

## **INTRODUCING THE PREPA CLASSES IN THE FRENCH HIGHER EDUCATION SYSTEM**

Higher education in France is characterized by a **dual system**: it is provided in **Universities** open to a large number of students, whose programmes are generally geared towards research and its applications, and in **Grandes Ecoles** with selective admission policies after a two-year post-baccalaureate undergraduate programme in the **Classes Préparatoires aux Grandes Ecoles** also called **Prepa Classes**.

**This two-year undergraduate programme entitles students to get 120 ECTS.** The aim of this presentation is to better explain the kind of training students receive in the **Prepa Classes** with a view to establishing links with the London School of Economics, and more especially with a view to allowing students to continue their studies at LSE. The **Prepa Classes** wish to develop their co-operation with foreign partners as they feel that the kind of training they offer is not limited to gaining entry into the Grandes Ecoles but is a training *per se* offering students outstanding academic prospects. In an era of globalisation and increased student mobility, the **Prepa Classes** are keen to offer their students academic opportunities to study in other EU member countries through joint-agreements and partnerships with European institutions of Higher Education. We feel both LSE and the Prepa Classes would greatly benefit from this cooperation.

**French Grandes Ecoles**, the very best institutions of French higher education, offer a high standard of professional education in three or more years. They are the main channel for education in Arts and Humanities, Engineering and Management. There is a nationwide consensus about the fact that “Grandes Ecoles” are the institutions where the country's political, pedagogical, technical and managerial elite is trained. Admission and promotion are through a system of merit-based examinations. This system also gives rise to a fairly stable hierarchy among them.

The **Prepa Classes** that prepare students for entry into the Grandes Ecoles are open to students with excellent academic records. In the **Prepa Classes** students are given strong fundamental grounding in a variety of subjects. There are three main categories of **Prepa Classes**: **Prepa Classes** in Economic and Business Studies, **Prepa Classes** in Arts and Humanities, **Prepa Classes** in Sciences. Courses are held in selected State high schools and private institutions with a higher education department and run from two to three years. Thanks to their limited numbers, students receive more individual counselling than their university counterparts. There is a heavy workload in such classes with a weekly total of 60 hours of classes and personal work. The first year the student receives 60 ECTS. Moving up to the second year is automatic when the student gets at least 60 ECTS in the first year. At the end of the two-year-(4-semester) programme students get 120 ECTS. Competition in the **Prepa Classes** being tough, about half the students repeat the second year and therefore spend three years in the **Prepa Classes**.

**The content of studies** in the **Prepa Classes** can be described broadly as follows:

- **A strong emphasis on fundamental knowledge** in the core disciplines
  - **A strong emphasis on foreign language studies and the knowledge of foreign cultures** (at least 2 foreign languages are usually required and taught)
  - **A variety of optional courses**
  - **Broad-based studies** with a multidisciplinary approach and the acquisition of working methods and tools, which all will enable students to adapt to a changing world.
  - **Permanent faculty members** guaranteeing the efficiency of training
  - **Integrated and flexible pedagogical methods**: based on lectures but also on group work and tutoring.
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## **PREPARATORY COURSE IN ECONOMICS AND BUSINESS STUDIES**

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The curriculum consists in the in-depth studying of a number of subjects: Mathematics and IT, History Geography and Geopolitics, Arts and Philosophy, and Foreign Languages. Work group is encouraged as well as the practice of sports and cultural activities. The relatively small number of students, comparable to the one in secondary education allows personal tutoring. There are two slightly different types of Preparatory Courses in Economics and Business Studies depending on the subjects studied at baccalauréat level. The following syllabus corresponds to one of the courses.

<b>SUBJECTS</b>	<b>a week</b>	<b>first year / 36 weeks</b>	<b>second year / 30 weeks</b>
<b>Arts and Philosophy</b>	<b>6h</b>	<b>216h</b>	<b>180h</b>
<b>Foreign language 1</b>	<b>3h</b>	<b>108h</b>	<b>90h</b>
<b>Foreign language 2</b>	<b>3h</b>	<b>108h</b>	<b>90h</b>
<b>Mathematics and IT</b>	<b>10h</b>	<b>360h</b>	<b>300h</b>
<b>History, Geography, Geopolitics</b>	<b>6h</b>	<b>216h</b>	<b>180h</b>
<b>Economics sciences (optional)</b>	<b>1h</b>	<b>36h</b>	<b>30h</b>
<b>TOTAL</b>	<b>29h</b>	<b>1044h</b>	<b>870h</b>

### **CONCLUSION:**

In addition to preparing for the Grandes Ecoles competitive exams (Business schools such as HEC, ESSEC, ESCP), for the French School of Statistics (ENSAE), for the Ecole Normale Supérieure of Cachan), for the Institut d'Etudes Politiques of Paris (IEP), students graduating from this preparatory course have excellent fundamentals in a wide range of subjects that enable them to go on to study in major French and foreign universities. Over the years a number of Prepa students have already been accepted to LSE on an individual basis on the strength of their Prepa curriculum.

## **MATHEMATICS AND IT**

### **GENERAL OBJECTIVES OF THE COURSE**

The maths syllabus for the Preparatory Course in Economics and Business Studies runs over two years. It has been devised for students who have passed their Baccalauréat in Sciences, and constitutes a foundation course prior to specialised courses in economic calculus, the analysis of statistical data, mathematics applied to the field of finance and more generally to any domain in management sciences requiring elaborate calculus.

### **SYLLABUS**

#### **SCHEDULE**

The course comprises 9 hours a week in maths and one hour a week in IT in the first and second year which corresponds to a total of 360 hours for the first year and 300 hours for the second year.

Additionally, there are approximately an extra 15 hours devoted to tutoring and oral assessment and 10 four-hour sessions for written papers.

### **CONTENTS**

#### **ALGEBRA**

1. General Algebra
  - i. Set theory
  - ii. Combinatory Analysis
  - iii. Complex numbers and polynomials
2. Linear Algebra
  - i. Vector spaces, linear transformations, finite-dimensional.
  - ii. Matrices, adding, subtracting and multiplying matrices
  - iii. Systems of linear equations
  - iv. Reduction of endomorphisms and matrices. Canonical forms.
3. Bilinear algebra
  - i. Scalar product and euclidian spaces.
  - ii. Reduction of endomorphisms and symmetric matrices.
  - iii. Problem of least squares

#### **ANALYSIS**

1. Real numbers Study. Real number sequences and series
2. Continuity, derivation.
3. Differential calculus.
4. Integral calculus.
5. Study of the functions of several variables
  - i. Differential calculus of the first and second order.
  - ii. Optimization.

## **PROBABILITIES AND STATISTICS**

1. Fundamentals of probability theory
2. Random variables
  - i. Discrete and continuous variables, random vectors.
  - ii. Sums of random variables.
  - iii. Convergence of sequences of random variables. Limit distributions.
3. Descriptive statistics
  - i. Single statistical series.
  - ii. Multivariate analysis. Regression.
4. Statistical inference.
  - i. Parameter estimation.
  - ii. Confidence intervals.

## **ALGORITHMS AND INFORMATION TECHNOLOGY**

1. Basics of information technology
2. Analysis of one program language (Turbo-Pascal).
3. Resolving mathematical problems, simulation of random phenomena.

## **HISTORY, GEOGRAPHY & GEOPOLITICS OF THE CONTEMPORARY WORLD**

Three main principles prevail in this field of study:

- The development of syllabuses in History and Geography that are consistent with the orientation defined for the European Higher Education Area.
- The promotion of global understanding of the contemporary world. The importance of points of study related to the world of business, the determination to present geographical knowledge in a global perspective as well as the emphasis on geopolitical and geo-economic issues enable students to acquire a sound basis for making informed judgements, as future players in the economic world.
- Case studies are widely used as a teaching method to achieve these goals.

The syllabus combines a historical, geographical and geopolitical approach of the contemporary world.

- **Historical approach:** economic history is not merely a chronological study of economic and social events. It is part of a wider context, which is not informed by modelisation (unless the models have some historical existence themselves) and political and cultural aspects are also taken into account.
- **Geographical approach:** the syllabus integrates the current orientation in geography by concentrating on socio-spatial and geopolitical issues.
- **Geopolitical approach:** the confrontation between different stages or forms of development, culture and power is central to the syllabus which enables students to understand a world which shouldn't be oversimplified as a playing field for competition between states and territories, since they are increasingly confronted with other forces and other networks.

This course comprises 6 hours a week, plus a 20 mm individual oral session every other week.

## **ARTS AND PHILOSOPHY**

**In the first year**, the objective is to encourage students to reflect upon the main questions of our time while realising that they arise in a context permeated by a cultural legacy that has its roots in classical Antiquity.

The course presents the legacy of Ancient Greek and Latin cultures and introduces the main contemporary ideological movements. It also assesses the contribution of the main religions to contemporary thinking. Here are some of the themes developed as part of the syllabus: “Technological achievement and the idea of Progress”, “Artistic and aesthetic movements since the Renaissance”.

**In the second year**, students are required to study and analyse in depth a theme such as “Believing”, “Exchanging” or “Justice”. A different theme is set every year.

The teaching methods applied mainly stem from the fields of Philosophy and the Arts but also from other subject areas such as History, Ethnology or Psychology.

The written exercises –essay writing, summary writing, document analysis and synthesis– aim at enabling students to organise and express their views as clearly and rigorously as possible. Individual oral sessions help students achieve an articulate presentation of the topics that are part of the syllabus.

This course comprises 6 hours a week plus a one-hour individual oral session every other week.

## **FOREIGN LANGUAGES**

The objective of teaching languages is to promote achievement of high levels of language proficiency with a focus on communicative and intercultural learning. It results in increased oral and written proficiency for the students. Teachers focus on raising students' awareness of various communication strategies, including strategies to bridge vocabulary gaps, reading and listening strategies, and general language learning strategies. This also means learning about the countries whose language is being studied. Open-mindedness and curiosity are required from the students. The study of two foreign languages is mandatory.

### **What are the skills developed?**

- 1) The primary goals of foreign language education are grammatically and lexically correct real-life communication both in writing and in speaking. Students are encouraged to bridge vocabulary gaps in order to improve their writing and speaking skills.
- 2) Students are encouraged to listen to various oral documents and to be able to give a precise and critical account of what they have heard. They are also encouraged to improve their pronunciation through various exercises.
- 3) Second and third language acquisition is intended to provide the vision and skills necessary to be a global citizen. Students are taught about the institutions and the social, cultural and economic aspects of the countries whose language they study.

Students are encouraged to read and to listen to economic and societal documents, the aim being to create an acute awareness of the cultural allusions contained in the said documents and to develop critical-thinking skills.

Finally the aim is to provide a competitive edge in career choices in today's and tomorrow's world the emphasis being on the fact that the foreign language experience enhances cultural sensitivity and provides linguistic insights necessary for citizens in a worldwide community. Thus those students that wish to continue their studies abroad are equipped with all the necessary tools to do so.

This course comprises 3 hours a week for each language, plus a 20 mm individual oral session every other week.