Established in 1794, the École normale supérieure is one of France’s most prestigious seats of higher education and research, catering for students in the sciences and the arts. With 2,200 pupils and students preparing for a wide range of careers, it is an élite establishment.

With 35 research laboratories, and as many researchers as students, the École normale supérieure is one of France’s leading research centers, where learning is based on tutorials, inter-disciplinary study and international experience.
Located in the heart of the Latin Quarter in the center of Paris, close to the Jardins du Luxembourg, the École normale supérieure offers its students an exceptional scientific and intellectual environment. Its libraries house more than 800,000 books.

The École normale supérieure also has a lively sporting, cultural and community life, with activities as diverse as fencing and evening social events at Nuit d’Ulm. Years spent studying at the École normale supérieure are never forgotten, creating links that last a lifetime.
The École normale supérieure, in the heart of Paris.

The École normale supérieure has a prestigious past, but it is also a pioneering grande école thanks to its excellent research, its links with universities, and the part it plays in international scientific life. Whilst very attached to its past and its identity, the École normale supérieure nevertheless participates fully in today’s fast-changing world.

This prospectus is designed to help you get to know our School. Whether you are about to start higher education, preparing for entry to one of the grandes écoles, or already a university student, you will discover here the ideal place for your university education.

Get to know it, and become a part of it. The École normale supérieure represents the very best of modern excellence in teaching and research.
Welcome to the ENS.

Monique CANTO-SPERBER
Director of the École normale supérieure.
Famous for the **quality of its teaching** and seminars, the École normale supérieure encourages its students' independence and offers them personalized support, making it **unique amongst higher education establishments**.
The École normale supérieure was founded in Paris in 1794, during the French Revolution. In 1847, the School settled in rue d’Ulm, on the Montagne Sainte-Geneviève, near the Sorbonne and the Collège de France. With a history going back more than two hundred years, the École normale supérieure has a strong identity and great national and international prestige. Its original role was to train teachers for secondary and higher education, but very soon housed top-class researchers, even before Louis Pasteur carried out his pioneering work at the School in the 19th century. The École normale supérieure has also trained whole generations of high-ranking state officials, including ministers and top civil servants, such as Victor Duruy, Jean Jaurès, Léon Blum, Georges Pompidou and many others.

The École normale supérieure makes a huge contribution to scientific excellence; among its former students are several Nobel prize winners in the sciences and the humanities and social sciences, all eight French winners of the Fields medal (the highest award in mathematics), plus about a hundred past or present members of the Académie Française. For decades the École normale supérieure has been at the pinnacle of French intellectual and scientific life, involved in all the great exchanges of ideas that modern France has witnessed, from the Dreyfus affair to the turbulence of the 1930s, from the birth of social sciences to the avant-garde movement of the 1970s.

The École normale supérieure, a state body for higher education and research, has long been, and is still today, a seat of intellectualism, where an exceptional training of the mind is assured: training that guarantees interchange between disciplines and allows students great freedom for their intellectual development.

The School jointly accredits master’s degrees by research, delivers doctorates, and offers inter-disciplinary doctoral training. ENS pupils* and students accepted at the School must provide proof of their studies, an in-house diploma, the “ENS diploma”, which sets out the intellectual training they have received.

A broad range of careers is open to students: teaching in secondary and higher education, research, top posts in the civil service (by entry to the senior branches of the civil service), journalism, private business – the intellectual excellence and originality of ENS graduates is recognised and valued in all these careers.

The École normale supérieure is also an important French research center, thanks to its 35 laboratories, all of which are pioneers in areas diverse as, for example, archaeology, pure mathematics, cryptography, quantum optics, analytical chemistry, dynamic meteorology or neurosciences. It includes fourteen teaching and research departments, covering the main humanities and social sciences and sciences disciplines.

The School is constantly evolving to meet the challenges of the 21st century. It is linked with the Paris universities and with other higher education establishments (Collège de France, Institut Curie, ESPCI, Institut Pasteur, Sciences Po). It is constantly promoting new research fields (from international norms to financial economics, from nanosciences to cognitive psychology, from geostatistics to cryptography). It encourages synergies between different disciplines (such as biophysics or demographic geography) and is at the forefront of multidisciplinary training, requiring equal competence in sciences and the humanities and social sciences. It looks out towards Europe and the world by sending its students to study abroad and receiving hundreds of foreign students and teachers every year.

* Those who have passed the École normale supérieure entrance exam (see p. 23).
CAMPUS LIFE AT THE ENS

Campus life is a particular feature of the École normale supérieure. Nearly all its sites have student accommodation, a restaurant and many other student facilities: computing suites, television rooms, table tennis, music and dance studios, tennis court, gym.

There are many student clubs and societies within the ENS, most of which are associated under the Social Activities Organising Committee (COF). They cover a wide range of cultural, artistic and sporting activities: theatre, music, cinema, photography, dance, football, rugby, tennis, fencing.

The School’s computing facilities provide for high-speed Internet and Intranet access from all student rooms and numerous other places on campus.

In the heart of the Latin Quarter
(45 rue d’Ulm - Paris V district)

This historic École normale supérieure building dates from the mid-19th century. It houses the main humanities and social sciences departments, as well as the mathematics and computer science departments. In addition, between rue Lhomond and rue Érasme, there is a group of buildings, opened in 1937, housing several experimental sciences departments (physics, chemistry, meteorology and geology). Opposite the historic building at 45 rue d’Ulm there is a building, constructed in the 1970s, which houses the biology laboratories and student accommodation. Finally, 29 rue d’Ulm, recently acquired by the ENS, houses the department of cognitive studies, classrooms and many offices for the School’s different departments. These buildings provide a total of more than 400 student rooms.

Studying at the École normale supérieure has the added advantage of living in the Latin Quarter, not far from the main Paris museums (Louvre, Orsay, Luxembourg, Centre Georges Pompidou), and close to the Jardins du Luxembourg, all at the heart of the cultural and intellectual life of Paris, with its many art-house and experimental cinemas, historic theatres and famous cafés. Many universities such as the Sorbonne, the Universités scientifiques at the Jussieu campus or the École de médecine, as well as several other great educational establishments (Collège de France, Institut Curie, École supérieure de physique et chimie industrielles de Paris-ESPCI and many others) are located in the immediate vicinity of rue d’Ulm.

Along boulevard Jourdan and next to the Cité internationale universitaire de Paris,
(48 bd Jourdan Paris XIV district, and 1 rue Maurice Arnoux, Montrouge)

On the site of the former École normale supérieure for girls, the Jourdan campus houses the geography and social sciences departments of the École normale supérieure, where many teams carry out research in sociology, economics and law. The Jourdan campus houses the École d’économie de Paris (Paris School of Economics), a breeding ground for brilliant researchers. The Jourdan campus provides 100 student rooms, and another 200 rooms are to be found at the Montrouge campus. Also at Montrouge are “la Diffusion des savoirs”, “la Main à la Pâte”, the Réseaux, Savoirs et Territoires research team* and preparatory courses for the agrégations (see p 12) in physics and chemistry. Less than ten minutes by RER (fast underground train) from the center of Paris, and close to the Montsouris park, the Jourdan campus is an ideal place for intellectual and sporting activities, in gardens planted with numerous trees, and in the modern facilities of the university campus.

* la Diffusion des savoirs - department producing on-line recordings of ENS lectures, seminars and workshops
la Main à la Pâte - an organisation for the promotion of the sciences in primary schools
Réseaux, Savoirs et Territoires - studying the social, cultural, economic and legal implications of the development of information technology

Enjoying the sun in Cour Rataud, near the restaurant and cafeteria, 45 rue d’Ulm.
Meetings and exchanges on the Jourdan campus, 48 boulevard Jourdan.
Evening social event at rue d’Ulm. One of many parties at the School.
STUDYING AT THE ENS

**Intellectual freedom and individual tutorials**

Studying at the École normale supérieure is characterised by the independence accorded to each student and the individual attention that he or she receives. Throughout their time at the School, all pupils and students are monitored and supported by a personal tutor (lecturer, lecturer-researcher or researcher), with whom he or she agrees a “study programme” for each year. This programme includes, in addition to the courses required by the university programme chosen, intellectual activities that allow the student to develop the inventiveness and broad vision required to excel in his or her chosen studies.

The principle of freedom, which is fundamental to the intellectual education provided by the ENS, also allows students to interrupt their studies in order to study at a foreign university or institution if they feel the need to do so.

**Training by research and for research**

The École normale supérieure aims to ensure that all students develop rapidly into true researchers, whatever profession they ultimately choose to enter. The School’s training is designed to fulfil this aim (from introductory courses to research seminars, where the students themselves are put into the position of young researchers), training that is provided by a teaching staff of lecturer-researchers, many of whom are foreign scholars of international renown; students become associated with, and benefit from, the advances that they have made in their research. All the School’s and its laboratories’ activities help make the education provided by the École normale supérieure a true basis for research work.

**Various programmes, with the master’s degree at their heart**

Pupils entering the School by competition study for four years, whilst students studying for the École normale supérieure diploma attend for three years. In both cases, students must obtain a first degree and a master’s degree. The latter may be a master’s jointly accredited by the School with partner institutions (the Paris universities, École des hautes études en sciences sociales, École pratique des hautes études) or another institution with which the School has an academic agreement.

Many of the School’s pupils also study for the agrégation* either between the first and second year of the master’s degree, or following it. The majority of humanities and social sciences students sit the agrégation, only about a third of science students do so.

Many pupils and students extend their studies by preparing a thesis, which is started in the fourth year.

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* Required qualification in France for teaching at upper secondary and higher education level.

**Tutorial or individual guidance for students, the key to successful study at the École normale supérieure.**
The ENS diploma: an exceptional intellectual training

The ENS diploma comprises a master’s degree and additional “in-house” training. This training comprises a set amount of academic work for which the pupil or student must receive a pass. Pupils and students also have the opportunity to have validated as part of the diploma active participation in research seminars, research placements in France or abroad, reports on individual work undertaken, translations, articles, or even teaching or tutoring for high-school pupils from disadvantaged backgrounds. These activities, which, as much as the students’ academic work, attest to the excellence and originality of the intellectual training provided by the ENS, are subject to specific evaluation procedures.

In addition to the master’s degree, supplementary components are required in order to obtain the ENS diploma; amongst these, at least one third must be from a different discipline from that studied for the master’s degree. In the event that a student has at least two thirds of his or her components, forming a coherent unit, from another discipline, the diploma awarded is a diploma “with subsidiary subject”. The diploma is usually achieved in three years. Élèves normaillens (see p.23) are awarded it at the end of their period at the School, ie at the end of the fourth year.

Inter-disciplinary study – the ideal arrangement

With humanities and social sciences and sciences students living and studying together, and the breadth and diversity of the areas covered by the School’s teaching, students are strongly encouraged to see their training in inter-disciplinary terms. Academic programmes are organised to allow every student the chance to explore his or her subject to its very limits. This inter-disciplinary approach is in tune with the new opportunities of modern research.

In today’s world, a sound training in chemistry, physics and biology is required in order. To grapple with the pioneering questions posed by research into the living organism. Extensive knowledge of history, literature and philosophy is more necessary than ever for drawing up a genuine research project in the humanities. Crucially, the problems of the modern world (from the environment to urban policy, from international regulations to the management of energy resources) require minds that are highly educated in both the sciences and the humanities and social sciences. The École normale supérieure offers fertile territory for the blossoming of such strongly inter-disciplinary intellectual studies.

An open outlook on the world

École normale supérieure students may go on to become international research students, capable of working anywhere in the world. They are taught from the outset about the diverse university systems and are actively encouraged not only to perfect the foreign languages they already know, but also to learn new languages from amongst the many taught at the ENS. They are sent to study in Europe and throughout the world. All sciences pupils are required to undertake a research placement in a foreign laboratory.

Every year the ENS also invites some sixty foreign professors to come and give lectures and seminars. The School’s laboratories also welcome more than 300 researchers from around the world. Much research is carried out in close collaboration with higher education and research establishments throughout the world, and doctoral theses written with joint supervision are regularly undertaken.

Experimental manipulation: the ideal in training through research.

Small lecture group: the trademark of the École normale supérieure.

Intellectual independence and private study: the ideal stimulation.
CAREER OPPORTUNITIES

An outstanding intellectual training, leading to numerous career opportunities

The model for the intellectual training embraced by the ENS is broad and inter-disciplinary. It gives priority to fundamental knowledge, the basis for all subsequent learning, and differs from those systems where specializations are chosen too hastily and too soon. It results in students acquiring deep knowledge in one discipline and familiarity with many others.

The benefits of the humanist tradition, the practice of reasoned argument and the rapid assimilation and ranking of data provide ENS graduates with the intellectual assets required for entering a wide range of professions.

Careers in teaching and research

One of the traditional roles of the École normale supérieure was to prepare students for careers in higher education teaching and research. For any student intending to follow either of these paths, the School offers not only a research-based education and experience of international university life, the best possible preparation for a researcher, but also optimal material conditions. In particular, pupils and students can study for the agrégation, the main recruitment examination for higher education teaching. They may also start a doctorate before completing their studies, which allows them to benefit, on leaving the ENS, from a specific procedure which allows them to obtain a three-year research grant. This system guarantees that their research can be undertaken in the best circumstances.

Careers in the service of the state

For those sciences or humanities and social sciences pupils who do not wish to teach or undertake research, the School offers numerous career opportunities in the main technical departments of the French civil service (Mines, Bridges and Roads, Telecommunications, GREF, INSEE and Insurance). The ENS also organizes, in association with the Paris I University, preparatory courses for the ENS and École Polytechnique and examinations for entry to the highest levels of the French civil service (Sénat, Assemblée, Quai d’Orsay).

Many other careers, for example in national or overseas territories’ public administration, in ministerial offices or with European institutions, are also open to ENS pupils on completion of their studies.

Careers in business or communications

Each year a number of ENS graduates, some of whom may have received specific training, opt for careers in the world of business. ‘The École normale supérieure Institute and the Normaliens’ Business Club help guide them in this choice. From research and development within a business to management posts in large companies, including careers in finance, the scientific and intellectual training that pupils have received allows them to shine in their chosen career.

Some students are tempted by careers in journalism, publishing, or television or radio, where their intellectual training ensures that they acquire specific skills very quickly. In the wake of Raymond Aron, many of the best of today’s journalists are Normaliens*.

* ENS graduates (term also used for ENS pupils)
THE LIBRARIES

The libraries at the École normale supérieure contain an incalculable wealth of material; they assist students’ learning, offering them both a place to work and a haven for personal reflection. The School’s twelve libraries are situated at rue d’Ulm, on the Jourdan campus, at Montrouge, and in the School’s departments. They are open continually from 9am to 6pm or 7pm and their wholly computerised records are freely available to the School’s teaching departments and research units. Former students have life-long access to all the libraries, which are also used by a growing number of national and international researchers at doctoral level and beyond.

Libraries at the Ulm site

The oldest and richest of the libraries at the École normale supérieure, known as “the Library” or “Humanities-Ulm”, allows free access to shelves containing some 500,000 volumes and 1,600 modern periodicals for all the arts and human sciences subjects. “The Library” holds a special place in the School’s history, and extends over several thousand square metres from the grande salle (classified as a historical monument), to the New Rataud Building, to which it is linked by two footbridges.

The mathematics and computer science library, which is one of the best in France, contains tens of thousand of works, is also housed in the New Rataud Building.

The teaching and research departments situated in rue d’Ulm and rue Lhomond also have specialist libraries: archaeology, physics, chemistry and biology, geology and meteorology. The Husserl Archives and the collection of the Institute of modern texts and manuscripts (ITEM) complete the libraries at the rue d’Ulm site: these numerous libraries help to make the Montagne Sainte-Geneviève a real “mountain of books”, as the famous saying has it.

The Jourdan and Montrouge campus libraries

The Jourdan campus library is in two parts: the Humanities-Jourdan library, housing 150,000 volumes, partly deriving from the historic library of the former École de Stèves, and the Jean Baniès social sciences library. It offers a wealth of documentary resources for the humanities and human sciences, and also for social, economic and geographic sciences.

The library at the Montrouge campus is concentrated on preparation for the agrégations in the physical sciences. The common, networked catalogue (http://halley.ens.fr) currently covers six of the School’s libraries: Humanities-Ulm, Humanities-Jourdan, Mathematics and Computer science, Social sciences, the Husserl Archives and Archaeology. All the ENS library resources will shortly be linked to the system.

The historic “grande salle” of the great library at 45, rue d’Ulm

The mathematics and computer science library in the New Rataud Building.

One of the treasures held in the Humanities library.

A quiet moment amongst the books.
The École normale supérieure has always shown a strong international vocation. In 1810 a sister school, the Scuola Normale Superiore, was established in Pisa, and throughout the 19th century European, American, Chinese and Romanian students attended the École normale in Paris. Today hundreds of students and researchers from around the world come to the School, where they spend unforgettable years at the heart of French intellectual and scientific life.

A School with a strong international presence
École normale supérieure pupils and students are trained to become international students able to study anywhere in the world. They are familiarised with international university life, encouraged to learn several languages and spend one or two semesters at partner universities in Europe, Russia, the Middle East, North Africa, North America, South America, China and Japan. The École normale supérieure also receives hundreds of foreign students (for master’s or doctorate degrees) who are admitted through the International Selection examination. They prepare their degrees as foreign pensionnaires (boarders) within the framework of special exchanges, facilitated by numerous partnership agreements with universities and schools throughout the world.

An International Environment
Every year the École normale supérieure invites about sixty foreign professors, all with world-class reputations, to come and assist, for a month or longer, in pupils’ and students’ training. They give lectures and seminars and help to maintain the lively presence of many foreign universities within the School. Nearly 300 researchers of international repute also join the School’s 14 departments and 35 laboratories, where they help enrich the School’s scientific life, as do the numerous foreign doctoral and post-doctoral students who carry out their research here. The presence of these foreign professors, researchers and students is enormously beneficial, providing experience of international intellectual and scientific life, from which pupils and students benefit from the very start of their training and throughout their studies.

Double diplomas and joint-supervision doctoral theses
The ENS has decided to extend its training model beyond its own walls; it has developed training programmes introduced simultaneously in Paris and in foreign universities, particularly for master’s degrees. Currently the University of London and the University of Beijing run a jointly accredited master’s degree. The École normale supérieure has also developed, with the ENS Group (Ulm, Cachan, Lyon-Sciences and Lyon-LSH) a master’s programme at Shanghai in China. New master’s courses have also been set up in Latin America (eg Brazil).
In addition, jointly-supervised theses under French and foreign supervision are currently being undertaken in Europe and the rest of the world. In Great Britain, China and the United States are jointly carried out at the School. Interdisciplinary and cross-disciplinary (humanities and social sciences and sciences) doctoral Schools will benefit from having the most prestigious international partners.

French class for foreign students at the École normale supérieure
Students from the University of Berkeley and Duke University chatting at the café opposite the School.


Students from the University of Berkeley and Duke University chatting at the café opposite the School.
APPLYING TO THE ECOLE NORMALE SUPERIEURE

The three Paris sites of the ENS house nearly a thousand élèves normaliens (ENS pupils – see below) plus 1,200 French and foreign students, including many doctoral students.

Élèves normaliens (ENS pupils)

Élèves normaliens are recruited through a national examination and have usually taken classes préparatoires for the grandes écoles*. If they are from an EU country, they have the status of fonctionnaire-stagiaire (trainee state official), which includes an undertaking to work in the service of the state for ten years. They receive remuneration of about 1,250 euros per month during the four years of their studies.

Every year 94 sciences and 100 humanities and social sciences pupils are admitted to the School from the various first examination courses: Humanities (A/L), Humanities, Social Sciences and Mathematics (B/L), Mathematics-Physics-Computer science (MPC), Computer science (INFO), Physics-Chemistry (PC) and Biology-Chemistry-Physics-Life and Earth Sciences (BCPST).

A second examination offers places to students in medicine and pharmacy in the second year of the PCEM or PCEP. Those who are successful then follow a joint programme: medicine (or pharmacology) up to the examination for house officer grade, and scientific, leading to a master’s by research.

International scholarship holders

Twenty foreign students, equally split between the humanities and sciences, are admitted every year at the end of the first year of their university studies to the School. They do not have the status of fonctionnaire-stagiaire, but they receive a study grant of about 1,000 euros per month.

Students enrolled for the ENS diploma

The École normale supérieure also accepts students who have not passed an entrance examination but who come to prepare for the ENS diploma. These students, who may be from the classes préparatoires for the grandes écoles, or from French or foreign universities, are selected at the end of their first or second year at these institutions, following scrutiny of their application dossier and an interview. They follow the same courses as the élèves normaliens within the ENS and its partner institutions. In order to obtain the ENS diploma, they must provide proof of gaining a master’s by research, as well as ENS validation of attendance at lectures and seminars and a pass in their examinations. They do not have the status of fonctionnaire-stagiaire and do not receive any salary or grant.

Auditeurs d’agrégation (agrégation students)

Admitted by application dossier to prepare for the recruitment exams for teaching in secondary and higher education (by a different procedure from that for the selection of candidates for the ENS diploma), auditeurs d’agrégation study for a year at the École normale supérieure. They have access to all teaching provided by the School in preparation for the recruitment exams and have to complete the same assignments as the normaliens.

Doctoral students

Several hundred university students are accepted every year to prepare a thesis at the École normale supérieure under the supervision of one of the School’s lecturers or researchers. Their contribution to the scientific life of the research laboratories is particularly rich and in return they benefit from the School’s intellectual and scientific life.

Foreign resident students

The École normale supérieure’s partner universities (in Europe, the USA, Africa and Asia) send to the School students who are usually taking part in an exchange programme. These students, numbering about a hundred each year, are not selected by the School but are welcomed into it, with their board and lodging provided. They have the opportunity to take part in all the School’s teaching programmes and other activities.

* élite higher education establishments, entry to which is by highly competitive examination, following an intensive preparatory course (classe préparatoire).
Teaching & Research
Department of Mathematics and Applied Mathematics
http://www.dma.cns.fr/

The department of mathematics and applied mathematics (DMA) is both a teaching department and a research laboratory. It has a reputation as one of the best mathematics departments in the world, largely due to the exceptional quality of its students: the seven Fields medals (the highest international distinction in mathematics) gained by France have all been awarded to former ENS students. The department helps to maintain the excellence of French mathematical research and to supply the whole country with the best mathematicians. The three DMA teams (Groups and geometry, Probabilities, and Partial differential equations) cover a large spectrum of modern mathematics. The training that the students in the mathematics department receive is based on a close overlap between teaching and research. All members of the department, university lecturers-researchers, CNRS researchers, members of the teaching staff or post-doctoral students, contribute to the training of students within the FIMFA (mathematics teaching structure at the ENS). They give lectures and seminars and help with practical work. They also help with other educational activities: supervision of working groups or guidance for students’ work and presentations. The FIMFA also offers preparation for the mathematics agrégation, the quality of which is proven by the results obtained: all the department’s students taking the agrégation pass and, amongst the top ten successful candidates, most have taken this course.

The mathematics department works in close cooperation with many other departments at the ENS, particularly the departments of physics, computer science, biology and social sciences, in order to offer its students multidisciplinary programmes and the chance to carry out joint research, the quality of which is guaranteed by the department’s excellence.

Wendelin Werner, Fields Medal winner 2006: Lecture at the École normale supérieure.

Department of Computer science
http://www.di.ens.fr/

The computer science department offers a small number of students (about 20 per year) a personalised programme that is constantly linked to research. High quality lectures are supplemented with research training in the laboratory. Students in this department, which is known throughout the world, receive excellent training and become involved in pioneering fields of computer science research right from the outset. Careers open to students qualified in this most modern discipline are varied: many being in research and higher education, but also in the senior branches of the civil service and technology companies.

Computer science research at the École normale supérieure is aimed at discovering general concepts and models that contribute to the constant renewal of the discipline. It is also firmly rooted in the technological environment. The links between computer science and telecommunications and the development of the Internet are proof of a fundamental transformation, similar in principle to that which followed the invention of printing. Thus there are multiple challenges to be met, challenges which guide the research carried out within the department. Questions as varied as how to guarantee the correction of programs, how to assure the authenticity and confidentiality of data and transactions, how to analyse and improve network performance, how to automate the analysis and understanding of images, how to create models for biological activity, especially that of the brain, are all concrete problems to which the talents of students, doctoral students and young researchers are constantly applied.

The forty or so students in the department are trained in excellent research methods right from the outset. Each of the department’s laboratories is at the cutting edge of international research in its field, and together they cover the whole spectrum of fundamental physics. Their fields of study range from the basic constituents of matter, superstrings, on an incredibly small scale (theoretical physics laboratory), to the infinite scale of the galaxy or the universe (radio-astronomy laboratory). The Kastler Brossel laboratory studies atomic-light interaction, from quantum optics to cold atoms, and its application to the treatment of quantum information. This work has been recognised by two Nobel prizes (including that of Claude Cohen-Tannoudji in 1997).

On the scale of thousands of atoms, the nanotechnologies and networks of the Pierre Aigrain laboratory are artificial atoms, which push the limits of the quantum world to the macroscopic scale. Lastly, in the statistical physics laboratory, cutting edge research is carried out into complex systems, from wetting to biological molecules, from quantum fluids to soap films.

Department of Physics
http://www.phys.ens.fr/

Teaching and research are two inseparable facets of life in the physics department. From the basic courses (first degree and master’s degree) included in the Interuniversity physics training (FIP) to courses in the doctoral school, students in the ENS physics department are among the best in France and receive exceptional training in all the fundamental areas of physics.

Continually supervised by the tutors and researchers in the department’s five laboratories (Kastler-Brossel, Pierre Aigrain, statistical physics, theoretical physics and radio-astronomy), students benefit from many advantages: the exceptional experimental expertise gained by the researchers; the coexistence in the same department of experimental physics and theoretical physics; the close proximity of the departments of chemistry, biology, mathematics and computer science; genuine campus life that allows constant contact and interaction between students, researchers and lecturers.

Quantum optics experiment in the physics department.
The chemistry department at the École normale supérieure carries out pioneering research in many fields. Its reputation today is well established, thanks to the many international awards it has received and to the many science academicians it attracts. The chemistry department comprises eight remarkable teams grouped into two Mixed Research Units (UMR). The twenty or so students in the chemistry department receive the most complete training possible for their first and master’s degree, within the framework of the Interuniversity chemistry training programme (FIC). The department is also careful to open out to other, connected disciplines as part of the training it offers; chemists at the ENS see their field not only as the discipline of molecules and matter, but also as one that studies molecular combinations and nano-microsystems. The department is keen to initiate students into this new meaning of chemistry right from the outset.

The chemistry department at the ENS also stresses the importance of analytical tools. The research that the department’s chemists carry out into atoms and molecules continually opens up new study perspectives and new techniques for analysing matter. Whereas the chemist has an understanding of molecular objects at the triple level - static (structure), dynamic and systematic - the chemistry department at the ENS aims to master the relationships between structure and properties on the molecular scale, whilst at the same time developing its descriptive scale of reactive phenomena, in close synergy with that of biologists and physicists. In regular contact with cutting edge research, students in the chemistry department at the ENS benefit from the best possible training and have access to the most promising development prospects in their discipline.

Over the last twenty years biology has seen remarkable developments due to the convergence of fundamental discoveries in physics, chemistry and computer science with the latest technological advances, resulting in a progressive demolition of barriers between the disciplines. Radically new concepts and tools are providing many superb new means for approaching the great questions of biology in a different fashion. Research carried out within the biology department at the École normale supérieure illustrates these new scientific possibilities in a remarkable way. Relying largely on emerging and constantly renewed knowledge, research is concentrated in five areas, making the department one of the leading research centers in France in these fields: neurobiology, molecular genetics, cell and developmental biology, population biology and plant biology, all fields into which 30 first-rate teams carry out research.

The 30 or so students in the biology department receive complete training in their discipline for their first degree, before progressively specializing, up to doctorate level, in one of the department’s main research fields. During training, the accent is on interdisciplinary study, the acquisition of skills in associated disciplines (from computer science to the history of the sciences), and on research experience gained in the laboratory.

The department’s tutors and researchers provide high quality supervision, allowing students the chance to become familiar with a wide range of new techniques and concepts. Numerous research fields are suggested to students, ranging from the simplest element (single molecule) to the most cohesive units (ecology). Fundamental research into the living organism (from molecular genetics to the study of evolution) is focused on technological and medical applications, thanks to close cooperation, within the framework of the RTRA “Life sciences”, between the biology department (and other departments at the ENS), the Institut Curie and the ESPCI (two institutions situated very close to the School).

Department of Chemistry
http://www.chimie.ens.fr/

Department of Biology
http://www.biologie.ens.fr/

Department of Earth-Atmosphere-Ocean
http://www.tao.ens.fr/
The geography department has carried out a longitudinal study of Valparaiso (Chile).

Department of Geography
http://www.geographie.ens.fr/

The geography department occupies a special place within the École normale supérieure because in its teaching and research it sits between the School of Humanities and the School of Sciences, and also because it straddles the professional and academic worlds, a unique position amongst French universities.

The department is organised around three themes to which its teaching and research are directed. Environmental geography is offered in seminars linked closely to the environmental research carried out in the Center for study and research into the environment and society, one of School’s interdisciplinary units. Regional geography, largely based on cartography and geographic information systems, pursues its research on very varied terrains (Brazil, the Southern Cone, the Near East).

Finally, the rapidly developing fields of geopolitics and geostrategy, with their particular skills, can be studied for a jointly accredited master’s with Paris I University. The Center for geostrategy has recently undertaken numerous studies on the Near East. Training for research in geography, for which field-work is essential, occupies a large role in the teaching provided by the department. Students are encouraged to choose far distant study areas for their research, in which they are financed by the department; research trips within France and abroad are also organised (in recent years, these have included field studies carried out in Andalusia, Slovenia and Brazil).

Gold coin found at Peshawar in Pakistan during a dig by the archaeology team.

Preparing a history assignment in the library.

The geography department has carried out a longitudinal study of Valparaiso (Chile).

Department of Classical Studies
http://www.antiquite.ens.fr/

The two main disciplines relating to the ancient world (ancient languages and texts, archaeology) are offered at the highest level in the department of classical studies (DSA). Students in the department receive an excellent training in the languages and cultures of the ancient world, and are introduced, within the structure of the department, to archaeological research at the highest level.

The department of classical studies uses the complementary nature of these two disciplines to the best possible advantage.

The department functions as a vast research unit: the laboratory for eastern and western archaeology (involving several CNRS teams), is associated with the Center for classical studies, which includes the teaching of Latin, Greek and comparative grammar of the Indo-European languages. All students, whether or not they are specialists in classical studies, are offered multidisciplinary training that covers a broad range of study areas, including epigraphy, codicology, archaeological techniques, numismatics, philosophy and literature. They gain a wider and deeper understanding of the ancient world so that, armed with the appropriate tools and wide-ranging knowledge, they are able to tackle the most promising research themes in this area.

The department’s programme is organised around an introduction to classical studies (ancient languages, archaeological, philological, epigraphical techniques), a master’s degree and research seminars. It also includes improvement and consolidation seminars in disciplines with which students are already familiar and an introduction to the latest research paths in classical studies.

The DSA department also offers preparation for the agrégation in classical literature and grammar, in which its students obtain excellent results every year.

Preparing a history assignment in the library.

Mosaic of the nymph of Cyrène, Lambèse, Algeria.

Gold coin found at Peshawar in Pakistan during a dig by the archaeology team.

Preparing a history assignment in the library.

The geography department has carried out a longitudinal study of Valparaiso (Chile).

Department of History
http://www.histoire.ens.fr/

The history department offers a varied and outward-looking education to all those with a passion for history, whether as students planning to become historians or as welcome temporary visitors following a particular historical interest. Every year it runs introductory courses, research seminars, joint initiatives (workshops, study days, conferences), and international meetings. Wide-ranging areas of history are taught in the department, including periods from antiquity to the modern era, social and economic history, cultural and political history, art history and history of the sciences. Ten specialist tutors, whose fields of expertise include France, the Mediterranean basin, Europe and Russia, work in close cooperation with other departments at the ENS. Other teacher training colleges, the EHESS, the EPHE, French and foreign universities, and the great French institutes abroad (Villa Médicis in Rome, École française in Athens, Casa Velaquez in Madrid, Institut français d’études anatoliennes Georges Dumézil in Istanbul).

Tutors aim to maintain a balance between the essentials of methodological and historiographic education and an understanding of pioneering research areas.

Students in the history department follow a programme leading to the master’s degrees offered jointly with other higher education establishments with which the ENS has agreements. Many other classes are available that provide fundamental knowledge of history, as well as an introduction to research.

Thanks to the two laboratories with which the department is associated, the IHMC (Institut d’histoire moderne et contemporaine, linked with the CNRS) and the SHB (Service d’histoire de l’éducation, linked to the INRP), the history department at the École normale supérieure remains a popular place for former pupils of the ENS, doctoral students and researchers are attracted by the School’s outward-looking policy and many gather every year for its history week.

Mosaic of the nymph of Cyrène, Lambèse, Algeria.
Department of Philosophy
http://www.philosophie.ens.fr/

The philosophy department is driven by three aims: to offer the School’s normaliens and students (whether they are studying humanities and social sciences or sciences) training in historical and critical philosophy; to provide the best possible training for those who will go on to teach or research into the subject; to become a national and international center for philosophy research, able to combine different methods and varied traditions. Students in the philosophy department take a course that is based on master’s degrees jointly run with the universities or other elite institutions, supplemented by teaching provided within the philosophy department. Students can thus perfect their knowledge of the subject, be introduced to philosophy research and acquire the argumentative and interpretative skills that form the basis of philosophy’s reflective and critical processes. The department is careful to maintain a balance between the history of philosophy and the most recent developments in philosophy and human and experimental sciences. Thus, informed and precise study of concepts, texts and doctrines from traditional philosophy goes hand-in-hand with the acquisition of a sound knowledge of concepts, problems and theories from the human sciences (social and economic) and other modern sciences. The philosophy department is also open to other disciplines that all include a philosophical specialization, such as the philosophy of art, of the sciences, of law, political or moral philosophy and cognitive psychology. Students benefit from training in the history of philosophy and an introduction to the diversity of philosophy specializations, as well as contemporary research in philosophy and related disciplines. They also have the opportunity to widen their knowledge in six research centers associated with the department: The Husserl Archives, the International Center for the study of contemporary French philosophy (CIEPFC), the Institut Jean Nicod (IJN), the Center for research for classical thought (Centre Léon Robin), the Institute for the history and philosophy of sciences and technology (IHPST). The department also has links with the History and Philosophy of the Sciences (HPS) group.

Free expression at the École normale supérieure.

In addition to these courses, students may also take secondary specialist subjects offered by the social sciences department: anthropology, law, economics, political studies, public policy, sociology. Pupils and students in the social sciences department benefit from the exceptional study and work environment offered by the research laboratories with which the department is associated: the UMR Paris Economic Sciences (PSE), the ENRA Laboratory of applied economics (LEA), the Maurice-Halbwachs Center, which includes the former ENS social sciences laboratory (CMH), the Center for the theory and analysis of law (CTAD). These high-quality laboratories house nearly 130 teachers and researchers and help with the supervision of a hundred or so French and foreign doctoral students. They all provide an exceptional intellectual environment in which outstanding students will find the perfect conditions for training and an introduction to research at international level.

Department of Literature and Languages
http://www.lila.ens.fr/

The teaching provided by the Department of literature and languages revolves around two main strands: French literature or comparative French literature and French linguistics; foreign literature and civilization (German, English, Chinese, Spanish, Italian and Russian).

The department’s aim is to prepare pupils and students for teaching in higher education and for research through the discovery and practice of diverse, often overlapping, methods of textual analysis (history, history of art, philosophy etc), but also through regular contact with researchers in the different teams associated with the department: “Enlightenment, Revolution, Romanticism”, ITEM (Institute for modern texts and manuscripts, bringing together the Flaubert, Joyce, Proust, Celan teams), “Fabula”, “Fiction”. Pupils and students in the department are closely involved in the department’s activities, such as the many translation workshops, publishing texts, or taking the opportunity to create their own seminars around their chosen research project.

Department of social sciences
http://www.sciences-sociales.ens.fr/

The department of social sciences has two aims: firstly, to train its pupils and students in the major social sciences disciplines (economics, sociology, law, anthropology, political science, demography), providing them with the fundamental knowledge that will subsequently allow them to specialize in a chosen social science; secondly, thanks to its many, high-level research teams (in sociology, economics, law), the department is able to expose students to contemporary social sciences research. Both in its teaching and its preparation for research, the department is careful to maintain fruitful interdisciplinary links with other subject areas, including history, philosophy or cognitive sciences. The department of social sciences accepts pupils and students who may enrol for two ENS jointly accredited master’s by research degrees: “Economic analysis and policy” (API) and “Surveys-fieldwork-theories” (ETT).
The Paris School of Economics, one of the 13 establishments making up the Réseaux Thématiques de Recherche Avancée announced by the French government in the autumn of 2006, has the aim of developing a common hallmark and international recognition for the innovative research programmes and research training carried out jointly by the founding bodies and organisations: ENS, EHESS, Université Paris I, ENPC, CNRS, INRA. Several other partner bodies and organisations are also involved: INSEE, AFD and INED. The Paris School of Economics is characterised by the twin scientific aims of covering the most important areas of contemporary economic research at the highest level (theoretical and applied economics, markets and organisations, public economics, international macroeconomics, the economics of work, development economics) and of giving a fresh impetus to the relationship between economics and the other social sciences. The management team of the ENS is particularly keen to encourage joint research projects between teams from the social sciences department at the ENS and researchers from the EEP in the following fields: sociology and statistics; public policy and development; economics and history; economics and law. These partnerships allow for strong synergies between teaching and research, particularly in the form of joint seminars, conferences and invitations to French and foreign professors.

The department of the history and theory of the arts (DHTA) coordinates the teaching and research activities provided in the following areas: cinema studies, theatre studies, history of art, music and musicology. The DHTA is a teaching and research department whose mission is to introduce critical analysis to creative activities in the fields of cinema, theatre, art and music. Its primary aim is not to train creative talents in these fields by teaching practical skills, although the department’s teaching helps to provide the basic training from which such skills may be acquired. Students in the department receive extensive training in most of the artistic disciplines, and the history and theory of which they are the subject. The programme, run within the arts department and in partner universities, is recognized by a first degree and master’s degree (jointly accredited or by agreement with the universities) and by the School’s diploma; it takes full advantage of close collaboration with several other departments (history, cognitive studies, philosophy, literature and languages).

The DHTA welcomes future specialists planning to become researchers, teachers, performers or artistic managers in one or more of the disciplines taught. The department also accepts pupils or students wishing to include in their ENS diploma a subsidiary in cinema studies, theatre studies, history of art, or music and musicology. In order to cater for this diversity of students, the DHTA offers introductory courses, as well as introductory seminars, for research into the most innovative areas of contemporary artistic disciplines.
The department of cognitive studies (DEC) is a recent creation at the ENS, but, despite its relative youth, it already includes several high quality teams, from neurosciences to philosophy of the mind.

Cognitive sciences seek to describe and explain, at different levels, our mental functions: conceptual thought, reasoning, language, memory, as well as perception and action. These sciences make use of both the experimental methods of psychology and neurosciences and the modelling possibilities of the different cognitive faculties, explored through several specific disciplines (logic for the study of reasoning, linguistic theory for language, rational choice theory for the study of action).

Cognitive sciences are also rooted in the philosophic tradition, particularly the philosophy of consciousness and philosophy of the mind. The department of cognitive studies is equally open to pupils and students who merely wish to satisfy their curiosity concerning the philosophy of the mind or knowledge of the brain and to those who wish to follow a complete training in their own discipline.

It also welcomes pupils and students wishing to undertake research into one of the fields mentioned above. The department offers both sciences and humanities and social sciences students a range of teaching that provides an introduction to the whole spectrum of the disciplines it covers: neurosciences, cognitive psychology, linguistics, logic, philosophy of consciousness and of the mind. It also provides specialist teaching as part of two master’s degrees jointly accredited with its partner universities; one in cognitive sciences, the other in the science of language. Pioneering in many respects, the research carried out within the DEC is supported by many teams attached to the department (Cognitive sciences and psycholinguistics laboratory; Center for neuro-imagery research; Institut Jean Nicod; Cognitive neurosciences laboratory; Audition Team: Psychophysics, modelling, neurosciences; Interventional neuropsychology team; Institute for the history and philosophy of sciences and technology; Theoretic neurosciences group; Formal linguistics theory group).

Center for teaching and research into the environment and society (CERES)

The principal aim of the cross-disciplinary history-philosophy-sciences group is to facilitate contacts between the School’s humanities and social sciences and sciences departments through the organization of seminars, teaching and cross-discipline research groups, particularly but not exclusively in the field of the history and philosophy of the sciences. It includes representatives from all departments in the School.

Since its creation, the CERES has organized numerous scientific meetings to discuss the many themes relating to the organization of teaching and research across Europe and cross-disciplinarity. The CERES helps with the organization of cross-disciplinary teaching within the School: philosophy for sciences students, and sciences (mathematics, physics, biology) for humanities and social sciences students. The group initiated the jointly accredited master’s degree LoPHiSS (logic, philosophy, history, sociology of the sciences) by the Paris I University, Paris IV University and the École normale supérieure.

The group also supports international cooperation over the teaching of the philosophy of medicine and fundamental ethics at master’s level (in cooperation with the University of Mayence, under the aegis of the Franco-German university of Sarrebruck) or the teaching of the history of the sciences (thanks to a UNESCO chair). The group’s devotion to research can be seen in many successfully completed research programmes (history of neurosciences in France 1945 – 1975; Claude Bernard, textual analysis and artificial intelligence).

Environmental research:

a real passion for many students.

Center for teaching and research into the environment and society (CERES)

http://www.environnement.ens.fr/

The center for teaching and research into the environment and society is a recent creation at the École normale supérieure and is jointly led by the Head of the Earth-Atmosphere-Ocean department and the Head of the geography department.

At global level, environmental questions revolve around the great challenges such as climate change, reduction in biodiversity and the management of resources and natural habitats, whilst at regional and local level they concern the need to ensure sustainable development. These questions can only be addressed through a multidisciplinary approach, the only way of grappling with the many different facets of the problems. Taking advantage of the wide range of disciplines taught at the ENS, the CERES has the aim of encouraging synergies in order to inspire and support original research based on a multidisciplinary approach. Within the framework of the high-level teaching provided by departments in the ENS, the Center offers supplementary training based on a meeting of disciplines and students’ initiatives. Teaching within the CERES takes the form of joint workshops and deals with the many, varied themes related to the environment. Work carried out in the workshops leads to a pass as part of the ENS diploma, in addition to the master’s degree in students’ main disciplines.

History and philosophy of the sciences group (HPS)

http://www.ens.fr/chps/

The principal aim of the cross-disciplinary history-philosophy-sciences group is to facilitate contacts between the School’s humanities and social sciences and sciences departments through the organization of seminars, teaching and cross-discipline research groups, particularly but not exclusively in the field of the history and philosophy of the sciences. It includes representatives from all departments in the School.

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INTERDISCIPLINARY STRUCTURES AND DEPARTMENTS

Languages and cultures for non-specialists unit (ECLA)
http://www.ens.fr/ecla/

Aimed at both sciences and humanities and social sciences pupils, and at French and foreign students, the languages and cultures for non-specialists unit (ECLA) offers teaching in many of the world’s modern languages, at beginner level and beyond. It allows students to start or perfect a large number of languages traditionally taught at secondary and classes préparatoires level, but also the chance to have an introduction to languages that are not generally taught, such as Japanese, Chinese or Arabic.

The main objective of ECLA is to develop teaching that is innovative from the educational point of view, with the aim of encouraging the use of the written and spoken language, in order to help pupils in their research or to prepare for a period abroad. Students learn debating (carried out in English, and inspired by English parliamentary debates), for example, which improves students’ spoken English and allows them to develop both rhetorical skills and ease of speaking in public.

ECLA has a pairing system, whereby two students speaking different languages are put in touch and encouraged to teach each other their own language. To help their language learning, students also use (either in classes or independently) the multimedia laboratory, which has numerous software programs that facilitate active language acquisition. The teaching of French as a foreign language (FLF) attracts a large number of foreign pupils and students accepted under the international selection process. The organisation of cultural activities such as the Arabic week, or attendance at language courses abroad for a month or longer, forms an integral part of the education gained at ECLA.

Arabic week: one of the many cultural events linked with non-French cultures.

The École normale supérieure, winner for several years of the grandes écoles debating competition, Assemblée nationale, 2007.

The sciences garden, 24 rue Lhomond.
# LIST OF TAUGHT PROGRAMMES

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<th>Biology</th>
<th>Earth-Atmosphere-Ocean</th>
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<td>• Algebra</td>
<td>• Logic, probability theory, information theory, semantics</td>
<td>• Cell and developmental biology</td>
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<td>• Number theory</td>
<td>• Algorithms, calculability, complexity, crytoplogy</td>
<td>• Genetics and molecular biology, genomics</td>
<td>• Geomechanics</td>
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<td>• Topology</td>
<td>• Programming, languages, compilation, abstract interpretation</td>
<td>• Neurosciences and integrative biology</td>
<td>• Seismology</td>
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<td>• Geometry</td>
<td>• Hardware, operating systems, networks</td>
<td>• Ecology, evolution, complex systems</td>
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<td>• Analysis</td>
<td>• Databases, discrete geometry, robotics, computer vision</td>
<td>• Statistics, bio-informatics, modelling</td>
<td>• Petrology, mineralogy</td>
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<td>• Applied Analysis</td>
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<td>• Interdisciplinary studies (mathematics/biology, physics/biology, chemistry/biology, environment, cognitive sciences, history of sciences and epistemology)</td>
<td>• Paleoenvironments</td>
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<td>• Probability theory and mathematical statistics</td>
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<td>• Biology for non-biologists</td>
<td>• Geophysical fluid dynamics</td>
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<td>- Mathematics/physics</td>
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<td>• Analytical mechanics</td>
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<td>• Grammar and languages</td>
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<td>• Mathematical methods for physics</td>
<td>• Statistical thermodynamics</td>
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<td>• Quantum mechanics</td>
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<td>• Equilibrium thermodynamics</td>
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<td>• History of the Sciences</td>
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<td>• Physics of condensed matter</td>
<td>• Kinetics and reactivity</td>
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<td>• Hydrodynamics</td>
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<td>- Instability and turbulence</td>
<td>• Polymers</td>
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<td>• Field theory</td>
<td>• Intermolecular forces</td>
<td>• Middle Eastern languages and culture</td>
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<td>• Fundamental structure of matter</td>
<td>• Chemistry and biology</td>
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<td>• Astrophysics and general relativity</td>
<td>• Molecular biology of the cell</td>
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<td>• Quantum coherence and dissipation</td>
<td>• Mathematics</td>
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<td>- quantum information</td>
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<td>• Biological physics</td>
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<td>• Environment and society</td>
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<td>• Geographical information systems</td>
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<td>• Geopolitics</td>
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LIST OF TAUGHT PROGRAMMES

Philosophy
- General philosophy
- Ancient philosophy
- Contemporary French philosophy
- Contemporary metaphysics
- History and philosophy of science
- History of German philosophy
- Political philosophy
- Translation of philosophical texts

Literature and Languages
- French literature
- French language
- Literary theory
- General and comparative literature
- Foreign languages and literature
  - Anglo-American
  - Chinese
  - Czech
  - German
  - Italian
  - Japanese
  - Persian
  - Russian
  - Spanish
  - Turkish

Social sciences, Economics, Law
- Anthropology
- Sociology
- Economics
- European law
- Legal History
- The legal system
- Statistics
- Social history
- Political science

Arts
- Cinema studies
- Theatre studies
- Aesthetics
- History of art
- Text and music, text and language
- Music and musicology

Cognitive Studies
- Philosophy of mind
- Philosophy of language
- Logic and Philosophy of science
- Cognitive neuropsychology
- Theoretical Linguistics
- Computational neuroscience
- Cognitive neuroscience
- Social sciences (cognitive approaches)
### Department of Mathematics and Applications
- Partial differential equations, non linear analysis, numerical simulations
- Groups and geometry
- Probability theory and mathematical statistics

### Department of Computer Science
- Ecole normale supérieure computer science laboratory
  - Hardware architecture and algorithms
  - Cryptography
  - Morphological complexity and information
- Geometry, combinatorics and algorithms
- Abstract and interpretation and semantics
- Network and communication theory
- Computer vision

### Department of Earth-Atmosphere-Ocean
- Geology laboratory
  - Earth dynamics
  - Geological materials and environment
- Dynamic meteorology laboratory
  - Climatic variability and predictability
  - Stratified and rotating fluids
  - Tropical meteorology and climatology

### Department of Biology
- The department’s thirty or so teams are divided across four research programmes:
  - Genetics
  - Developmental biology
  - Evolution and plant biology
  - Neuroscience
- The teams work in the following units:
  - Molecular biology of development
  - Synapse cellular biology
  - Regulation of genetic expression
  - Workings and evolution of ecological systems
  - Development and evolution of the nervous system
  - Cellular and molecular neurobiology
  - Photosynthetic organisms and environment

### Chemistry Department
- Selective activation processes by mono-electronic or radiative energy transfer (PASTEUR)
  - Molecular activation and electrochemical reactivities
  - Microfluidics, chemical organization and nanotechnology
  - Systems chemistry
  - Theory of chemical reactions in condensed phase
  - Ultrafast photochemistry of complex systems and biomolecules
- Biomolecules: Synthesis, structure and function (Biozyma)
  - Glycoscience and bio-organic chemistry
  - Nuclear magnetic resonance
  - Molecular quantum dynamics

### Department of Physics
- Kastler-Brossel laboratory
  - Quantum optics, quantum electrodynamics in cavity
  - Cold atoms and quantum fluids
  - Optics and biology, bio-medical imaging
  - Metrology of simple systems, fundamental tests
  - Quantum fluctuations, fundamental measurement and noise
- Statistical physics laboratory
  - Fundamental statistical physics
  - Theory of condensed matter
  - Non-linear, cognitive, complex systems, morphogenetics
  - Physics of biological systems
  - Soft matter, instabilities, phase transitions
  - Non-linear theory of instabilities
  - Physics of integrated biological systems
- Pierre Aigrain laboratory
  - Electronics and optical properties of nano-objects
  - Quantum transport and mesoscopic physics
  - Biophysics

### Theoretical physics laboratory
- Statistical mechanics, condensed matter
- Fields (super)strings, particles and gravitation
- Disordered systems, biophysics, communication and information technology

### Radioastronomy laboratory
- Interstellar matter and star formation
- Dynamics of fluids in astro- and geophysics

### CERES (Centre for teaching and research into the environment and society)
- This cross-disciplinary structure coordinates ENS departments’ research activities and training centred on environmental questions, in particular:
  - Coupled climate-economic modelling
  - Coupled climate-ecology modelling
  - Regional and local-scale land planning and sustainable development studies

### Department of Classical Studies
- Eastern and Western Archaeology
  - Pre-Roman Etruria and Italy
  - Economy, society and land occupation
  - Hellenism and oriental civilisations
  - Gaul, Africa and the Near East
  - Roman painting and mosaics
- Centre for Ancient studies
  - Ancient texts - publication and commentary
  - Classical epigraphy

### Department of History
- Institute of modern and contemporary history
  - The political construction of national areas in France and Mediterranean Europe
  - History of the sciences and history of the book, 16th to 18th centuries
- Department of History
  - Intellectual sociability, literature and politics in the 18th century
  - History of western representations of Russia and the USSR in the 19th and 20th centuries
### Department of Geography

- Environment platform
- Geostategy Centre
  - Environmental geopolitics
- History of law (legal theory and practice)
  - Law and economics
  - Economics and history
  - Centre for sociological history of law and legal systems
  - History of law (legal theory and practice)

### Department of Philosophy

- Germanic countries: history, culture, philosophy
  - Cultural transfers
  - Husserl Archives
  - Contemporary German philosophy
  - Phenomenologies
- Léon Robin Centre
  - Ancient philosophy
- Institute for the history and philosophy of science and technology
  - Philosophy and history of logic and mathematics
  - Philosophy and history of biology and medicine
- International Centre for the study of contemporary French philosophy
  - Research centred on 20th century philosophy and into current problems in philosophy

### Department of Literature and Languages

- Germanic countries: history, culture, philosophy
  - Enlightenment, Revolution, Romanticism
  - Fabula
  - Fiction
- Institute for modern texts and manuscripts
  - Flaubert
  - Joyce
- Languages, texts, computer processing, cognition
  - Proust
  - Genesis of texts
  - Paul Celan
  - Linguistic analysis of the sentence
  - Discourse analysis

### Department of Social Sciences, Economics, Law

- Maurice Halbwachs Centre
  - Design and use of large representative surveys
  - Ethnography
  - Historical Sociology
  - Quantitative methodology in sociology
- Paris Jourdan Sciences Economiques
  - Control methods
  - Economics of institutional change
- Centre for long-term studies in mathematical economics applied to planning
- Fundamental research in mathematical economics
  - Macroeconomic modelling and policy
  - Public economics
  - Economics of change
- Centre for sociological history of law and legal systems
  - History of law (legal theory and practice)
  - Geopolitics of peace processes
  - Geopolitics of migration
  - Geopolitics of democracy

### Department of History and Theory of the Arts

- ARIAS: intermediality, performing arts
- Institute for modern texts and manuscripts
  - Genetics of film
  - Genetics of painting
  - Genetics of theatre
- French national centre for museum research and restoration
  - Centre Louis and Charles Blanc (19th century)
  - Centre Pierre Francastel (20th century)
- Entretiens centre for musicology
- Institute Jean Nicod
  - Language, communication and cognition
  - Nature and role of mental content
  - Perception and action
  - Society, culture and cognition
- Cognitive science and psycholinguistics laboratory
  - Early language acquisition
  - Bilingualism
  - Dyslexia
  - Language and higher cognitive functions
  - Functional plasticity of language
- Institute of history and philosophy of science and technology
  - Philosophy and history of logic and mathematics
  - Philosophy and history of biology and medicine
  - Philosophy of complex systems
  - Philosophy and history of psychology
- Audition laboratory: psychophysics, modelling, and neuroscience
  - Treatment of the acoustic signal
  - Organisation of auditory scenes
  - Perception of auditory attributes
  - Temporal treatment of tone series
- Cognitive neuroscience laboratory
  - Cognitive architecture and functional organisation of neural mechanisms involved in planning movement
  - Motor control and sensory-motor pathways
  - Cerebral system for perception and production of speech
  - Central executive function and the prefrontal cortex
  - Cerebral bases of social cognition

### Department of Cognitive Studies

- Interventional neuropsychology unit
  - Aphasiology
  - Huntington’s disease and the striatum
  - Language and social cognition disorders
  - Disorders of naming
- Cognitive neuroscience laboratory
  - Modelling neural representations of sensory and motor information
  - Distributed coding and functional cognitive architecture
  - Long-term plasticity and implications for perceptual learning
- Theoretical linguistics group
  - Phonology
  - Syntax
  - Semantics
  - Pragmatics
  - Cognitive mechanisms underlying linguistic ability
  - Language acquisition
PRIZES AND AWARDS

Nobel Prizes

Nobel Prize for Physics

Nobel Prize for Chemistry
Paul Sabatier, 1912.

Nobel Prize for Literature
Romain Rolland, 1915; Henri Bergson, 1927; Jean-Paul Sartre, 1964 (refused the prize).

Nobel Prize for Economics
Gérard Debreu, 1983.

Fields Medals winners

Academiciens currently at the ENS

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Académie française

Académie des Inscriptions et Belles-Lettres

CNRS Gold Medals
L'École normale supérieure

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Assistant Director - Humanities & Social Sciences: Jean-Charles DARMON
Assistant Director – Sciences: Yves GULDNER • Registrar: Marylène MESTON DE REN

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