

## Short Description of the First-Year Curriculum

In the first year of study, the core syllabus is composed of courses in Statistics, Mathematics, Computer Science, Economics, Social Sciences, Languages, and Management. These courses provide an introduction to the basic knowledge and working methods required to obtain a solid general culture in the respective areas. Teaching in the second and third years builds on this knowledge and these methods, exploring them in greater depth. For this reason, and given that a fair portion of these subjects are new to most students, nearly all of the first year is devoted to the core syllabus.

Moreover, in order to ensure that all students have the same level by the end of the first year, it is necessary to differentiate between the students arriving from different selection routes. For this reason, depending on their backgrounds, some students have more classes in Mathematics, Probability and Statistics while others have more classes in Economics and Data Processing. Students learn to apply their knowledge acquired during this first, crucial year of study through a group project in Statistics as well as a Personal Project in Economic Theory. Professionals as well as permanent ENSAI teachers supervise these projects.

**Note:** All courses are taught in French unless otherwise indicated. For the original course titles, descriptions and other information in French, consult the complete First-Year Course Catalog (Programme des enseignements de 1<sup>ère</sup> année) (PDF), on the website, heading "Academics: First Year".

	Semester Hours	ECTS Credits	Total in the block
<b>Semester 1 - Students with Economics Backgrounds</b>			
<b>UE 1-01 E-IS - Probability and Advanced Mathematics</b>			
Algebra	12	0	<b>10</b>
Stat 1 IES: Discrete Probability & Integral Calculus	45	4	
Stat 2 IES: General Probability	60	6	
<b>UE 1-02 M-E-IS - Descriptive Statistical Study</b>			
Descriptive Statistics Project with SAS	46.5	4.5	<b>6.5</b>
Project Writing Techniques	18	1	
Project Management & Communication	10	1	
Tools & Software for Statisticians	9	0	
<b>UE 1-03 M-E-I - Databases and Programming</b>			
Relational Databases	24	2.5	<b>5</b>
Algorithms and Programming with Python	30	2.5	
<b>UE 1-04 E - Economics</b>			
(Elective 1: Contemporary Macroeconomics)	27	2.5	<b>5</b>
(Elective 2: Economics Project)	12	2.5	
Microeconomic Modeling	30	2.5	
<b>UE 1-05 M-E-IS - Languages</b>			
English	24	2	<b>2</b>
(Tandem Linguistic Exchange S1*)	20	2	
(French as a Foreign Language*)	21	2	
<b>TOTAL Semestre 1</b>		<b>28.5 credits</b>	

	Semester Hours	ECTS Credits	Total in the block
<b>Semester 1 - Students with Mathematics Backgrounds</b>			
<b>UE 1-01 E - Probability and Advanced Mathematics</b>			
Stat 1 M: Integration	46.5	4	<b>10</b>
Stat 2 M: Probability	57	6	
<b>UE 1-02 M-E-IS - Descriptive Statistical Study</b>			
Descriptive Statistics Project with SAS	46.5	4.5	<b>6.5</b>
Project Writing Techniques	18	1	
Project Management & Communication	10	1	
Tools & Software for Statisticians	9	0	
<b>UE 1-03 M-E - Databases and Programming</b>			
Relational Databases	28.5	2.5	<b>5</b>
Algorithm Design and Complexity	31.5	2.5	
<b>UE 1-04 E - Economics</b>			
Contemporary Macroeconomics	27	2.5	<b>6</b>
Microeconomic Modeling	30	2.5	
Introduction to Social Sciences	18	1	
<b>UE 1-05 M-E-IS - Languages</b>			
English	24	2	<b>2</b>
(Tandem Linguistic Exchange S1*)	20	2	
(French as a Foreign Language*)	21	2	
<b>TOTAL Semestre 1</b>		<b>28.5 credits</b>	

	Semester Hours	ECTS Credits	Total in the block
<b>Semester 2 - Common for all students</b>			
<b>UE 1-06 E-IS - Inferential Statistics</b>			
Introduction to Statistics	72	7	<b>9.5</b>
Statistics Project with R	30	2.5	
<b>UE 1-07 M-E-IS – Introduction to Statistical Learning</b>			
Multivariate Exploratory Data Analysis	42	3	<b>7</b>
Optimization & Numerical Methods	30	2.5	
Multivariate Exploratory Data Analysis Project	12	1.5	
<b>UE 1-08 M-E-IS - Programming with Python</b>			
Introduction to Object-Oriented Programming	30	2.5	<b>5</b>
Data Mining Project	18	2.5	
<b>UE 1-09 E - Micro &amp; Macroeconomic Modeling</b>			
Microeconomics	24	0	<b>6</b>
Macroeconomic Modeling	27	2.5	
Economics Project	12	2.5	
Management	10.5	1	
<b>UE 1-10 M-E-IS - Corporate and Organizational Management, Humanities</b>			
Humanities course S1	21	1	<b>2</b>
Humanities course S2	21	1	
(Sport or Student Life Activities)	30		
<b>UE 1-11 M-E-IS - Languages</b>			
English	24	2	<b>2</b>
(Tandem Linguistic Exchange S1*)	20	2	
(French as a Foreign Language*)	21	2	
<b>TOTAL Semester 2</b>	<b>31.1 credits</b>		
<b>TOTAL Academic Year</b>	<b>60 credits</b>		

## HUMANITIES COURSES

**2 courses from among those proposed.**

Regardless of which semester(s) they are taught, all courses appear on the semester 2 grade transcript.

### Optional Languages

**1<sup>st</sup> and 2<sup>nd</sup> semesters**

For languages, **both semesters are obligatory** and count for the two chosen courses.

German  
Chinese  
Italian  
Japanese  
Russian  
Spanish

### Humanities

**1<sup>st</sup> or 2<sup>nd</sup> semester**

The general culture courses offered vary from year to year.

Cinema  
Drawing  
European Architecture in the 19<sup>th</sup> and 20<sup>th</sup> Centuries  
History for Understanding Today's World  
Introduction to Social Psychology  
Media and History – An Ambiguous Relationship  
Painting  
Philosophy  
Physics  
Sustainable Development  
Tandem Linguistic Exchange  
Theater Workshop