF renewable energy, Suez
- Consulting: Carbone 4
- Banking sector: BNPP, Société Générale
- Financial Advisory and investment funds : Accuracy, Omnes capital, Green yellow
- International organizations : UN



# How to apply ?

## Requirements

- ✓ Scientific prerequisites : Bachelor in Engineering
- ✓ Language requirement : English B2 (TOEIC, TOEFL, IELTS, Cambridge)

## Application process

- |                                 |                       |
|---------------------------------|-----------------------|
| ✓ Nomination by your University | Deadline : March 24th |
| ✓ Online application            | Deadline : March 31st |
| ✓ Remote interview              | April                 |
| ✓ Decision                      | May                   |

# Welcoming you

## Accommodation

In a students' residence near the campus  
Studios booked by the School

## Welcome Desk that gives precise and up-to-date information on:

Visa procedure (if any)  
Health insurance  
Other insurances : housing, civil liability ...  
Housing allowance  
Bank account  
Local transportation

## Orientation Week

More information on the School, visit of the campus  
Possibility to be included in a Tandem programme  
Social activities offered by the Students' Union

