Higher Education in Switzerland

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with the support of Presence Switzerland and the Swiss University Conference

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Distribution

Further copies of this publication may be ordered from the editors.

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ISSN 1424-3342

03.06 10,000 860

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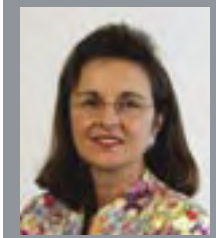
Charles Kleiber
State Secretary for Education and Research



Ursula Renold
Director, Federal Office for Professional Education and Technology

Dear reader,

Higher education in Switzerland has the following essential characteristics: institutional diversity, comprehensive choice of education with the accent on continuity and modernity, the competitive quality of its teaching and research and its internationality.

Swiss universities offer a rich education programme at various tertiary levels. This offer ranges from classical university disciplines to the most up-to-date education and research branches which respond to and advance continuing developments in knowledge and in turn meet the rapidly changing needs of students, society and the economy.

Although Switzerland as a tertiary education centre encourages creative dynamism, one factor remains unchanged: the desire to achieve excellence. This is possible through the generous investments of federal and cantonal authorities in the tertiary education sector. The positive impact of these investments can be seen in the audits, the peer reviews and evaluations focusing on specific study programmes, individual institutions or the whole tertiary education system in Switzerland which, most recently in 2003, was the subject of a report by OECD experts.

The quality of tertiary education in Switzerland becomes apparent when looking at the number of leading positions held by the Swiss education and research community in international statistics and rankings. An indication of Switzerland's openness to the world as a tertiary education centre is the pending completion by Swiss universities of the adaptation of their curricula to European-wide standardisation reforms introducing Bachelor's, Master's and PhD courses and degrees which are crucial for easier academic mobility internationally. We also look with pride at the figures reflecting the degree of internationalisation at Swiss universities: one-fifth of the student body, more than half the post-doctoral students and around one-third of the teaching body are non-Swiss nationals.

We are sure that this publication will help give you a better idea of Switzerland as a tertiary education centre and we wish you interesting reading.

Switzerland, a cultural crossroads

In terms of area and population, Switzerland is one of the smallest countries in Europe – some 7.3 million people live in an area nine times smaller than that of Germany. However, for such a small country, Switzerland has a surprising ethnic, linguistic and cultural diversity.

In the heart of Western Europe

Switzerland's central position in Western Europe places it at the crossroads of several different cultures. It has no fewer than four official languages: German (spoken by nearly two-thirds of the population), French (one-fifth), Italian (less than 10 %) and Rhaeto-Romansch (less than 1 %). The remaining 10 % speak other languages, a phenomenon explained by the fact that one-fifth of the population consists of foreign residents.
The frontiers of the linguistic communities do not always coincide with political frontiers. Thus, some cities, cantons and regions are bilingual.

75 % of the people live in urban areas

Although more than two-thirds of the area of Switzerland is covered by the Alps, the Alpine foothills and the Jura hills, the country is heavily urbanised. The urban zones, which are situated in the plateau area, are home to three inhabitants out of every four.
Zurich is the largest centre with just over one million residents, ahead of Basel (480,000) and Geneva (470,000). If you take into account the fact that Basel and Geneva straddle international borders, the number of residents on both sides increases to 690,000 and 670,000 respectively. The next largest centres are Bern (350,000) and Lausanne (310,000).

A modern, high-performance economy

The Swiss economy is characterised by its modernity, a high degree of specialisation and a strong predominance of the tertiary sector. Its high performance is based largely on its small and medium sized enterprises (SMEs), which represent 99 % of the economy and 75 % in terms of numbers employed. It is also due to the fact that Switzerland is home to the headquarters and/or key decision-making centres of numerous multinationals, both Swiss and foreign. Among the Swiss names are Nestlé for food products, UBS for banking and Novartis, Roche and Serono for pharmaceuticals.

A little history

1291 is traditionally considered to be the year in which the Swiss Confederation was founded. This was the year in which three communities, corresponding to three present-day cantons, concluded an alliance with a view to mutual protection against all attempts by potential "liege lords" to infringe upon their liberties.

At this stage, Switzerland was not yet a state, but a flexible association of autonomous entities. Other cantons joined this alliance at later dates.

The federal state was born in 1848. At the time, the cantons united and transferred part of their sovereignty to the Confederation, agreed on a federal constitution and made Bern the national capital. After the United States of America, the Swiss Confederation is the oldest of the 23 federal states that exist worldwide.

For further information:

www.swissworld.org
your gateway to Switzerland

www.admin.ch
the official website of the Swiss Confederation

www.parlament.ch
the official website of the Swiss Parliament

www.swissinfo.org
the news and information platform in nine languages of the Swiss Broadcasting Corporation, SRG SSR idée suisse.

Two-thirds of the area of Switzerland is covered by mountains.

GDP per capita in Switzerland is some 18% higher than in the European Union. The working population is split between the service sector (71%), industry (25%) and agriculture (4%). In 2004, the unemployment rate was around 4%.

An export-led economy

In general terms, the Swiss economy is largely export-led. The per capita value of exports is nearly twice that of the EU. In some sectors, more than 90% of goods and services are exported. The best known examples are watches, chocolate and cheese. Mechanical engineering, electrical engineering and chemical products however account for more than half of Swiss export revenue. A large majority of these exports go to EU countries.

Three levels of federalism: cantons, communes, the Confederation

Switzerland is a federal state. The *cantons* are the historical substrate of the Swiss Confederation (see "A little history", p. 8). There are 23 full cantons and six half cantons. The cantons and the half cantons have their own constitutions, parliaments, governments and courts as well as extensive rights in fields such as education, public health, land management, law and order, and judicial organisation.

The cantons are themselves sub-divided into *communes* – entities with a greater or lesser degree of autonomy depending on the canton. There are currently more than 2,800 communes. The trend is towards a smaller number, as the desire for greater efficiency leads in some cases to mergers.

In general terms, the Confederation has responsibility for all areas of broad national interest, i.e. defence, foreign affairs, currency, postal services and railways. The division of responsibilities between the Confederation and the cantons is fixed by the Constitution, which rules that the cantons "exercise all rights that are not delegated to the federal authorities".

However, this division of duties is not set in stone. The Confederation and the cantons cooperate closely and offer each other mutual support. For example, the cantons are consulted with regard to certain federal projects, in particular those involving proposed laws. The expression "cooperative federalism" is used to describe this system, which applies, for example, in the area of higher education (see p. 14).

Switzerland's capital is Bern and since 1848 has been the seat of government and parliament.

Federal parliament: representing people and cantons

At the federal level, the parliament is divided into two chambers with the same responsibilities. Together, they constitute the United Federal Assembly. In the National Council, each canton sends a number of elected representatives, proportional to its demographic weight. The National Council is also called the "People's Chamber", while the second chamber – the Council of States – is known as the "Cantonal Chamber" where each canton has two representatives (or one in the case of half cantons).

This bicameral system reflects two principles fundamental to the political organisation of the Swiss state: democracy, with every vote having the same weight, and federalism, with all the cantons enjoying equal rights.

A seven-member government

Executive power at the federal level is embodied in the Federal Council, or government, whose seven members are elected by parliament. The members take it in turn to assume the role of president of the Confederation, for a period of one calendar year. Tradition also has it that the members of the Federal Council are drawn from the four largest political parties in the country.

Extensive popular rights

Direct democracy is strongly anchored in the Swiss system at each of the three federal levels. Swiss voters elect members of parliament directly, and the same goes for government members, with the exception of the Federal Council. Furthermore, important issues are put to nationwide votes, either for constitutional reasons or because the requisite number of citizens demand it. Depending on the type of vote in question, approval requires either a simple majority or a majority of both voters and cantons (double majority).

International involvement

Swiss foreign policy respects the basic principle of neutrality. However, that does not prevent Switzerland from being active on the international stage. The country is a member of the UN, and Geneva is home to many key UN organisations.

Switzerland is also deeply involved internationally in humanitarian work, and numerous international organisations are based in the country – such as, the International Committee of the Red Cross, which was founded in Geneva in the mid-19th century.

It is also worth mentioning that a large number of sporting associations are based in Switzerland, such as the International Olympic Committee (IOC), the Fédération Internationale de Football Association (FIFA) and the Fédération Internationale de Volleyball (FIVB).

Close links to the EU

Although it is not a member of the European Union (EU), Switzerland maintains close relations through bilateral agreements, which strengthen political contacts where institutionalised cooperation is necessary.

On 1 June 2002, seven bilateral accords between Switzerland and the EU entered into force. They cover the following areas: free movement of persons, overland transport, civil aviation, agriculture, research (see page 25), technical barriers to trade, and public procurement.

Free movement of persons

The transition towards the free movement of persons will comprise several phases. Since 1 June 2003, Swiss citizens have free access to the labour markets of the 15 "historical" EU member states. Under this agreement, an EU employer can hire Swiss candidates without having to go through an authorisation procedure. In the same vein, Switzerland has abolished the principle of priority for indigenous workers. However, a quota system will remain in force until 2007 for EU nationals entering Switzerland for the first time.

Thanks to these agreements, Switzerland is also included in the EU system of mutual recognition of diplomas and qualification certificates, with the exception of academic qualifications. It guarantees the recognition of diplomas allowing holders to practice professions governed by individual national regulations, i.e. those that require a specific national diploma or certificate of proficiency.

A second package of bilateral accords relating to economic interests and internal security was approved by Swiss voters in 2005.

Switzerland's education system

The Swiss education system can be divided roughly into four levels: primary, secondary, tertiary and quatenary. Compulsory schooling includes the primary and a part of the secondary level (secondary level I) which correspond to stages 1 to 2A in UNESCO's International Standard Classification of Education (ISCED). A comparison of the other levels with the ISCED is shown in Figure 1 (see p. 12).

Following compulsory education, Swiss students can take one of two directions: one leading to a sound general education, the other to preparation for a specific trade or profession. The streaming continues at the higher education level with the federal professional and higher qualifying examinations as well as the colleges of higher vocational education and training (Tertiary B level) on the one hand and the universities and the universities of applied sciences (Tertiary A level) on the other hand. All levels include a broad selection of continuing education possibilities.

Traditionally, great value is placed on the apprenticeship system in Switzerland. A clear majority of young people in Switzerland take the apprenticeship route instead of education at secondary level II mainly because of the broad range of higher professional training and an interesting educational payback. That explains why the 25% of students who graduate from secondary school or professional matriculating school is considered modest by international comparison.

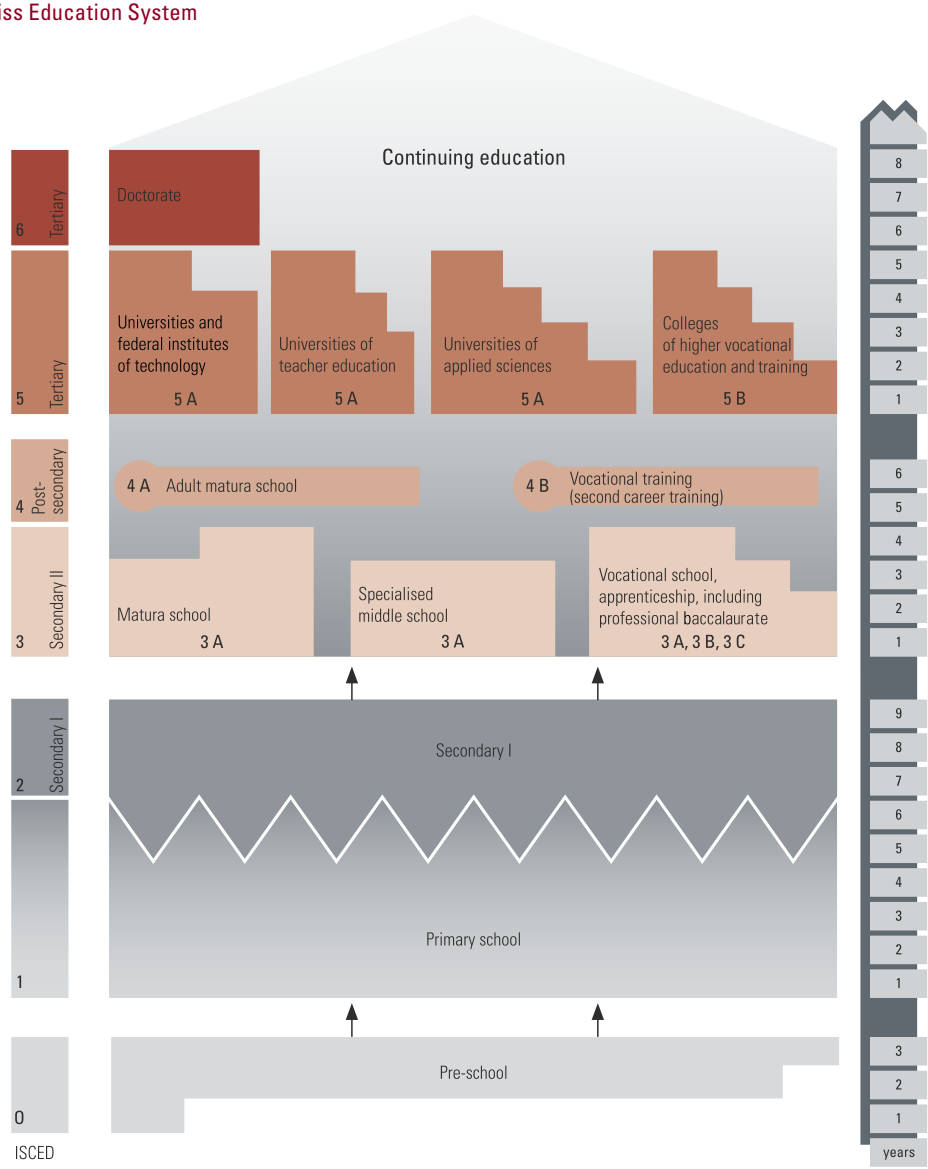
Compulsory education: primary level and secondary level I

The system varies from canton to canton with primary education constituting from four to six years of the nine-year compulsory education period. The admission age throughout Switzerland is six. Pre-school children attend kindergartens for one to two years.
After four to six years of primary tuition pupils complete their compulsory education at secondary level I.

Secondary level II: vocational or general education

Secondary level II constitutes the first phase of non-compulsory education. A wide variety of education is available at this stage with periods of training varying greatly in duration – usually between two and four years – and in the type of final qualification.

Figure 1: Diagram of the Swiss Education System



Source: Swiss Conference of Cantonal Ministers of Education 2005

There are four types of education open to students at secondary level II:

- After completing their compulsory education two-thirds of the students take an *apprenticeship* with on-the-job training and theoretical courses at a vocational school. There are more than 300 recognised trades open to school leavers. Another less usual method of learning a trade is full-time education at a vocational school. On completing this type of vocational education and training, graduates receive a diploma called the advanced federal certificate.
- Either during or after their apprenticeship, students can attend further courses to qualify for a *professional baccalaureate*. On the basis of this certificate they can be admitted to the universities of applied sciences without the necessity of sitting an entry exam. By taking a supplementary examination it is possible to study at a university.
- *Matura schools* (names in Switzerland vary depending on the canton: cantonal school, grammar school, lycée) give pupils a broad general education in seven basic subjects, a major subject and a minor. Matura schools are the usual route taken by those who wish to go to university.
- *Specialised middle schools* teach both general and specific subjects such as those required for certain professions in health and social work, education, music and arts. In addition students can earn a professional graduating certificate after taking additional practical training or courses.

Admission to the various types of education depends on the general academic standard achieved during compulsory schooling. Statistical information about the general standard of education among the population of Switzerland can be found on page 38.

Tertiary level: a multitude of choices

At the tertiary level in Switzerland there is an extensive choice of education. At the Tertiary A level there are two types of higher education institutes with differing educational thrusts: firstly the traditional universities including the cantonal universities and the federal institutes of technology, where instruction is centered on basic research. Secondly there are the universities of applied sciences whose teaching is based on applied research. In addition there are many options in the field of higher vocational education and training (Tertiary B level) with the practically oriented certificate and diploma exams and courses at the colleges of higher vocational education and training.

Private schools

Switzerland also has numerous private schools providing an alternative to state-run schools at primary and secondary levels I and II. About 5 % of all pupils complete their compulsory education at private schools.

Half of all institutes active in the higher vocational training sector are privately run.

Private institutes also play a major role in continuing education.

As in most parts of Europe the higher education landscape in Switzerland is dominated by public (state) institutions. There are no nationally recognised private universities. However, the first private university of applied sciences was recognised by the Federal Council in 2005.

Federalist organisation

The education system is a reflection of Switzerland's federal system. Confederation, cantons and communes (municipalities) share supervisory responsibility for various parts of the system.
The Constitution places responsibility for education in the hands of the cantons. They have to ensure that all children receive adequate basic education. Sole responsibility for pre-school facilities and compulsory schooling (primary and secondary level I) also lies with the cantons. This task is fulfilled in close cooperation with the municipalities that run kindergartens, primary schools and level I secondary schools.

National coordination

The 26 cantonal school systems are harmonised to a great extent. All cantonal legislation is based on the same sources to enforce similar principles. The cantonal ministers of education are represented on the Swiss Conference of Cantonal Ministers of Education (EDK) whose task is the overall coordination of education in schools. The EDK issues guidelines pertaining to the content of instruction and school organisation and concludes agreements ensuring mutual recognition of diplomas and schools.
The Swiss Constitution stipulates that education in state-run schools should be of good quality, provided at no cost and be non-confessional.

Administrative structures

As a rule each canton has its own education department. The same arrangement is repeated in the municipalities with the scale varying in relation to the size of the community. At federal level competence for education is allotted to a number of departments so each sector is guaranteed the necessary attention (see p. 23).
To supervise the universities the Confederation and cantons cooperate closely through the Swiss University Conference (SUC), a body set up specifically to manage the affairs of the universities (see p. 22).

Supervision at secondary level II

Either the Confederation or the cantons regulate secondary level II depending on the sector concerned.
Competence for vocational education and training lies with the Confederation which regulates the legal requirements for all trades and professions and cooperates with the cantons and professional organisations in developing ordinances for vocational education. The cantons are responsible for basic professional education such as vocational schools and vocational guidance.
The cantons are also responsible for the courses at matura schools and general education institutes. The Confederation recognises their diplomas if they meet the set requirements.

Supervision at the tertiary level

Competence at the tertiary level is also clearly defined: this is shared by the Confederation, the cantons and professional organisations.

The Confederation:
- supervises and funds the federal institutes of technology;
- is responsible for promotion of research;
- legislates on higher vocational education and training and the universities of applied sciences;
- funds vocational education and training, the universities of applied sciences and cantonal universities

The cantons:
- are responsible for the universities and are their main source of financial support;
- run the universities of applied sciences and many colleges of higher vocational education and training;
- supervise the universities of applied sciences

Finally, employers and professional organisations are responsible for certificate and diploma exams of higher vocational education and training and some of the colleges of higher vocational education and training.

A closer look at the tertiary level

The choice of tertiary-level education is large and varied. The institutes of higher education can be separated into two types having the same status but with different educational goals: the traditional universities and the universities of applied sciences (UAS). The main task of the universities is to carry out basic research and teaching while the universities of applied sciences place a greater emphasis on practically oriented studies and on applied research and development.

The universities

The term universities includes the cantonal universities and the federal institutes of technology whose main tasks are teaching, research and provision of services. While the universities have extensive academic, financial and organisational autonomy, the Swiss University Conference SUC (see p. 22) is responsible for coordination at the national level.

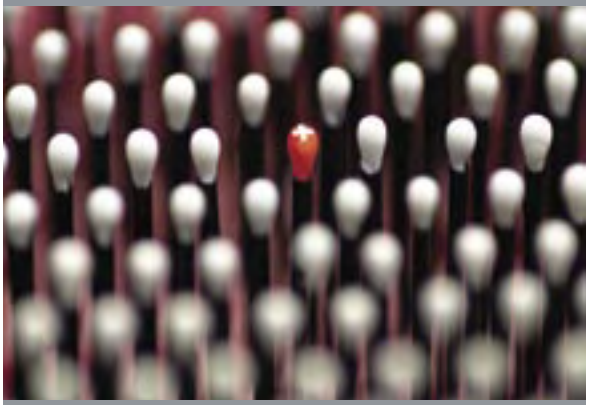
In the 2004/2005 winter semester there were approximately 111,000 students enrolled at all the universities. At the same time around 29,000 full-time staff (professors, lecturers, assistants, administration) were working at the universities.

The annual budget for the universities is currently CHF 4.9 billion (a little more than € 3.3 billion) of which 46 % comes from the Confederation, nearly 40 % from the cantons and the other 15 % from other sources.

The financial structure of the federal institutes of technology (ETH) and the cantonal universities is different. For example the state-financed federal institutes of technology receive the lion's share of the Confederation's funding earmarked for universities. The cantonal universities are funded differently: on average the home canton bears 56 % of costs while the Confederation supplies 25 % of the required budget. These 25 % include the research subsidies from the Confederation paid through the Swiss National Science Foundation (see p. 30).

Federal Institutes of Technology

Switzerland has two federal institutes of technology (ETH): one in German-speaking Zurich and one in French-speaking Lausanne. Along with four other research institutions these constitute the so-called ETH domain (see p. 29). The ETH Board is responsible for strategic management of the ETH domain.



World-class excellence: the goal of the federal institutes of technology and the other Swiss universities.

Target – excellence in a worldwide context

The ETH domain aims at excellence in all its fields of activity: research, teaching, technological innovation and provision of services for society. Science and engineering and architecture are the core subjects taught at the ETH. Although courses in natural sciences and architecture are offered by some cantonal universities, the ETH are the only universities in Switzerland with a science and engineering curriculum.

The ETH domain has achieved distinction through its work in promising fields of research and in implementing new technologies. It is the driving force behind the technological and economic implementation of knowledge. Its activities include mainly areas with a strategic importance for Switzerland's competitiveness, e.g. the life sciences, nanotechnology and information and communications technologies.

Strategic and operational freedom

The ETH domain has been accorded the necessary academic independence and freedom, essentials for a leading research institute competing in a constantly changing environment. The Federal Council's performance mandate to the ETH domain is kept general but determines that excellence in research at international level is a prime requirement. One line in the mandate suffices to define the budget of the ETH domain: currently it is CHF 2 billion per annum (€ 1.3 billion).

The ETH Board confines itself to strategic management issues and in consultation with each institution in the domain establishes broadly formulated performance mandates. Institution presidents and directors are granted extensive freedom to direct operations.

Cantonal universities

Switzerland has 10 cantonal universities. Five are located in German-speaking Switzerland: in Basel, Bern, Lucerne, St Gallen and Zurich. The Universities of Geneva, Lausanne and Neuchatel are situated in the French part of Switzerland. Finally, the University of Italian-speaking Switzerland is situated in Lugano and there is a bilingual university at Fribourg (German and French).

Some universities can look back on long academic traditions. For example the University of Basel, Switzerland's oldest institute of higher education, was

founded in 1460. The Universities of Geneva and Lausanne followed some decades later; many of the other universities were founded more recently. The newest, the University of Italian-speaking Switzerland, was established in 1996.

Small is beautiful

This diversity – carefully cultivated by policies combining the best of competition and cooperation (see p. 22) – is one reason for the quality of higher education in Switzerland. Federalism in the education system has hindered the "mass production" phenomenon observable in some countries resulting also in even distribution of students to easier-to-manage small and medium-sized universities. The largest institute, the University of Zurich, has 24,000 enrolled students; the smallest is the University of Lucerne with 1,700.

Broad choice of courses

Most of the cantonal universities offer majors in law and social sciences, mathematics and natural sciences, and the humanities. Half of the universities have their own faculty of medicine. Some universities have a more specific profile and concentrate on fewer disciplines.

Apart from medicine, which requires the longest study period, most courses can be completed in eight semesters to which one further semester is added for the diploma or licentiate thesis. In practice, courses last an average of 12 semesters. The structure of studies depends greatly on the faculty involved. Generally students commence with a basic course of studies ending with an exam leading to a diploma or licentiate course during which specialisation begins. Currently, as in many other European university systems, these structures are under review (see p. 25).

Special agencies for continuing education

The traditional universities are very active in the fields of continuing education and postgraduate studies. All universities have established a department devoted to this sector.

Postgraduate studies and continuing education courses may span a number of semesters, the cost of which is mainly borne by students.

Founded in 1996, the Università della Svizzera italiana is Switzerland's newest tertiary-education institute.

Specific programmes aimed at promoting a new generation of scientific talent enable excellent researchers to follow academic careers under the best conditions.

Institutions with clearly defined goals

In addition to the traditional universities and universities of applied sciences, there are a number of smaller, internationally renowned institutions that provide specific tertiary-level education and are entitled to issue diplomas. These receive state subsidies and some are affiliated to a university.

Among such institutes are the Graduate Institute of International Studies in Geneva (IUHEI, heiwww.unige.ch), the Swiss Graduate School of Public Administration in Lausanne (IDHEAP, www.unil.ch/idheap), Kurt Bosch Graduate Institute in Sion (www.iukb.ch) that specialises in interdisciplinary postgraduate studies, and the Graduate Institute of Development Studies in Geneva (IUED, www.unige.ch/iued).

An academic career?

The ETH and the cantonal universities are authorised to award doctorates. These are granted on the basis of extensive personal research work. Professorships at German-Swiss universities are obtained on the basis of a habilitation thesis, similar to the system in Germany. The professorship is in effect a second doctorate and the habilitation thesis is even more comprehensive than that required for the initial doctoral degree.

Both federal institutes of technology have instituted a tenure-track procedure for young researchers enabling them to plan an academic career. This has made both institutes very attractive employers for young scientists from all over the world.

To encourage upcoming academics, professorships have been set up at the cantonal universities and the ETH; the Swiss National Science Foundation publishes regular calls for proposals for such professorships (see p. 30). Such arrangements pave the way for the careers of young academics enabling them to begin their career under the best possible conditions.

Networked universities

During the past 10 years within Switzerland and across its borders, university networks have arisen from the bottom up which stimulate scientific quality through the combination of complementary strengths and which promote mobility among students and researchers.

One example of the benefits from such networks is the cooperation between the universities of Bern, Fribourg and Neuchatel, which are fairly near in geographical terms; they have harmonised teaching and research in specific sectors and now even offer a joint diploma in earth sciences. Closer relationships have been forged among the cantonal universities and the ETH: for example the University of Zurich and the ETH Zurich or the three universities located on the Lake of Geneva (University of Lausanne and the ETH Lausanne, University of Geneva) which have established a common network for teaching and research in the field of life sciences. The University of Italian-speaking Switzerland cooperates closely with a number of universities in neighbouring Italy and the University of Basel is also a member of the EUCOR network facilitating cooperation with universities in Germany and France in the Upper Rhine region. Swiss universities are offered financial incentives to increase the networking process.

Universities of applied sciences

By providing practice-oriented university education the universities of applied sciences (UAS) prepare students for employment requiring the application of scientific findings and methods or the use of the applied arts.

The tasks allotted to the UAS are as follows:

- provide practice-oriented education,
- carry out applied research and development,
- provide continuing education,
- provide services for companies and public bodies,
- cooperate with education and research institutes in Switzerland and abroad.

Supra-regional institutes

On a national level there are seven public UAS. Each amalgamates a number of educational institutes located in a specific geographical area. Four are located in German-speaking Switzerland (UAS of Central Switzerland, UAS of Eastern Switzerland, UAS of Northwestern Switzerland, UAS of Zurich), one in Western Switzerland (Haute Ecole Spécialisée de Suisse occidentale), one in Italian-speaking Switzerland (Scuola Universitaria Professionale della Svizzera italiana) and one in Bern, which is bilingual (UAS of Bern: German and French).

The main thrust of the education offered by the universities of applied sciences is in the following fields: general technology and information technology, architecture, construction and planning, chemistry and life sciences, agronomy and forestry, economics and services, design, public health, social work, music, the performing and other arts, applied psychology, applied linguistics and sports.

Added to this are the universities of teacher education. In contrast to the UAS, these are regulated and financed by the cantons that have mutual agreements to recognise diplomas.

Numerous continuing education courses

The seven UAS offer around 300 study courses. A full-time study course at a UAS generally lasts three years. Part-time courses, taken while employed, last between four and five years. In preparation for the transition to the new European study structure (Bologna process, see p. 25) modular study pro-

grammes have been introduced. For the same reason the European Credit Transfer System is now also in use (see p. 26).
In response to the needs of the economy the UAS are also very active in the field of continuing education. A total of around 1,000 continuing education and postgraduate courses and studies are on offer.

Increasing numbers of students

The young UAS (see p. 21) are attracting more and more students. At present 49,000 are enrolled throughout Switzerland, and numbers are still climbing. The two biggest UAS are the ones in Western Switzerland with an enrolment of 10,900 and Zurich with 10,100 students. Approximately 25,500 professors, lecturers, assistants and administrative personnel are employed in this sector which corresponds to 8,000 full-time positions. Two-thirds of these are in teaching and research.
On average, throughout Switzerland, the UAS receive 52% of their funds for the technology, economics and design sectors from the cantons, state subsidies make up 28% and the remaining 19% is supplied by third parties (contract research). In 2003, the total budget for all seven UAS was slightly more than CHF 900 million (approx. € 600 million).

Higher education in transition

Higher education in Switzerland is presently undergoing a major process of reform. In view of an educational environment marked by sharply increasing international competition, highly ambitious targets have been set to ensure that Switzerland is up to the challenges of the new millennium.

For the federal authorities it is important that the scientific system offers a creative environment that attracts the crème de la crème of teachers and scientists, produces the best students, is ready to cooperate with the best public and private firms and is open to society.

The same objectives are pursued on a cantonal level. Thus, all cantons with a university have amended their laws in recent years, mainly in order to redefine the relationship between politics and academia.

Dual system for education and research

One of the most important reforms was the establishment of the universities of applied sciences (UAS) with the aim of creating an internationally competitive higher educational system in Switzerland, based on a dual model: on the one hand, the universities in the traditional sense to which access is possible on the basis of a general educational background; on the other hand, the above-mentioned universities of applied sciences, which are practice- and application oriented. This model also applies to research: traditional universities are primarily engaged in basic research whereas the UAS cover the fields of applied research and development.
Since the middle of the 1990s, the UAS have developed from existing institutions. The current partners of the seven regional UAS are the result of the transformation of a part of the colleges of higher vocational education and training.

More autonomy

The amendments to the laws on a cantonal level have brought universities a higher degree of autonomy. The relations between cantonal governments and universities take the form of a mandate to provide services within the frame of a global budget.
Within its field of competence, the Confederation has equally granted more autonomy to the ETH domain (see p. 15).
More autonomy requires new mechanisms for quality assurance. Therefore, in 2001 the Confederation and cantons created The Centre for Accreditation and Quality Assurance of the Swiss Universities OAQ, whose job is to ensure

and promote the quality of research and teaching at universities as well as to certify study programmes and institutions.

Bachelor-Master-PhD

At the moment around 45 countries in Europe including Switzerland are working intensively to harmonise the structure of higher education. The model provides for a division of studies into three levels, as is already customary in Anglo-Saxon countries: Bachelor, Master and PhD. This reform not only concerns the structure of studies, but is also an opportunity to reconsider contents and forms of education. All Swiss institutions of higher education have already made great progress in this major reform.

Excellence in networks

Federal policy in the sphere of education, research and technology for the years 2004 to 2007 has four priorities:

- update the teaching structure
- increase research activities
- promote innovation
- intensify national and international cooperation

Efforts are being made to achieve closer cooperation between the universities. The target is to create networks in the field of tertiary education in order to better exploit the existing potentials. There is also another important principle: Quality must have priority over quantity. Preferential treatment must be given to internationally recognised competencies and domains with a promising future.

The policy of increasing excellence requires more cooperation, but also creates more competition among the universities. The National Centres of Competence in Research which are part of the Swiss National Science Foundation are a good example of this procedure (see p. 30).

Quality-related subsidies

In order to achieve this target, financial incentives have been created. According to the new Federal Act on Aid to Universities and Cooperation in Higher Education, which entered into force in 2000, the quality of services is a decisive factor for the assessment of direct federal subsidies for the cantonal universities.

Thus, the finances allocated to education depend on the number of registered students, whereby the number of foreign students is a particularly important factor. In the field of research, subsidies depend on the amount of funds which can be raised by an institution of higher education from the Swiss National Science Foundation, the Innovation Promotion Agency CTI, from international programmes (especially within the EU) and from private sources.

Common body of the Confederation and the cantons

The new Federal Act on Aid to Universities has also improved cooperation between the Confederation and cantons through the establishment of the Swiss University Conference SUC. This joint body of the Confederation and the cantons defines and realises a common policy concerning schools of higher education on a national level.

Endowed with the power of decision in certain sectors, the SUC plays a major role in establishing a network among the universities according to the principles of cooperation and competition. It is in charge of enacting directives on the normal term of studies and the recognition of acquired knowledge as well as of certification of institutions and courses. The SUC also supervises the Centre for Accreditation and Quality Assurance of the Swiss Universities.

Support for projects of national importance

The Confederation also financially supports projects of national importance. These include different university cooperation and innovation projects, as well as the Foundation “Science et Cité” (Science and City) which promotes the dialogue between science and society.

Furthermore, the Confederation supervises and supports two programmes to help achieve important strategic targets at the universities: the Virtual Campus Switzerland, which is intended to exhaust the potential of information and communication technologies for advanced education, as well as a federal programme entitled “Equal Opportunities for Women and Men” which aims to improve this situation, primarily by increasing the number of women professors.

Improvement of cooperation between the Confederation and cantons

Although numerous forms of cooperation contribute to a coordinated control of the academic system, some improvements are still possible.

The Centre of Accreditation and Quality Assurance of the Swiss Universities proves that research and teaching at Swiss universities can compete on an international level.

Therefore, new constitutional articles are being discussed including one for the institutions of higher education. These articles are intended to simplify the separation of responsibilities between the Confederation and cantons and to improve cooperation between these two political levels.

Who's who at the federal level

The *Federal Department of Home Affairs DHA* and the *Federal Department of Economic Affairs DEA* are responsible for pushing ahead with these reforms. Both departments cooperate closely in defining and implementing the science policy of the Confederation.

Within the DHA, the *State Secretariat for Education and Research SER* is the competent authority for all national and international questions related to education in general, university education, basic and applied research and space affairs.
On the national level, the SER assists the cantonal universities, the institutions for the promotion of research, among them the *Swiss National Science Foundation SNF* as well as about 20 research institutions. Its international activities include the financing of Swiss activities within international research organisations, such as ESA or CERN, and participation in international education and research programmes, especially in those of the EU. Moreover, the SER develops Switzerland's bilateral links for scientific cooperation with the help of Swiss science consulates and a network of science and technology counsellors (see p. 28).
The ETH domain is affiliated with the SER.

Within the DEA, the *Federal Office for Professional Education and Technology OPET* is the competence centre of the Confederation for all questions concerning vocational education and training, universities of applied sciences and innovation policy. The *Innovation Promotion Agency CTI* (see p. 31) is affiliated to this office.
The *Federal Commission for Universities of Applied Sciences FCUAS* also forms part of the DEA. It is the consultative body of the Federal Council for all questions regarding universities of applied sciences, especially questions concerning the approval of UAS and recognition of their diplomas.
The *Swiss Science and Technology Council SWTR* is composed of recognised scientists and acts as the independent advisory body to the Federal Council for all matters related to science, education, research and technology. Its members are chosen directly by the Federal Council.

Bodies at the cantonal level

The cantons and universities have created the necessary bodies to ensure national coordination in their area of responsibility and to be able to take a common position on issues of science policy.

The cantons have a common organisation, the *Swiss Conference of Cantonal Ministers of Education EDK*, whose main task is to coordinate and harmonise cantonal policies on the level of primary and secondary schools which are mainly the responsibility of the cantons. The EDK itself has established its own Higher Education Council as a body for the coordination of UAS and the universities of teacher education. In addition, the EDK has other bodies for intercantonal burden sharing.

Coordination at the university level

In order to promote common actions and to defend their interests, the universities have established the *Rectors' Conference of Swiss Universities CRUS*, where all rectors and presidents of the universities are represented. The CRUS is involved in coordination and cooperation concerning education, research and services. Its tasks include strategic planning for the universities as well as the coordination of the implementation of the Bologna Declaration in these institutions.

The operational directors of the seven universities of applied sciences have joined the *Swiss Conference of Universities of Applied Sciences* and have similar competencies. Furthermore, a *Swiss Conference of Rectors of Schools for Teacher Education* has been established for universities of teacher education.

Integrated into the international knowledge network

For a small country like Switzerland it is extremely important to be integrated as much as possible into the European and global knowledge networks. Against this background, the Federal Council decided on the following priorities in international cooperation during 2004-2007:

- participation in the development of the European higher education and research area;
- further development of cross-border cooperation with neighbouring regions;
- support for the international scientific and technological cooperation of Swiss tertiary education institutes.

Participation in numerous research programmes

In order to realise the first target, active participation in European and global research programmes and organisations is indispensable. Since 1992 Switzerland has been participating in the framework programmes of the European Union (EU). These programmes are the most important instrument for the EU to promote science, research and innovation. With a budget of € 17.5 billion for 2002–2006, the sixth framework programme aims above all at the creation of a European research area. A bilateral agreement with the EU makes it possible for Switzerland to fully participate in this area.

Switzerland is also represented in numerous other European and international institutions and programmes. Among them are the European initiative EUREKA with its economy-oriented research and development projects, the Human Frontier Science Programme HFSP in neurobiology and molecular biology, the European Space Agency ESA and the European Organisation for Nuclear Research, CERN, on the Swiss-French border in Geneva.

Harmonising the structures of studies in Europe

The participation of Switzerland in the creation of the European higher education area involves primarily the implementation of the Bologna Declaration and participation in the EU programmes for education, professional training and youth.

About 45 countries are affiliated with the Bologna Declaration which in 1999 was initially signed by 29 countries, including Switzerland. The goal is the improved mobility of students and researchers in the new knowledge-based Europe. To achieve this goal, the participating countries have agreed that all higher education institutions in Europe are to introduce by 2010 a two-stage

The "Globe of Science and Innovation" is the symbol of the European Laboratory for Particle Physics, CERN, on the Swiss-French border near Geneva.

education system corresponding to the one in Anglo-Saxon countries: In a first step, three years of basic studies will lead to a Bachelor's degree. In a second step, the Master's degree can be obtained after one and a half to two years of further studies. This system is completed by the doctorate (PhD).

Extensive implementation in Switzerland

The implementation of the Bologna Declaration in Switzerland is well underway. The two federal institutes of technology in Lausanne and Zurich already apply the new structure in all their courses. The cantonal universities have also adapted the majority of their courses. The first Bachelor's degrees in economics and law were granted in 2004; more than half of all students who entered a university in 2005 take Bachelor's courses. The universities of applied sciences changed to the new system at the beginning of the 2005/06 academic year.

Quality assurance constitutes another important part of the Bologna Declaration. Like other countries, Switzerland aims to reach this objective by introducing procedures of quality assurance and accreditation, based on European-level criteria and standards.

European education programmes

Indirectly, i.e. without formal agreement, Switzerland participates in the European programmes Socrates (general education), Leonardo da Vinci (professional training) and Youth (extra-curricular activities). The Erasmus exchange programme is very popular among Swiss students. Swiss participants in these EU programmes receive direct subsidies from the Confederation.

ECTS and diploma supplements

Swiss institutes of higher education also take part in the development of module systems facilitating the mobility of students by recognising study modules passed at other institutions. Consequently, all Swiss universities and universities of applied sciences are currently switching to the European Credit Transfer System ECTS or have already done so.

Furthermore, like many other European institutions, they issue diploma supplements. The use of such a document describing the specific qualifications of an academic title in a standardised manner is recommended by the Lisbon Declaration on the recognition of qualifications in higher education in Europe.

Bilateral agreements with neighbouring countries

The mutual recognition of education and diplomas by Switzerland and its immediate neighbours is of special importance. For this reason, bilateral agreements on the recognition of education and diplomas from institutes of higher education were concluded with Germany, Austria and Italy. In addition, a less comprehensive framework agreement exists between the conferences of university rectors in Switzerland and France.

Scholarships for foreign students

The Confederation grants scholarships, especially on a postgraduate level, to foreign students wishing to complete their education in Switzerland. Recipients of such scholarships are students, approximately half-and-half from the developing world and from industrialised countries, in the latter case on a mutual basis only. Originally reserved for university students only, such scholarships nowadays are also for the benefit of students at universities of applied sciences.

Development of international indicators

Another facet of Switzerland's international cooperation in the field of education concerns the research and development of indicators for various aspects of the knowledge society.

In this field, Switzerland is already active in multilateral agreements: in the OECD (Education Committee and Centre for Educational Research and Innovation CERI), in the Council of Europe (Steering Committee for Education) and in UNESCO (Council of the International Bureau of Education).

Creation of multinational areas of cooperation

Switzerland benefits from being anchored in three regions known to be among the most dynamic in Europe as far as industry and science are concerned: the Upper Rhine region (Germany and France), the Rhône-Alps region (France) and the Lombardy region (Italy). In addition, there are close ties between the Swiss and the French Jura as well as between the regions around Lake Constance (Germany, Austria and the Principality of Liechtenstein).

These international links of proximity must be further strengthened. Some projects of innovation and cooperation of the Swiss University Conference (see p. 14) are important first steps. Discussions are underway with Italian, German and French ministries as well as with various regional authorities

Switzerland: part of an international network of universities and research.

with the aim of going even further. The target is to create multinational co-operation areas based on the mutual recognition of institutions, degrees and acquired knowledge.

Global bilateral contacts

The Swiss universities and universities of applied sciences themselves have concluded a great number of bilateral agreements with institutions all over the world. The Confederation supports such initiatives not only through its involvement in Europe, but also by worldwide bilateral contacts. Apart from neighbouring countries, such contacts are developed with the USA and countries in the Far East.

In line with this activity, the Confederation has created so-called “Swiss Houses for Scientific Exchange” abroad. These scientific consulates help Swiss universities establish partnerships with universities in the respective regions, mainly for correspondence courses and the mobility of students, doctoral candidates and post-doctoral students, to simplify the return of researchers to Switzerland as well as to stimulate the valorisation of knowledge and the transfer of technology in cooperation with Swiss and foreign companies. So far, three such houses have been established in regions known for their special dynamism with regard to research and innovation: Boston and San Francisco in the USA as well as Singapore.

From the lab to the market

Switzerland's research landscape is very different to other European countries because of the dominance of the private sector with respect to provision of funding and implementation of findings. Private companies finance three-quarters of all research and development (R&D) while one-quarter of the money for R&D comes from the public sector and goes to research at universities. A few percent can be credited to private non-profit institutions and the Confederation (state), which also carries out limited research on its own behalf.

In the division of tasks between industry and the public sector, most basic research is done at the universities which account for 65% of all expenditure on such research. By contrast applied R&D (aR&D) is almost exclusively the domain of the private sector with almost 90% of the total.

Division of research among the universities

In the public sector the lion's share of basic research is carried out at the cantonal universities and in the ETH domain. The latter consists of both federal institutes of technology in Zurich and Lausanne, and four affiliated research institutes: the Paul Scherrer Institute (PSI), the Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), the Swiss Federal Laboratories for Materials Testing and Research (EMPA), and the Swiss Federal Institute for Environmental Sciences and Technology (EAWAG). The Swiss Federal Department of Agriculture also carries out research at six agricultural research stations.

The universities of applied sciences (UAS) specialise in aR&D. They focus closely on the needs of the economy, culture and the public sector. They are an essential link in the innovation chain and serve as enablers in the transfer process from the research laboratory to the marketplace.

A number of other research institutions benefit from public funding. Two examples are the Swiss Institute for Experimental Cancer Research (ISREC) in Epalinges near Lausanne and the Centre suisse d'électronique et de microtechnique (CSEM) in Neuchatel.

Finally, the federal administration also needs sound facts on which to base decisions. To gather such information, research is carried out by the government departments concerned or assigned to universities or private institutes.

Foundation for the promotion of basic research

The Swiss National Science Foundation (SNF) is the main public sector organisation promoting research in Switzerland. The foundation does no research

The National Research Programmes of the Swiss National Science Foundation help meet today's societal challenges.

in its own right but has a mandate from the Confederation to promote non-commercial research both in the universities and in other institutions. The SNF provides subsidies for basic research projects and has established career programmes to assist young researchers and professors.
In addition to promoting basic research projects in accord with international standards of scientific excellence, the SNF is charged with implementing the various national research programmes. These are the National Centres of Competence in Research (NCCR) and National Research Programmes (NRP).

National Centres of Competence in Research

The NCCRs aim to contribute to an improved research structure and to promote long-term scientific excellence. The NCCRs are active in areas of strategic importance for the future of science, the economy and society in Switzerland. Each NCCR has a "Leading House", which is usually attached to a university, and a network of research teams in Switzerland and abroad.
The distribution of NCCRs is based on a call for projects. In 2001 the SNF launched 14 NCCRs in the science and technology sectors. Topics being researched include genetics, nanosciences and the environmental sciences. In 2005, six more NCCRs are focusing on questions in the humanities and social sciences.
State subsidies to NCCRs are allotted for a maximum of 12 years and supplemented by the participating institutes' own funds and funds from third parties, frequently from private sources.

National Research Programmes

The Swiss National Science Foundation uses approximately 12 % of its budget on National Research Programmes. NRPs concentrate less on basic research than on solutions to problems of national importance, ranging from the current challenges facing society such as the problems of the social state, education and employment to sectors with major innovation potential such as supramolecular functional materials, implantations and transplantations. The Federal Council decides which projects will be carried out.

An innovation promotion agency

The CTI is the state innovation promotion agency affiliated to the Federal Office for Professional Education and Technology OPET; the agency's motto is "Science to market." Research findings from laboratories have to be trans-

formed more quickly into commercial products. To achieve this aim the CTI supports research partnerships between universities and private companies. As the essential link between laboratories and industry the CTI fulfils a vital role in the innovation chain by rapidly converting state-of-the-art laboratory findings into commercially viable products or services. The CTI encourages projects that lead to pooling and networking the private sector's innovation potential with the scientific and technological competence of the universities and other research institutions.
The CTI provides special incentives for applied R&D projects in the UAS, carries out technology-oriented programmes on behalf of the ETH Board and promotes industrial R&D projects in small- and medium-sized companies. In another initiative to give added impetus to research at the UAS, the CTI has founded the "National Competence Networks." These link not only the UAS institutes but also the traditional universities and institutes abroad. They lead to diffusion and development of scientific knowledge and competence benefiting students, the economy – SME's in particular – the cultural sector and society in general. The CTI's Start-up initiative supports newly founded companies by providing consulting services in the initial stages. To provide more support for entrepreneurship and encourage company startups this CTI initiative has been extended with the establishment of a national training course in entrepreneurship called Venturelab.

Recipe for success: close cooperation between Swiss universities and the private sector.

Academies disseminate knowledge

By disseminating scientific findings and financing publications the established scientific academies make a significant contribution to research promotion in Switzerland. The four traditional academies are: the Swiss Academy of Humanities and Social Sciences SAHSS, the Swiss Academy of Sciences SCNat, the Swiss Academy of Medical Science SAMS and the Swiss Academy of Engineering Sciences SAES.
In addition to the private and public sectors there are approximately 400 foundations actively engaged in R&D in Switzerland. They are the major players in some fields although their research budgets make up just one or two percent of all research expenditure.

Transfer of science and technology

Switzerland also has numerous institutions and instruments to implement research results and promote exchanges between universities and the private sector.

All the cantonal universities, both federal institutes of technology and the four research institutes in the ETH domain and of course all the universities of applied sciences have technology transfer offices. The various campuses also have science and technology parks which are ideal environments for the establishment of new innovative companies.

The Federal Institute for Intellectual Property rounds off the list of public innovation promoters. It guarantees that intellectual property is legally protected and also provides numerous services such as an information search system and training in the field of intellectual property.

Generous investments in Switzerland's central resources

For Switzerland, the quality of its education system and the creativity of its research are of central importance to its innovative strength and its economic competitiveness. In order to maintain and to extend the position of Switzerland as an ideas centre with an internationally competitive edge in many fields, private enterprise and the state regularly make generous investments.

According to the OECD (Figure 2), total public expenditures for education in Switzerland amount to 5.4 % of gross domestic product (GDP). An international comparison shows that this figure is quite respectable, not only because it is higher than the OECD average of 4.9 % but also because it ranks above the figures of other important industrialised nations such as the USA (5.1 %), Great Britain (4.7 %), Germany (4.3 %), Korea (4.8 %) and especially Japan (3.5 %), where in some cases the percentage is considerably lower than that of Switzerland. Especially in a European context, however, the Scandinavian countries Denmark (6.8 %), Sweden (6.3 %), Norway (6.1 %), Finland (5.7 %) as well as France (6.6 %) must also be mentioned, which in part clearly rank above Switzerland.

Again, a very positive impression for the country arises when the total expenditures for education are related to the total of all persons involved in the educational process: The OECD shows higher per capita expenditures for education only in the USA, Denmark and Norway (Figure 3).

Standard for the European Union

Since 2001, the European Union has aimed at increasing the portion of expenditures for research and development (R&D) from less than 2 % of GDP today to 3 % by 2010. Two-thirds of the required means are to come from private enterprise and one-third from public sources.

For many years, Switzerland's investments in its science and research system have tended towards the order of magnitude envisaged by the EU. Total expenditures for R&D in Switzerland today already come close to 2.7 % of GDP (Figure 4). This figure is still increasing. On the one hand, the commitment of the private sector whose spending on research and development today amounts to two percent of GDP, is continually increasing. On the other hand, public investments in R&D have recently also shown considerable rates of increase: The expenditures by the Confederation for the policy areas education, research and innovation have risen by approximately 4 % per annum since 2000 in the context of an impulse programme.

The particularly strong commitment of the Swiss private sector to R&D is also shown in OECD data. About 75% of all resources invested in research and development in Switzerland are financed by the private sector and show an average increase rate of 1.1% per annum. With a 77% share of total national R&D investments, only Sweden's private research sector is stronger, whereas the figures for Japan and the USA are about equal but show a considerably lower rate of growth (Japan 0.6%, USA minus 0.3%) The total amount invested in R&D in Switzerland was CHF 10.6 billion (€ 7.1 billion) in 2000.

Growth of university student body

As in other countries, there is an upward and increasingly rapid trend toward education on the tertiary level in Switzerland. During the past 20 years, the number of students has increased by nearly 60%. Whereas statistics showed only 69,000 university students in 1983 the figure had risen to 111,000, almost half of them female students (Figure 5) in the academic year 2004/05. Nevertheless Switzerland's university graduation rate of around 18% is relatively modest by international comparison. This can be explained by the strong attraction of courses in professional education in the Tertiary B domain (see p. 37).

Thirty-seven percent of all university students are enrolled for courses in humanities and social sciences, while 19% are registered in exact sciences and natural sciences. Between 10 and 13% choose economy, law, medicine or technical sciences.

International Swiss universities

About 16% of all students at Swiss universities did not complete their basic education in Switzerland. Another 5% grew up in Switzerland but do not hold a Swiss passport. Non-Swiss students make up 21% of the total student body on all levels giving Switzerland top spot in an OECD comparison. In addition, this quota is even higher with students at the postgraduate and doctorate levels, 43%.

Two-thirds of the foreign students in Switzerland come from Europe and slightly more than 10% come from Africa, North, Central and Latin America or Asia.

A further sign that the Swiss university sector is truly international are the figures concerning teachers: About half of the entire mid-level staff (scientific staff, assistants) as well as one-third of all professors in Switzerland come from abroad.

Figure 2: Public expenditures for education in % of GDP, 2001

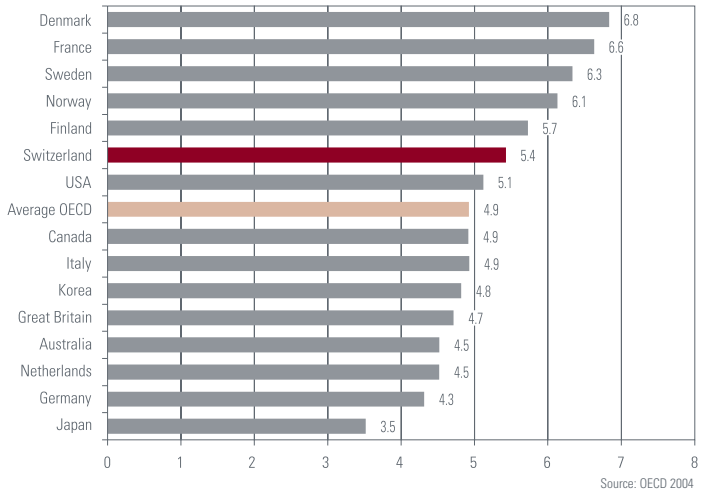
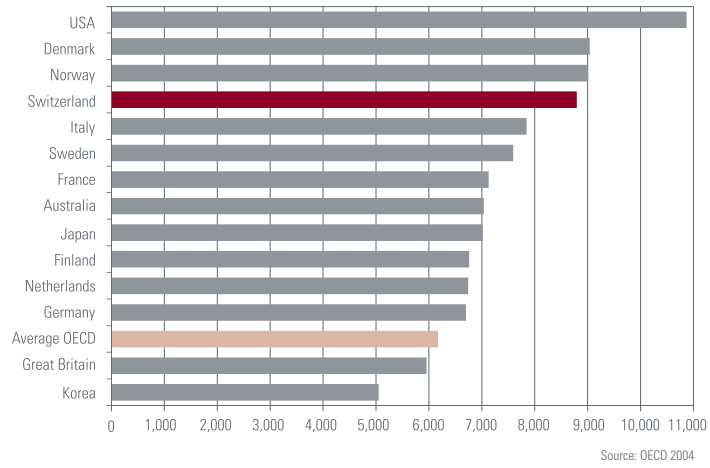


Figure 3: Per capita expenditures for education in US dollars, 2001



Financing of universities

In 2004, universities had a total of CHF 4.9 billion (slightly more than € 3 billion) available to them. Of this, CHF 2.2 billion came from the Confederation, CHF 1.8 billion from the cantons and the remaining amount from third parties.

The so-called "funds from third parties" are becoming increasingly important. The University of St Gallen is the most successful with third-party funds, financing half of its budget. Other cantonal universities show a third-party fund share between 12 and 27 % and the two federal institutes of technology nearly 10 %.

Although the student-teacher ratio has been growing steadily in certain disciplines in Switzerland, the term "mass university" is not known in the academic landscape. In 2004, there was total of about 2,600 full-time professors at Swiss universities with a clear upward trend. They were supported by about 2,200 further lecturers and 14,500 assistants and scientific staff. The latter number has increased by about 3,000 over the past 10 years.

Students at the universities of applied sciences

The seven universities of applied sciences had approximately 49,000 students enrolled in 2005. These universities of applied sciences were established in their present form only in 1996 and, accordingly, they have shown striking growth rates. Since 1997, the number of students has climbed from about 5,000 by a regular 5,000 to 6,000 every year.

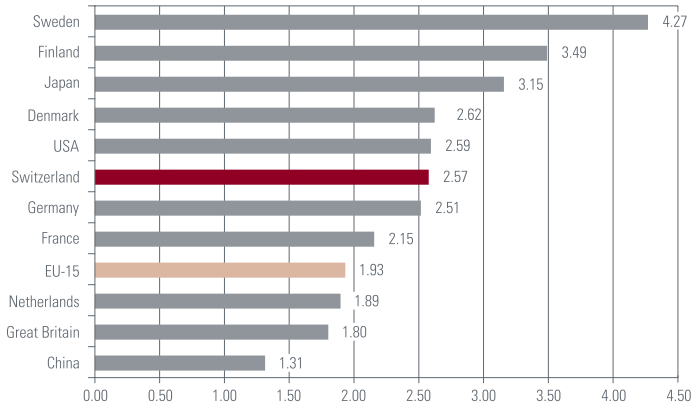
The number of entrants to the universities of applied sciences is still growing today, but the growth rate is slowing down. In the academic year 2004/05 some 14,000 newcomers began their first semester of studies. One year before, this figure was 13,000 and a year before that, nearly 10,000. Forty-two percent of the student body are women and according to forecasts, this will continue to increase slightly in the years to come. The proportion of foreigners is 16 % and growing.

Of the 15 different faculties, the most attractive for students include economy (32 %), the various technical professions (19 %) and teacher training (15 %), followed by social work, music, design and health.

Four out of five Swiss francs at universities of applied sciences go into education

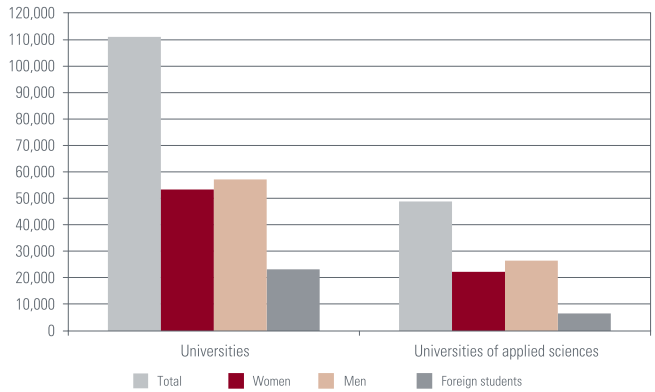
The students are taught by some 3,000 professors and 1,000 other lecturers. The number of scientific staff compared to the universities is (still) relatively small (around 1,350).

Figure 4: R&D expenditures in % of GDP, 2003



Source: European Commission 2003/2005

Figure 5: Number of students at Swiss universities and universities of applied sciences, 2004



Source: Swiss Federal Statistical Office 2005

In 2003, various donors invested approximately CHF 900 million (about € 600 million) into the universities of applied sciences. Of this total, 52 % came from the cantons, 29 % from the Confederation and the remainder from third parties.

Almost three-quarters of the funds were spent for education on the diploma level, a further 7 % for education on the postgraduate level and the remaining 20 % went to “applied research and development” and “services”.

High output with internationally competitive quality

Measured in absolute figures, the output of education and research in Switzerland compared to the output in the USA, the European Union, Korea and Japan is low. However, the picture changes if the international comparison is based on population figures. Then, little Switzerland becomes a scientific giant.

Parallel to the global trend, the level of education is also continuously increasing in Switzerland (Figure 6). Whereas 42% of Swiss citizens 65 years of age and over ended their education with compulsory school, only 10% of 20-year-olds stopped. The percentage of those who have a tertiary education has increased. The latter is presently the case for 26% of all persons aged between 25 and 34.

In 2001, 18.7% of all persons aged 27 with their permanent domicile in Switzerland were granted a university degree (Figure 7). Switzerland ranks relatively far down in an international comparison in terms of this figure as well as with regard to admission quotas to universities. For instance, about 32% of persons aged 27 in the USA or in Japan have a 5A qualification; front-runners with respect to this indicator are Australia, Finland and Norway with figures well above 40%.

If the graduation rate is placed in relation to the admission rate, the picture is quite different. In Switzerland, three quarters of all CITE 3A graduates later also pass the 5A level; at 78%, this figure is even slightly higher in Japan. In these two countries, the secondary level II is primarily considered to be preparation for the tertiary level. University admission quotas in the EU, the USA and Finland rank between 44 and 56%; an average of half the students end their schooling at the 3A level.

When comparing the rate of university graduates in Switzerland with that of other countries, it must be remembered that few countries have a tertiary B sector as well developed as the one in Switzerland. Nearly 10% of Swiss between the ages of 25 and 34 have a higher professional education. In 2003, more than 43,500 students were enrolled in higher professional education courses. Of these 42% were women and 14% were foreigners. In the same year, almost 26,000 students graduated with a degree in higher professional education.

Stable success rate of studies at universities

In 2004, universities granted a total of 9,800 diplomas and licentiates. During the past 20 years, this figure has gone up by about 60%, proportionate to the number of university entrants. This leads to the conclusion that the success rate at universities has remained the same over the years.

In 2004, about 13 % of all diplomas and licentiates went to students without a Swiss passport. This figure has been relatively stable over the years, even though a slight decline can be observed in recent years. After a remarkable increase during the past 20 years, the quota of women in 2004 reached 47 %. The clear leaders in terms of diplomas and licentiates granted are the humanities and social sciences. During the past 20 years, its share was always around 25 %. Since 2000 it has even exceeded 30 %.

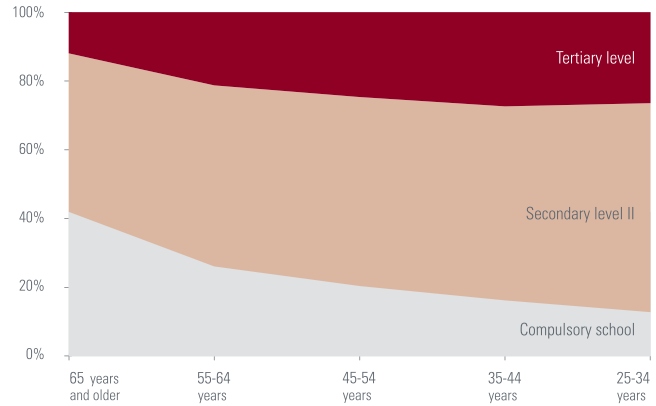
Ever increasing foreigner share for doctorates and habilitations

In Switzerland, 2.5 % of the population at the theoretical age at which a doctorate is possible actually obtain this title, in Sweden it is 2.7 %. The EU average is 1.3 %. In the OECD it is nearly one percent. In 2004, about 2,750 students obtained their doctorate. This is about 50 % more than 20 years ago. Thus, the total of doctorates has grown slightly less than the number of university entrants. Whereas 20 % of all persons having obtained their doctorate at Swiss universities 20 years ago were foreigners, in 2004 it was about 35 %. The proportion of women working on their doctorate today is 38 %. In comparison, in most OECD countries only one-third of doctor's degrees go to women.
As far as the habilitations written at Swiss universities are concerned, there has been a constant increase. The number of 200 habilitations in 2003 signifies a doubling since 1992. About half the habilitations came from the medical and pharmaceutical sciences. The other half is divided among exact and natural sciences as well as humanities and social sciences. Slightly more than 17 % of the habilitations came from women, around 35 % from foreigners.

Increasing importance of universities of applied sciences

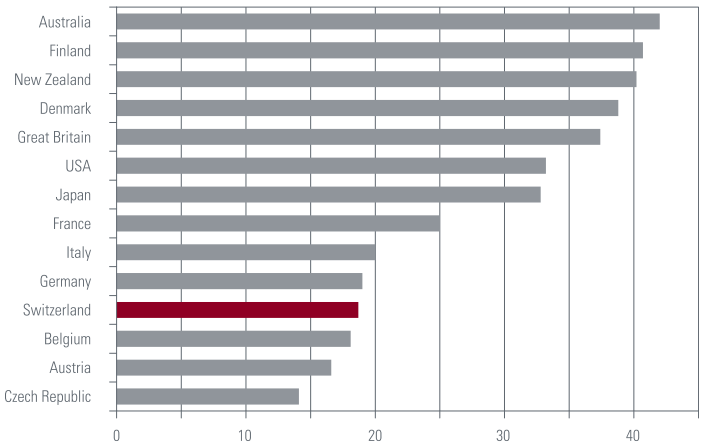
The number of diplomas granted by universities of applied sciences as well as the number of students has increased every year.
In 2004, the universities of applied sciences granted slightly more than 7,200 diplomas compared with nearly 4,500 two years before. The quota of women receiving diplomas was 40 %. The quota of foreign students is about 14 %.
According to present forecasts, the number of 10,000 persons newly granted a diploma will be exceeded as early as 2008. Postgraduate studies are developing satisfactorily. In 2003, more than 2,300 persons graduated with a degree.

Figure 6: Level of the population's education in Switzerland, 2003



Source: Swiss Federal Statistical Office 2004

Figure 7: CITE 5a degrees, 2001

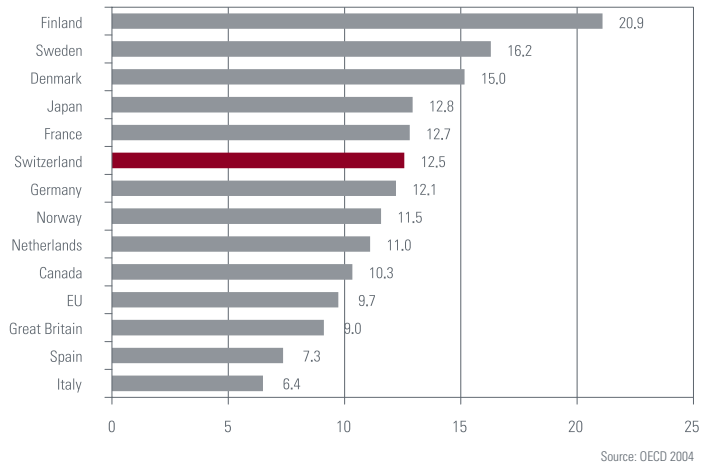


Source: OECD 2004

Switzerland is in the Top 10 in R&D personnel

Over the past 20 years, the share of staff engaged in research and development (R&D) was quite stable in Switzerland, amounting to 1.3% of the total workforce. More R&D staff in 2000 was only to be found in Finland, Sweden, Denmark, Japan and France (Figure 8). According to OECD statistics, the number of R&D staff in nearly all countries has grown more sharply since 1980 than in Switzerland, e.g. from 0.9% to 2.0% in Finland. In the countries of the EU, however, the corresponding indicator shows only slight growth from 0.9 to 1.0%.

Figure 8: Personnel engaged on R&D per 1000 work forces, 2002



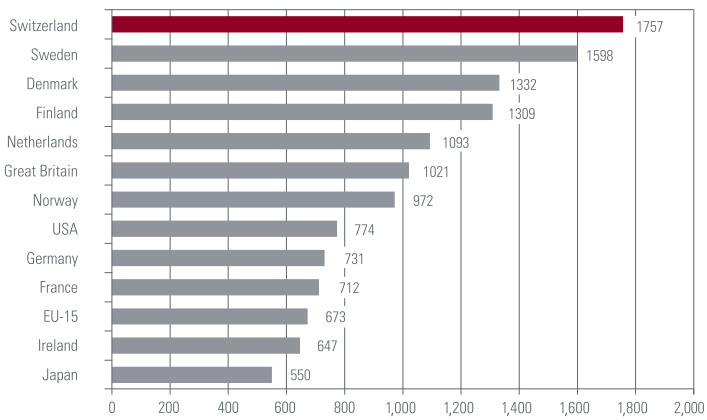
Source: OECD 2004

Many scientific publications, great impact

The productivity of Swiss researchers leads the international comparison (Figure 9). In Switzerland, during the years 1995 to 2002, 1,757 scientific publications per million inhabitants were published, significantly more than in the countries ranking after Switzerland: Sweden (1,598), Israel and Denmark (1,333 each). The publication quota in the USA is 774 publications per million inhabitants, in the EU 673 and in Japan 550. Above all, the high number for Switzerland is also remarkable because, as a rule, countries with a stronger orientation towards natural sciences produce a higher number of publications. However, unlike all other top nations on this ranking list, Swiss universities show a striking orientation towards the humanities and social sciences subjects, at least with respect to student numbers.

But not only the quantity of Swiss scientific publications is remarkable but also their effects abroad. Thus, according to a survey published in "Nature" magazine in July 2004, Switzerland ranks first in an international evaluation presenting countries according to the impact of their scientific publications in proportion to their gross domestic product (GDP).

Figure 9: Scientific publications per million inhabitants, 1995–2002



Source: European Commission 2004

Switzerland's innovative prowess

The outstanding results achieved by the Swiss R&D community are reflected in the number of patent applications filed. Here too, this indicator shows that in absolute figures Switzerland's participation in global patent activities is rather modest. But measured in terms of comparative population figures, Switzerland's performance is excellent. In fact, statistics show that worldwide Switzerland files the most Triadic patents per million inhabitants (Figure 10). Triadic patents are patents that are registered simultaneously with the European Patent Office, the US Patent & Trademark Office and in Japan. While

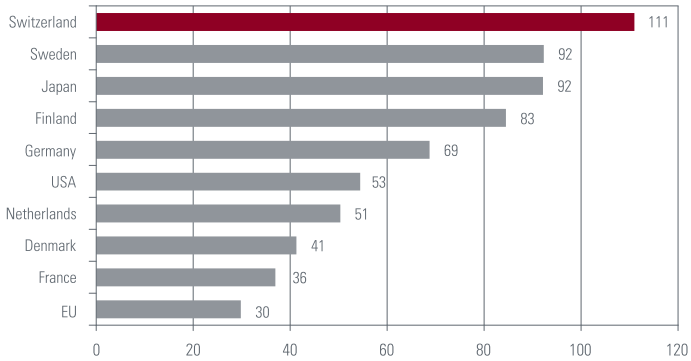
countries like Sweden and Japan come relatively close to Switzerland in terms of patent activities, the USA achieve only half the Swiss total and the EU only one-quarter.

Rich harvest of Nobel Prizes in the sciences

Albert Einstein, who became a Swiss citizen in 1901 and worked for years in Switzerland, is the most famous Nobel Prize winner in the sciences. He won the Nobel Prize for Physics in 1921 for his General Theory of Relativity and other groundbreaking scientific contributions. With the award, Einstein joined three other Swiss scientists who had previously won the prize in their fields: Emil Theodor Kocher, medicine, 1909; Alfred Werner, chemistry, 1913 and Charles Edouard Guillaume, physics, 1920. Since Einstein, the names of 13 other Swiss scientists have been added to the list. Of the 17 Swiss winners, four were recognised for their work in physics, six in chemistry and seven in medicine (see list below). Eleven of these 17 winners were and are active at Swiss universities, four each at the ETH Zurich and the University of Zurich, two at the University of Basel and one at the University of Bern.

After Iceland and Sweden, Switzerland is in third place internationally in the category "Nobel Prizes per inhabitant". Not included are Nobel Prize winners from abroad but active at Swiss-based institutions.

Figure 10: Triadic patents per million inhabitants, 2001



Source: Swiss Federal Statistical Office 2005

Swiss Nobel Prize Winners in Sciences up to this time

1909 Emil Theodor Kocher, Medicine, University of Bern
1913 Alfred Werner, Chemistry, University of Zurich
1920 Charles Edouard Guillaume, Physics, Bureau International des Poids et Mesures, Sèvres, F
1921 Albert Einstein, Physics, Kaiser-Wilhelm-Institut für Physik, Berlin, D
1937 Paul Karrer, Chemistry, University of Zurich
1939 Leopold Ruzicka, Chemistry, ETH Zurich
1948 Paul Hermann Müller, Medicine, Geigy AG Basel
1949 Walter Rudolf Hess, Medicine, University of Zurich
1950 Tadeus Reichstein, Medicine, University of Basel
1975 Vladimir Prelog, Chemistry, ETH Zurich
1978 Werner Arber, Medicine, University of Basel
1986 Heinrich Rohrer, Physics, IBM Research Laboratory Rüschlikon
1987 K. Alex Müller, Physics, IBM Research Laboratory Rüschlikon
1991 Richard R. Ernst, Chemistry, ETH Zurich
1992 Edmond H. Fischer, Medicine, University of Washington, Seattle, USA
1996 Rolf M. Zinkernagel, Medicine, University of Zurich
2002 Kurt Wüthrich, Chemistry, ETH Zurich

Presentation of the Swiss Universities and Universities of Applied Sciences

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The Swiss Federal Institute of Technology Zurich (ETH Zurich) is the study, research and working base for more than 18,000 people from about 80 different countries. Some 358 professors, divided among 15 departments, are responsible for ensuring a consistently high level of research and top-quality teaching, primarily in technical, mathematical and scientific disciplines. ETH Zurich has more than 12,000 registered students and about 8,000 employees responsible for research, teaching and administration. Its total annual expenditure amounts to CHF 1.1 billion Swiss francs (CHF).

Central campus

ETH has two main locations in Zurich, both of which offer students and researchers state-of-the-art infrastructure facilities. The "*ETH Zentrum*" facility, which includes the main ETH building, is right in the middle of the city, not far from the railway station. The faculties for mechanical and process engineering, electrical engineering and information technology, computer science, management, technology and economics, mathematics, biology (selected areas), earth sciences, environmental science, agriculture and food sciences, as well as humanities, social sciences and political science are all based here.

Hönggerberg campus

As space became more and more of a luxury in the "Zentrum" facility, work began in 1960 on building the second ETH facility, "*Hönggerberg*". It can be found roughly seven km. northwest of the centre, on a hill at the edge of the city of Zurich. The Hönggerberg facility has been continuously developed over the past 40 years. Surrounded by greenery, but easily accessible from the city centre, it offers a first-class infrastructure as well as top-level teaching and research conditions in the subject areas of architecture, civil engineering and geomatic sciences, physics, chemistry and those areas of biology that are not based at ETH Zentrum. In autumn 2004, pharmaceutical sciences and materials science also relocated their laboratories to Hönggerberg.

Science City – a city district dedicated to academic culture

ETH's goal is to turn Hönggerberg into a "high-tech campus" that simultaneously becomes a part of the city of Zurich. This new city district dedicated to the pursuit of academic culture – "Science City" – will also comprise accommodation for students, a new central sports facility, a guest house, shopping facilities and restaurants. The main construction landmark will take the form

The Hönggerberg campus is being developed into a "Science City", a high-tech campus and city district dedicated to academic culture.

The interdisciplinary research project “blue-c” has developed technologies for 3D transmissions and is now testing their application.

of a study and congress centre. Science City will be the living and working base for 10,000 people. The foundation stone for the first building, a computer science laboratory, was laid by the ETH at the end of 2005; construction activities should be largely completed by 2011.

Jubilee year: 150 years of ETH

ETH Zurich first opened its doors in 1855, which means 2005 was its 150th anniversary. The institute is part of Switzerland’s ETH domain, which comprises ETH Zurich, EPF Lausanne and four research institutes. ETH Zurich is presided over by a president who, assisted by the rector (vice-president for academic studies) the vice-president for research and the vice-president for planning and logistics, has overall management responsibility. Their declared goal is to appoint and train scientists of top international standing and to attract the best-qualified students from both Switzerland and abroad.
ETH Zurich carries out results-oriented basic research and specific solution-oriented research with long-term value. Together with partners from the sciences, business and administration departments, ETH Zurich has numerous centres of competence. The technology transfer centre offers researchers support with realisation of research results, protection of intellectual property, setting up of companies and cooperation with the private sector. The “Dual Career Advice” centre helps foreign partners of ETH professors to integrate into everyday life and the job market in Switzerland.

21 Nobel Prize winners

ETH Zurich has received excellent marks in recent years from a wide range of evaluations, benchmarking studies and rankings for higher education institutes. For instance, one international expert group concluded that ETH Zurich has maintained its position as a top-league academic institution for more than a century, and is recognised as such worldwide. No fewer than 21 Nobel Prize winners have direct links to ETH Zurich. The most recent winner is Professor Kurt Wüthrich, who won the Nobel Prize for chemistry in 2002.

A virtual campus

With its “ETH World” programme, ETH Zurich has built a virtual space for communication and cooperation independent of time and location. This space will be accessible by all stakeholders of ETH Zurich and will be widely used. For instance, “Neptune” offers not only students, but also staff of ETH Zurich

and other Swiss educational institutes, the chance to purchase low-priced laptop computers. In parallel, one of the largest cellular networks (WLANs) in Switzerland has been created, with access points in most buildings both at the central facility and at Hönggerberg.

Study programmes in line with the Bachelor's-Master's system

An average study program at ETH lasts nine semesters. As of the winter semester 2005/2006, all study programmes will be brought into line with the internationally recognised two-tier Bachelor's and Master's model. The first six semesters will in future correspond to Bachelor-level studies, and will be followed by three semesters leading up to a Master's qualification. While natural sciences are also taught in universities nationwide, Swiss students wishing to study engineering science can do so only at ETH Zurich or EPF Lausanne. The study programmes in interdisciplinary natural sciences, computer-aided sciences, mechanics of motion and sport, agriculture and food science can only be followed at ETH Zurich.

Lifelong learning

The Centre for Continuing Education offers a comprehensive range of largely part-time educational opportunities in the general field of "lifelong learning". This includes 12 Master's programmes, one postgraduate study course, nine continuing education certificates, various advanced training courses, seminars and conferences, as well as Distance Education opportunities.

Swiss Federal Institute of Technology Zurich at a glance

Number of students	12,505
Proportion of female students	29.2 %
Proportion of foreign students	21.3 %
Graduates per year	1,200
Doctorates per year	500
Diploma supplement	yes
ECTS	yes
Annual expenditure (incl. research)	CHF 1.12 billion
Funding	
▪ Public contributions (Confederation and cantons)	86 %
▪ Third parties	14 %
Faculties with proportion of students	
▪ Architecture	10.3 %
▪ Civil, environmental and geomatic engineering	6.7 %
▪ Management, technology and economics	3.2 %
▪ Information technology and electrical engineering	10.0 %
▪ Computer science	8.7 %
▪ Mechanical and process engineering	9.4 %
▪ Materials science	2.1 %
▪ Biology	14.2 %
▪ Chemistry and applied life sciences	8.5 %
▪ Mathematics	3.8 %
▪ Physics	6.7 %
▪ Agriculture and food sciences	4.7 %
▪ Earth sciences	2.6 %
▪ Environmental sciences	8.2 %
▪ Humanities, social and political sciences	1.0 %

Swiss Federal Institute of Technology Lausanne (EPFL)

Exploring uncharted regions of knowledge

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Located in full view of the Alps on the north side of Lake Geneva, all the departments of the Swiss Federal Institute of Technology Lausanne can be found together on one site. Students, scientists, engineers, architects, humanists and businessmen rub elbows on a daily basis, allowing academic, technological and economic visions to mix at the highest level in a creative way. In all, more than 100 different nationalities are represented on campus, making EPFL one of Europe's most cosmopolitan universities.

Following a wide-ranging reorganisation in 2002, the institute now comprises four open and trans-disciplinary faculties, to which should be added a new School of Life Sciences and a College of humanities, established jointly with partner universities. Furthermore, since 2003, EPFL groups together all the basic science departments in the Lausanne region. This re-allocation paves the way for the development of major research poles in the Lake Geneva area, in the fields of engineering, medicine, humanities and social sciences.

Laboratory scene

International education

The campus is home to more than 6,500 students, a number that has increased by 70% since 1990. Today, EPFL offers 14 higher education options leading to a Bachelor's or Master's qualification, in line with the Bologna Declaration. In 2003 and 2004, EPFL carried out what amounted to a complete revamp of its study plans in order to ensure that graduates enjoy maximum mobility and international employment opportunities at the highest level. What is more, the new programmes offer greater flexibility with regard to choice of subjects, more trans-disciplinary perspectives and some novel reorientation opportunities towards other scientific domains. For example, the School of Architecture, Civil and Environmental Engineering has launched a programme entitled "Joint Planning", which brings together the architects, civil engineers and environmental science engineers of the future for several modules based around concrete projects. As for the new life sciences and technologies section launched in October 2003, it offers a novel educational possibility on the border between biology, engineering and basic science.

These reforms come together with a level of openness that is important for scientists, with a choice of 23 humanities and social science courses, integrated into the degree courses of all students at the institute. EPFL is also refreshing its offerings in the field of continuing and post-graduate education. From proficiency courses through to the prestigious "Executive Master" course, it offers more than 30 programmes designed jointly with international partners. The creation of a College of Management of Technology allows EPFL to

Laboratory scene

widen its offering in a domain of strategic importance for leading companies, in which Lausanne has come to specialise.

More than 1,000 postgraduate students

Finally, the education of postgraduate students also represents a priority for the institute, as they represent an essential driving force in any large research university. EPFL management has therefore developed the Doctoral School, which offers students the chance of an international academic career. Success is on the agenda, as the increase in the number of doctorates is even more spectacular than that of the number of overall students, passing the 1,000 milestone in 2003.

Changing the scientific guard

Research plays a large role in ensuring the quality of teaching in a top-level institute such as EPFL. It participates in the emergence of new domains on the interface between the classical disciplines, in particular between basic sciences, engineering, life sciences and architecture. Grouped together on the same campus, more than 200 laboratories take part in a process of permanent innovation, discover new and original technological directions and develop novel methods. Among many highly successful trans-disciplinary projects, EPFL played the role of official scientific adviser to the Alinghi team, which won the America's Cup. It is also involved in the new challenge taken on by Bertrand Piccard: completing the first trip round the world in a solar-powered airplane, a project that offers an unrivalled vista of experimental possibilities and potential technological spin-offs. In 2004, it also inaugurated a Space Centre, together with astronaut Claude Nicollier, a teacher at the institute, who has completed four space shuttle missions. The institute also distinguishes itself in many other areas of fundamental significance, for instance as a leader in nanotechnology, IT and communications systems.

Towards a genuine social role

Technology transfer and creation are areas in which the Swiss federal institutes of technology excel. The Lausanne institute pursues an active policy in this field, where patents, licences and registering of inventions have concrete economic consequences. On average, EPFL generates a dozen start-ups per year, and develops industrial partnerships with small and medium size enterprises (SMEs), as well as with multinationals. Students can not only imple-

ment projects in the context of partnerships, but can also benefit from teaching that is linked directly to technology management during their studies. This type of study can lead to a double Master's degree.
To sum up, the EPFL is a place full of life and innovation. Its mission is to stimulate creativity, to contribute to the development of knowledge and to encourage the entrepreneurial spirit. It is in this context that it continues its unique progression, among the very best research universities world-wide. In this respect, it carries out regular exchanges with some 20 American universities and belongs to numerous academic networks in Europe, such as Time and Cluster. In the research domain, particularly, it has cooperation agreements with about 40 countries and includes among its partners the universities of Tokyo and Stanford, as well as MIT. It is also involved in collaborative projects with the developing countries.

Welcome to EPFL, the campus that serves as a meeting point for the explorers of new areas of knowledge!

Swiss Federal Institute of Technology Lausanne at a glance

Languages of instruction	French/English
Number of students	6,530
Proportion of female students	23 %
Proportion of foreign students	40 %
Students in Bachelor's and Master's courses	74.5 %
Graduates per year	556
Doctorates per year	248
Diploma supplement	Yes
ECTS	Yes
Annual budget (incl. research)	CHF 556 million
Funding	
▪ Public contributions (Confederation and cantons)	76 %
▪ Third parties	24 %
Faculties with proportion of students	
▪ Mathematics	5.4 %
▪ Physics	8.8 %
▪ Chemistry and chemical engineering	6.8 %
▪ Life sciences and technologies	4.3 %
▪ Materials sciences and engineering	3.3 %
▪ Mechanical engineering	6.3 %
▪ Microtechnology	10.9 %
▪ Electrical engineering and electronics	5.8 %
▪ Communications systems	8.8 %
▪ IT	10.6 %
▪ Environmental engineering and science	7.1 %
▪ Civil engineering	5.0 %
▪ Architecture	11.4 %
▪ Technology management	2.2 %
▪ Special Mathematics Course	3.0 %

University of Basel

The university where three countries merge

The university's centre is located around the "Kollegienhaus" at the Petersplatz.

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The University of Basel was established in 1460. As the oldest university in Switzerland, it is also one of the most innovative schools of higher education in the country. In over 500 years of history, it has continued to focus on the future, not only in terms of research, teaching and services, but also regarding its organisation. This innovativeness and dynamism have resulted in the appearance of numerous new fields of study which deal with the challenges of an environment in motion.

With the exception of technical subjects and veterinary medicine, students at the University of Basel can study anything they want, including some things that are unique in Switzerland: African studies, Jewish studies, environmental sciences or nursing science. Furthermore, the only Swiss Europainstitute at a university is in Basel. Parallel to the faculties, four fields of cross-cutting programmes – some of them completely redesigned – were created, which go well beyond the faculties' boundaries: "man, society, environment", gender studies, applied ethics and scientific research.

Special attention is paid to the promotion of young talents.

Interdisciplinary and networked

The University of Basel is a state-of-the-art school of higher education with internationally networked research, an attractive range of studies and a broad range of services. During the past years, the university has made a special effort to promote interdisciplinarity and networking within research. From 2005, all fields of study except medicine have been part of the Bachelor's/ Master's system.

Two main research activities: …

Life sciences and culture: these are the university's main scientific activities. Both fields include dozens of projects – here, hundreds of researchers are committed to researching for the future. Their work is interdisciplinary and inter-faculty, as they try to learn more about how life works and what the connections between cultures are.

… life sciences …

The Bio Centre is an international drawcard for scientists concerned with life sciences, one of the most important research activities at the University of Basel. This also includes the Integrative Biology Department. Moreover, the focus of life sciences is also strengthened by the National Centre of Competence in Research in nanoscale science, by clinical medical research at the

Life sciences: a research emphasis at the University of Basel.

Universitätsspital (university hospital) as well as by the Centre of Pharmaceutical Sciences. Contacts with the multinational chemical and pharmaceutical companies in Basel lead to an invaluable exchange for both sides.

… and culture

The second main research activity of the University of Basel is also closely linked to the Basel region: culture. With its numerous museums, theatres and libraries, but also because of its proximity to France and Germany, the city offers a unique platform for cultural studies: art history, linguistics, history or archaeology. For example, a recently published French etymological dictionary, which constitutes a one-of-a-kind work in the field of research of the French language, was compiled at the University of Basel.

The university has close contacts with the cultural institutions in Basel, such as the Art Museum, the recently opened Schaulager, those museums that were established from the university's collections as well as the Musik-Akademie (music academy). Founded professorships in the cultural field strengthen collaboration and create attractive possibilities for students.

Broad range of research activities, also for junior researchers

Apart from the two main activities life sciences and culture, the University of Basel distinguishes itself by a broad range of research activities: law, psychology, media sciences, economic sciences, earth sciences, orientalism and others. The research data base on the Internet (www.forschungsdb.unibas.ch) provides interested readers with an overview on the broad range of activities.

The University of Basel provides young researchers with a perspective thanks to the creation of assistant professorships. Within the framework of this new form of advancement of junior scientists, the university appointed 48 young researchers, of which one third are women, within the past years. The university places great importance on the advancement of young talents; a specialised office advises and accompanies scientific employees in all career-related matters.

National Centres of Competence in Research

Nanotechnology is considered one of the key technologies of the 21st century. The University of Basel's Institute of Physics has been responsible for the National Centre of Competence in Research (NCCR) entitled "Nanoscale Sci-

ence" of the Swiss National Science Foundation since 2001. Highly-specialised scientists are networked and cooperate with universities on a national and international level as well as with schools of higher education. In the field of studies, they are offering nanotechnology studies for the first time in Switzerland. In 2005, two new National Centres of Competence in Research began. One is the Swiss Etiological Study of Adjustment and Mental Health (SESAM) in psychology, the other is Iconic Criticism which aims to understand the power, impact and meaning of images

Regional cross-border networks

Basel is a gate to Europe – an advantage for the university: A far-reaching partnership with neighbouring German and French universities in Freiburg im Breisgau, Strasbourg, Mulhouse and Karlsruhe exists under the name of EUCOR. The students of all seven participating universities can take part in study events of the Upper Rhine partner universities; joint studies are available for biotechnology.

The university in the city

The university is located in the middle of the old city of Basel. Most of the university's buildings are grouped around the university's centre, the "Kollegienhaus" at the Petersplatz: the renowned BioCentre and the pharmaceutical centre with its state-of-the-art technological equipment, the Faculty of Economics with its prominent architectural building or the university library. Numerous institutes and seminars of the university are domiciled in mediaeval mansions that are distinguished by a surprisingly modern inner life.
This lively alternation between old and new contributes to a stimulating atmosphere which fosters research, teachings and studies. Therefore, the University of Basel is an attractive place for both lecturers and students. It is manageable in terms of size and makes personal contacts between students and professors possible.

University of Basel at a glance

Language of instruction	German
Number of students	9,200
Proportion of female students	52 %
Proportion of foreign students	16 %
Students in Bachelor's and Master's courses	51 %
Graduates per year	700
Doctorates per year	350
Diploma supplement	Yes
ECTS	Yes
Annual expenditure (incl. research)	CHF 360 million
Funding	
▪ Public contributions (Confederation and cantons)	67 %
▪ Third parties	23 %
Faculties with proportion of students	
▪ Theology	1.7 %
▪ Law	14.5 %
▪ Medicine	21.6 %
▪ Arts	27.3 %
▪ Sciences	18.4 %
▪ Economics	10.6 %
▪ Psychology	5.9 %

University of Bern

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The University of Bern distinguishes itself internationally through its outstanding research in selected areas, through top quality study and living conditions and through an attractive network of contacts. The university is a full tertiary-education institution with eight faculties and around 160 institutes. Its beginnings go back to the 16th century. Its student body of around 12,000, places it among the medium-size universities. Nevertheless the University of Bern remains accessible and personal. Teaching and research is marked by an interdisciplinary approach such as the three Bern-based National Research Programmes "Climate", "North-South", and "International Rules of World Trade".

Because of its central location in Switzerland and its attractive offer, the University of Bern draws students from all language regions in Switzerland and from abroad. The city of Bern offers an excellent standard of living. The citizens of Bern are friendly and courteous; the old city has been designated a UNESCO world heritage site; the Alps are not far away and the capital of Switzerland is proud of its cultural offer. Study costs and rents are reasonable and the supply of apartments is generous. The city is dotted with green areas and in the summer, swimming in the Aare river has become for many a daily ritual.

The faculty of law already complies fully with Bologna directives (in picture: the judicial library).

A "city university"

The University of Bern knows how to blend the old with the new. Besides the venerable main building which goes back to 1903, it has a number of new and renovated buildings with attractive study and seminar rooms all within walking distance. Only recently the former Frauenspital was converted into the "UniS" with a lounge, which is also open evenings for students and people living in the neighbourhood.

In spite of constant growth, all institutes, departments, seminars and clinics are located in the traditional university quarter on Länggasse as well as on the grounds of the Inselspital. The Länggasse quarter is a lively student area with many restaurants, clubs and cafes, all within a few minutes on foot from the station and the city centre.

On the one hand, Bern University is a classical school with faculties for theology, humanities, law, economics and social sciences, medicine, veterinary medicine and natural sciences. On the other hand it is also in step with the times. In 2005, the philosophical-human sciences faculty was created, bringing together psychology, pedagogy and sports science.

Approximately 3 % of the students in Bern take up veterinary medicine.

Teaching and study facilities are spread out, but the university has remained a “city university”.

The University of Bern set the course for Bologna early. Already in 2003, the law faculty made the change to the Bachelor’s/Master’s system. Since the fall 2005, all other courses, with the exception of medicine, have adapted to the Bologna requirements. By 2007, medicine will have made the change too. The students have a wide choice of Bachelor’s and Master’s courses, some of which can only be taken in Bern. Among these are religious studies/inter-religious studies and theatre science.
Interdisciplinarity ranks high. Mediaeval research comprises for example art history, Islamic studies, history and linguistics. Also, Bern offers students of every study course an interdisciplinary education in general ecology.

Research: big and small networks

Several institutes of the University of Bern are among the pioneers of modern research both in Europe and in the rest of the world. The Physics Institute and its space research activities participated in the first flight to the moon and it contributes experiments and equipment regularly to NASA and ESA missions. The University of Bern enjoys global recognition for its climate research, dental medicine, veterinary medicine and for its first-class university clinic, the Inselspital. Bern is also the Leading House for three national research programmes on climate, North-South and the international rules of world trade. The researchers are involved in international networks with partners, universities and clinics around the world. In some cases multicultural partnerships have emerged as has happened in the North-South research programme.
Research activities distinguish themselves also by cooperation within the university. The NRP climate programme includes geography, geology, physics and economics. A geologist or a historian can thus specialise in climate research. Inter- and transdisciplinary research is a strength of the University of Bern. Regular and project-related cooperation exists with the cantonal universities of applied sciences, with the authorities, museums and the private sector.

Continuing education

Continuing education at the university is in the hands of the faculties, institutes and the interfaculty Coordination Office for Continuing Education (KWB). A broad range of subjects is available to graduates of the University of Bern, members of the scientific staff of the federal administration and members of business branches and environmental organisations. The courses, workshops and individual events tackle economic and social issues in such courses as

the postgraduate course in criminology or the Master's programme in medical didactics. Currently, the university offers 24 postgraduate and certificate courses as well as numerous individual courses corresponding with the Bologna directives. Only in Bern are such programmes as the Rochester-Bern Executive MBA Program or Master's in International Law and Economics (M.I.L.E.) available.

National cooperation and mobility

The University of Bern places great importance on cooperation with other Swiss universities. The Faculties of Veterinary Medicine in Bern and Zurich were merged in 2005 into the joint "Vetsuisse" Faculty. The three universities at Bern, Neuchatel and Fribourg make up the BeNeFri network where exchanges with other universities is actively encouraged. The Coordination Office for International Relations supervises and coordinates all Bern University activities related to European and international research and education programs. The office supports and advises students who wish to complete part of their education at another university in Switzerland or abroad, and also takes care of foreign students at the University of Bern.

University of Bern at a glance

Language of instruction	German
Number of students	11,800
Proportion of female students	51 %
Proportion of foreign students	7.7 %
Students in Bachelor's and Master's courses	34 %
Graduates per year	1,374
Doctorates per year	443
Diploma supplement	Yes
ECTS	Yes
Annual expenditure (incl. research)	CHF 582 million
Funding	
▪ Public contributions (Confederation and cantons)	75 %
▪ Third parties	25 %
Faculties with proportion of students	
▪ Old Catholic and Protestant Theology:	1.6 %
▪ Law	14.3 %
▪ Economics and Social Science	17.3 %
▪ Medicine	13.2 %
▪ Vetsuisse (Veterinary Medicine)	3.5 %
▪ Arts	19.9 %
▪ Humanities	14.1 %
▪ Sciences	16.1 %

University of Fribourg

Pre-eminently bilingual

Studying in an architecturally stimulating environment:
the main building of Dumas and Honegger.

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A doubling of the number of students in the last 15 years has not detracted from the familiar character of the University of Fribourg. More than 200 professors and 10,000 students originating from over 100 different countries have made such a mark on the institution that multiculturalism and multilingualism are taken for granted.

Fribourg constitutes a bridge between the German-Swiss and French-Swiss cultures, and north and south Europe. This is vividly reflected in the language structure of the students: more than half are native German speakers, 30 % speak French and over 7 % have Italian as their mother tongue.

The presence of the century-old university has a dynamic effect on the town and its 40,000 residents contributing significantly to the prevailing hospitable atmosphere. In addition to historically significant sites and a broad cultural programme, Fribourg offers a high quality of life and ideal conditions for study and research.

Students from more than 100 countries.

Supplementary bilingual degree

Young people from Switzerland and abroad frequently opt for the University of Fribourg because of the language mix; the ability to speak two or more languages is optional, but not essential to gaining entry. Most study courses are offered entirely in both German and French.
Students who absolve a proportion of their studies in their second language can gain a degree with a “bilingual” endorsement, an additional qualification much in demand in the job market.

National and international cooperation

The University of Fribourg, a university committed to a science-without-borders policy, cooperates with partner institutions throughout the world thus opening up a variety of possibilities for student exchange. Within the BENEFRI network, the university works closely with the Universities of Bern and Neuchatel in matters of teaching and research.
It has also docked successfully with Europe: Fribourg is one of the first Swiss universities to complete the transition to Bachelor’s/Master’s courses in conformity with the system laid down in the Bologna Declaration.

Tailored study courses

In teaching and research the University of Fribourg offers a broad spectrum of both highly specialised and broad interdisciplinary studies; examples of

The University of Fribourg: a bridge between cultures.

New buildings on the plateau de Pérolles: additional space for social sciences and economics.

such diversity are the Institute for Ethics and Human Rights and the Institute for Eastern Europe.
There are also a number of ways of combining various disciplines: e.g. history – business IT – media and communications science – sociology – philosophy – applied economics. Courses can be put together flexibly to meet students' requirements.
Modern research as carried out at the University of Fribourg is characterised by teamwork, interdisciplinary cooperation, ethical responsibility and dialogue with the private sector and society. Today, there are about 200 research groups attached to the University of Fribourg working on approximately 650 projects. Fifty of these are funded by the Swiss National Science Foundation and by European research programmes. Because the emphasis of research is on themes of practical value many research project findings flow directly into commercial products benefiting the public.
Reputed teaching institutes such as the Institute for Association Management, the International Institute for Telecommunications Management, the Institute for Family Research and Counselling or the Institute for Building Law offer numerous continuing education courses that can be combined to meet individual needs.

Faculty of Law

The Faculty of Law, Switzerland's second largest after Zurich, has an outstanding reputation. Law students are able to attend all lectures and tutorials in German and in French and later gain a supplementary qualification. There are numerous opportunities to specialise, for example in European or Canonical Law.

The Faculty of Economic and Social Sciences

The Faculty of Economic and Social Sciences offers future professionals solid training in economics, business management and information systems, and social sciences. The faculty emphasises the necessity for combining theory and practice: one example of this policy is the development of the Swiss universities' stock exchange game – called Fribourg Financial Network (BSU-FriFIN). This virtual stock exchange lets students get the feel of the market and identify the market-influencing factors, an ideal exercise in cross-disciplinary thinking.

Faculty of Arts

The Faculty of Arts is the largest faculty at Fribourg. Emphasis is placed on cross-cultural understanding, for example in language tuition. The faculty

has 13 departments which means students have extraordinary freedom to combine subjects giving each course a very personal flavour. Students can specialise at will at the various institutes (Medieval Institute, Institute for Remedial Education, General and Comparative Literature).

Faculty of Science

In line with its role as an educational and research institute, the Faculty of Science offers future scientists solid technical tuition in modern scientific methods. Many medical students begin their studies by spending the first two years at Fribourg because they appreciate the intimacy of the smaller university. The faculty carries out cutting-edge research: one field is climate research where researchers are analysing freak weather conditions and developing forecasting methods.

Faculty of Theology

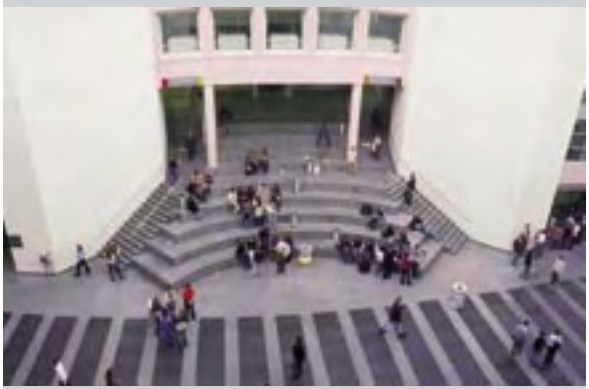
Fribourg's Faculty of Theology is Switzerland's largest and most international with over 400 enrolled students.
The Dominican Order bears the main responsibility for teaching at the faculty providing almost one-third of the professors. The main subjects taught at the faculty are Biblical Studies, Theology in the Tradition of Thomas of Aquinas, and Ecumenical Theology. More and more Protestant and Orthodox students are studying in Fribourg together with the traditional intake of Catholic students. Theology can be taken as a bilingual course or as a minor in combination with other subjects.

University of Fribourg at a glance

Languages of instruction	German/French
Number of students	9,927
Proportion of female students	56.4 %
Proportion of foreign students	
▪ by domicile	15.9 %
▪ by origin	17.9 %
Students in Bachelor's and Master's courses	45.0 %
Graduates per year	1,490
Doctorates per year	112
Diploma supplement	Yes
ECTS	Yes
Annual expenditure (incl. research)	CHF 210.8 million
Funding	
▪ Public contributions (Confederation and cantons)	82.5 %
▪ Third parties	17.5 %
Faculties with proportion of students	
▪ Theology	4 %
▪ Law	19 %
▪ Economic and Social Sciences	23 %
▪ Arts	42 %
▪ Science	12 %

University of Geneva

An open university



Humanities are mainly located at the Uni Mail.

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The University of Geneva (UNIGE) was established in 1559 on the initiative of Jean Calvin. It is a centre of thought, teaching and dialogue; an area open to scientific creativity. With around 14,685 students of 137 nationalities, Geneva today is second in size only to the University of Zurich. It has a solid international reputation and boasts the highest rate of women students in the country – 58.8 % against a national average of 45.6 %.

The UNIGE grants more than 240 types of diplomas and offers around 150 continuing education programmes in an extremely varied range of subjects. In 2005, the University of Geneva became part of the European Higher Education Area after all its faculties joined the Bologna system. Geneva has also found a place through its membership of the *League of European Research Universities*, LERU, as one of the 12 best research universities in Europe.

A wide choice of study courses

The UNIGE offers courses in the basics of science, medicine, arts, and the economic and social sciences. It can also provide its student body with quality basic instruction and develop new spheres of study which are sometimes in their embryonic stages as well as interdisciplinary projects.
The UNIGE consists of seven faculties, a school and an institute: sciences, including the School of Pharmacy of Western Switzerland; medicine, including the School of Physical Education and Sport (EEPS); arts, including the School of French Language and Civilisation (ECLF); economic and social sciences; law; psychology and education sciences; Protestant theology; Institute of Architecture and the School of Translation and Interpretation (ETI).

Research excellence at the UNIGE

The leading lights in the research sector are the life sciences such as molecular biology and bio-informatics, particle physics, astrophysics, social and economic sciences, chemistry, biochemistry and biophysics. The University of Geneva is also the Leading House for three National Centres of Competence in Research in genetics (*Frontiers in Genetics*), in material sciences (*MaNEP*) and in the study of emotions (*Emotional Sciences*).
At the national level, the University of Geneva has, for several years, posted the best results of all Swiss universities at the Swiss National Science Foundation with no less than CHF 60 million a year going to Geneva researchers. Internationally, the University of Geneva has doubled the number of its publications in scientific reviews over the past 20 years. As far as molecular

In the midst of research in the Science 2 building.

The Piaget Auditorium at the Uni Dufour.

biology is concerned, the impact of research at the Geneva institute places it second in the world right behind Princeton in the USA. Physics research in Geneva ranks sixth in the world.
The Geneva university community also benefits from advantages accruing to a university with a long tradition such as richly stocked libraries and extraordinary collections of documents such as the Piaget archives. Moreover it enjoys a dynamic spirit of innovation as can be seen by the achievements of Michel Mayor with the discovery of planets beyond the solar system, Denis Duboule in genetics and Nicola Gisin in quantum teleportation.

The University of Geneva at the crossroads of knowledge

On the strength of its unique international presence in Europe, the University of Geneva has steadily developed its ties with the international organisations and NGOs in Geneva. Its study programmes have developed significantly in this area thanks to synergies with organisations such as the ILO, WHO, UN as well as with institutes associated with the university: the Graduate Institute of International Studies, the Economic Institute of Bossey and the Graduate Institute of Development Studies. Also the Geneva International Academic Network (GIAN) aims at promoting greater collaboration between researchers and international bodies on such issues as human rights and sustainable development.
In conjunction with other universities in Western Switzerland, Geneva offers several postgraduate degrees in the social and economic sciences, pharmacy, biomedicine, psychology, the arts, gender studies, human ecology and environmental science, sociology and biology.

Cooperation: learning by networking

On the national level, the University of Geneva cooperates in two ambitious programmes. One is *Science, Vie, Société* (SVS – Science, Life, Society), an innovation and development programme with the University of Lausanne and the Federal Institute of Technology Lausanne. The other is the *Triangle Azur*, a network including the universities of Lausanne and Neuchatel with the aim of establishing joint education.
The scientific community at the university works closely with that at CERN, the European Organisation for Nuclear Research, at the ESO, European Southern Observatory, at ESA, the European Space Agency, and NASA. In the context of the EU's 6th Framework Programme for Research and Technological Development 2002 to 2006, 42 projects were under way in 2004. Of those,

17 deal with information technologies, 15 with life sciences, four with nanoscale sciences and materials study, three with social and human sciences, two with energy and one with astronomy. Finally on the international scene, the University of Geneva has no less than 80 agreements with universities on five continents.

Teaching and research units

Geneva University has seven different faculties:

- Sciences (including the Ecole Romande de Pharmacie)
- Medicine (including the school of sport and physical education)
- Arts (including the school of French language and civilisation)
- Economics and social sciences
- Law
- Psychology and educational sciences
- Protestant theology

The Institute of Architecture and the School of Translation and Interpretation also belong to the university.

University of Geneva at a glance

Language of instruction	French
Number of students	14,685
Proportion of female students	58.75 %
Proportion of foreign students	37.85 %
Students in Bachelor's and Master's courses	
▪ Percentage of freshmen student body of which 6.7 % are taking a Bachelor's degree and 2.2 % are taking a Master's degree	69.5 %
▪ postgraduate studies DESS/DEA	9.4 %
▪ other postgraduate studies	8.9 %
▪ PhD studies	12.25 %
Graduates per year	2,739
Doctorates per year	263
Diploma supplement	Yes
ECTS	Yes
Annual expenditure (incl. research)	CHF 635 million
Funding	
▪ Public contributions (Confederation and cantons)	76.6 %
▪ Third parties	23.4 %
Faculties with proportion of students	
▪ Sciences	14.3 %
▪ Medicine	8.5 %
▪ Law	8.8 %
▪ Psychology and educational sciences	15.2 %
▪ Arts	15.8 %
▪ Economics and social sciences	21.6 %
▪ Protestant theology	0.6 %
Others:	
▪ School of Translation and Interpretation	2.9 %
▪ Institute of Architecture	1.8 %
▪ Ecole de langue et civilisation française	1.6 %
▪ Other institutes affiliated to the university	8.2 %

University of Lausanne

Studies of man and life

L'humense, the building housing the Faculty of Humanities.

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Situated in the middle of the Lake Geneva region, the University of Lausanne (UNIL) focuses on research and the quality of teaching with the aim of standing out both with regard to Switzerland and internationally. Of manageable size, it offers 10,000 students from 86 countries seven faculties and peaceful surroundings on Lake Geneva as well as an education based on state-of-the-art scientific know-how. The UNIL showed courage in breaking away from certain fields such as physics, chemistry, mathematics and pharmacy. This step has allowed it to place more emphasis on other competences in cooperation with humanities and natural sciences.

This refocusing on "man and living beings in their natural and social environment" is based largely around two new faculties, both created in October 2003. The Faculty of Biology and Medicine (FBM) offers a combination – unprecedented in Switzerland – of fundamental biomedical research and clinical medicine. The Faculty of Earth Sciences and Environment (FGSE) provides a unique opportunity to reunite disciplines such as geology and geography. The intention of better placing man in his natural, constructed and social surroundings has attracted national and international attention to the university.

Another emphasis in Lausanne is the Faculty of Economics and Business administration (Ecole des hautes études commerciales, HEC). It aims to rank among the European top 10 within the next five years. The HEC Lausanne is fully at the service of its students, the economy and the society as a whole. It trains future corporate managers and specialists in the fields of administration and economy and sensitises them for interdisciplinarity and the international dimension. However, it also contributes to the formation of the students' own personalities. The HEC Lausanne builds on values such as excellence, multidisciplinary orientation, humanism and integrity.

Another speciality of Lausanne is the School of Forensic Science and Criminology (Ecole des sciences criminelles), offering an education in the field of forensic science that is almost unprecedented in Europe. It is affiliated to the Faculty of Law.

A long tradition

The Faculty of Biology and Medicine is anchored in a long Lausanne tradition of life sciences research. Lausanne is a Swiss and international centre of excellence in the field of cancer – a competence that has been further reinforced by the agreement signed on 3rd February 2004 by the CHUV (Vaud

The Faculty for Biology and Medicine is based on a long research tradition in the field of life sciences in Lausanne.

University of Lausanne: peaceful surroundings on Lake Geneva and an education that is based on state-of-the-art scientific know-how.

university hospital centre), the EPFL and the University of Lausanne. The Lausanne institute also boasts the highest standards in the areas of cardio-vascular research, metabolism, bio-engineering and immunology; in the latter, for instance, it has developed several anti-AIDS vaccines. UNIL is also increasingly recognised as a reference authority in the area of fundamental and psychiatric neurosciences. In addition to these medical themes, biology and ecology are strongly represented on the Lausanne campus.
In order to anchor its competencies at the highest level in the field of life sciences, UNIL has just set up a Centre for Integrative Genomics (CIG). This centre plays host to researchers and offers its services to a large scientific community, developing platforms for DNA chips, protein identification and bio-computing. A further threshold will be crossed with the installation of state-of-the-art nuclear magnetic resonance scanners at the new bio-medical imaging centre, which is run in collaboration with the EPFL and the Lausanne and Geneva university hospitals (CHUV and HUG).

Lausanne's date with Europe

Teaching at Lausanne university is inseparable from research. This is equally true in the domain of social sciences. Since 1 January 2004, Switzerland has been fully associated with the 6th European framework programme for research and development. Through its social and political science faculty and the Observatoire science-politique-société, UNIL directs a Swiss team that is recognised as a centre of excellence. In this framework, Lausanne participates in the first European network motivated by the goal of improving research and higher education governance in order to successfully promote innovation.
UNIL also profiles itself as a key actor in the development of a linguistic policy for European universities and is preparing the ground for the issue of plurilingualism to be adopted as a theme in the 6th framework programme. Lausanne defends the so-called 1+2 concept – in other words, mastery of the mother tongue, one "lingua franca" and one local language. This model is the most appropriate both for the acquisition and for the communication of knowledge, as well as for the development of a true national and European citizenship.

Decompartmentalising knowledge

In the face of the extraordinary development of natural sciences and technologies, UNIL wants to emphasise the continuing key role of social sciences. Its Anthropos project aims to give birth to new interdisciplinary ideas relating to

common themes. It bears witness to this desire to decompartmentalise knowledge and to produce an integrated understanding spanning life sciences and arts. In this respect, Lausanne profiles itself as a driving force at both national and international levels for the renewal of social sciences in relation to emerging bodies of knowledge, which can benefit from their reflections in the light of certain ethical and shared values. UNIL views social sciences as a vector of communication between different fields of knowledge and as a link with citizens – otherwise known as the general public.

University of Lausanne at a glance

Language of instruction	French
Number of students	10,200
Proportion of female students	54.0 %
Proportion of foreign students	16.3 %
Students in Bachelor's and Master's courses	77.0 %
Graduates per year	1,464
Doctorates per year	204
Diploma supplement	Yes
ECTS	Yes
Annual expenditure (incl. research)	CHF 319 million
Funding	
▪ Public contributions (Confederation and cantons)	79 %
▪ Third parties	21 %
Faculties with proportion of students	
▪ Theology	1.0 %
▪ Law	12.0 %
▪ Arts	22.0 %
▪ Economic and Social Sciences	24.0 %
▪ Economics and Business Administration	15.5 %
▪ Earth Sciences and Environment	2.5 %
▪ Biology and Medicine	23.0 %

University of Lucerne

A burgeoning institution

The University of Lucerne is manageable with only three faculties.

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The University of Lucerne is a young one. Although its roots reach back to 1600, it has formed part of Switzerland's 12 universities only since 2000. When the population of Lucerne adopted the new university law they paved the way for an expansion and further development of the institution.

Studies at the University of Lucerne conform to the pan-European standard in accordance with the Bologna model. Studies are arranged according to a three-step system. The Bachelor's degree is awarded after 6 semesters; following another 3-4 semesters, students can acquire a Master's degree. Subject to the corresponding qualification, students can then take up doctorate studies. This system has been implemented at all of the three faculties.

The excellent support of students is a special feature of the University of Lucerne; the ratio of 60 students per lecturer is never exceeded.

The offer: interdisciplinary, flexible, personal

The convenient size of the University of Lucerne provides students with a great degree of freedom and innovative combinations. Study courses are offered in traditional subjects as well as in overlapping subjects (integrated); moreover, it is possible to combine elements from different faculties.
The excellent support of students is a special feature of the University of Lucerne; the ratio of 60 students per professor is the declared goal and has been taken into consideration in the financial planning. Law students are allocated a contact person (mentor) for the period of their Bachelor's studies in order to ensure optimal support and to maintain a dialogue between the students and lecturers. The professors take students' matters of concern seriously and treat them as a priority. On the other hand, students also have the possibility of effectively getting involved in the university's self-administration – an activity that imparts important experiences for the students' future occupational activities.
The staff of the University of Lucerne cooperate with numerous foreign scientific institutions. These include renowned institutions such as various Max-Planck-Institutes or Harvard University in Cambridge (USA).

International student exchange

Mobility studies are promoted and subsidised with federal funds. A number of bilateral agreements allow students of the University of Lucerne to participate in the European Socrates programme and to spend two semesters during the main study period at a partner university. As of September 2005 this included the Freie Universität in Berlin, the universities of Bonn, Eichstätt-Ingolstadt,

Apart from study courses, Lucerne offers many other possibilities.

Freiburg in Breisgau, Greifswald, Heidelberg, Mainz, Munich, Münster, Potsdam, Regensburg, Rome, Tübingen, Würzburg, Lille, Paris, Catania, Genoa, Milan, Modena, Pavia, Vares, Vilnius, Innsbruck, Salzburg, Vienna, Cracow, Tel Aviv, Nanchang and the University of Tasmania in Australia .

Three faculties

The University of Lucerne is limited to three faculties and distinguished by a slim and clearly identifiable profile. With its faculties of theology, humanities and law, it concentrates on three core areas and thus bundles competence in humanities and trains qualified jurists.

Theology

Theological studies impart specialised competencies on a broad scientific basis which open up many occupational possibilities both in churches and in other fields. Theological studies expose students to affiliated subjects such as philosophy, linguistics, ethnics, law, history and pedagogics. Theology can be taken as full studies or as a major subject with two minor subjects.
The Theological Faculty comprises the following institutes: Institute for Jewish-Christian Research, Ecumenical Institute, Institute for Social Ethics, Religious Pedagogic Institute, theological seminar third-chance education, Institute for ecclesiastic further education at the Theological Faculty of the University of Lucerne.

Humanities

The Faculty of Humanities offers history, philosophy, sociology, religious studies and judaistics as well as integrated studies in social sciences, communication as well as in cultural studies. As of the 2006/2007 winter semester students will be able to enrol in a political science course. Students majoring at the Faculty of Humanities can complement their studies with minor subjects at other faculties (theology, law) and universities (Zurich or Basel, for example). The Faculty of Humanities comprises the historical seminar, the philosophical seminar, the sociological seminar, the seminar of religious studies, the Institute of Cultural Studies as well as the Institute for Culture and Communication.

Law

The Faculty of Law includes the Research Institute for International and European Private Law, the Institute for SME and Economic Law, the Centre for Social insurance Law, I-CALL (International Communications and Art Law, Lucerne) as well as an institute for basic judicial subjects. The studies help train specialised and socially competent lawyers who are capable of assuming challenging tasks within society, the economy and state. This requires a high degree of commitment on the part of the students. A mentor system ensures optimal supervision. The study offer is complemented by visiting professors from Switzerland and abroad. Glances at other disciplines and beyond borders is promoted and recommended. Together with the University of Neuchatel, the University of Lucerne offers a bilingual Master's in law. The studies offered take place in two phases: one year in Lucerne and one year in Neuchatel, in which ever order the student chooses. The following institutes are part of the law faculty: The Research Institute for International and European Private Law (FIP), the Institute for SME and Economic Law, the Centre for Social Insurance Law (LuZeSo), the International Communications & Art Law (I-CALL) and the Institute for Juristic Fundamentals (Lucerna iuris)

Research

Researchers are provided different types of advancement: project advancement, advancement of persons, meeting contributions, publication contributions, individual advice. Research activities at all three faculties (individual or networked) are multifaceted and attract national and international attention. Moreover, research centres are to be established.

The city-quality of life included

Studying in Lucerne also means living in beautiful surroundings! The proximity of the mountains, innumerable recreational offers at and on the lake, many cosy nooks and street cafés is as much a part of students' lives as are the libraries and auditorium. To say nothing of the young cultural scene, the open air concerts, trendy bars and renowned Lucerne carnival.

University of Lucerne at a glance

Languages of instruction	German, partly Italian and English in the Faculty of Law
Number of students	1,700
Proportion of female students	54 %
Proportion of foreign students	8 %
Students in Bachelor's and Master's courses	90 %
Graduates per year	300
Doctorates per year	10–15
Diploma supplement	Yes
ECTS	Yes
Annual expenditure (incl. research)	CHF 28 million
Funding	
▪ Public contributions (Confederation and cantons)	78 %
▪ Third parties	10 %
▪ Students	12 %
Faculties with proportion of students	
▪ Theology	13 %
▪ Arts	23 %
▪ Law	64 %

University of Neuchatel

An idyllic setting for study and research at the heart of Europe

Neuchatel: a university in the heart of the city. Here, the historic building of the University of Neuchatel houses the faculties of law and economics.

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Ideally situated half-way between Geneva and Zurich, or just 3½ hours by train from Paris, about six hours from Bologna, 6½ hours from Brussels and seven hours from Munich, Neuchatel University (UniNE) is the perfect choice for a full study course or for high-level research in an idyllic setting, between the Alpine peaks and the lake shore. UniNE is not an isolated campus – students and researchers live their lives in and around the town centre, all at different locations but within a stone's throw of each other. The worlds of economics, politics and culture thus form a harmonious part of life at Neuchatel University.

In harmony with time

Founded in 1839, the Académie de Neuchâtel became a university in 1909. Today, it comprises five faculties – arts and social studies, sciences, law, economic sciences and theology – which in turn cover some 30 separate disciplines. UniNE plays host to about 3,300 every year (of whom about 20 % come from outside Switzerland).

Since the start of the 2005 academic year, and in line with the Declaration of Bologna, each branch of Neuchatel University offers "euro-compatible" courses, in order to comply with higher education systems. Transitional measures have also been established for students who began their studies under the former system.

Arts and human sciences

With its 1,500 students, the arts and human sciences faculty is the largest faculty at Neuchatel University. The disciplines taught in this faculty cover the entire field of the humanities: German, English, prehistoric and classic archaeology, dialectology, Spanish, ethnology, medieval French, modern French, geography, history, history of art, journalism and communication, logic, articulation and speech therapy, philosophy, psychology, educational sciences, linguistic sciences, classic traditions.

The faculty enjoys close scientific and pedagogical links with the most prestigious regional museums: the Museum of Archæology (Latenium), the Museum of Ethnography (MEN), the Musée international d'horlogerie (MIH), the Museum of natural history and the Museum of art and history. The house for the analysis of social processes (Maison d'analyse des processus sociaux) – the future Neuchatel competence centre which encompasses sociology, ethnology, geography and the Swiss Forum for Migration and Population Studies – will also be affiliated to this faculty.

Arts and human sciences: a faculty on the shores of the lake!

The main building of the Faculty of Sciences.

The pleasant atmosphere of the University of Neuchatel promotes interpersonal contacts.

Sciences

Spread between two sites, the disciplines taught at the science faculty cover a large range of specialist areas: plant biology, micro technology and hydrogeology. The science faculty offers the possibility of taking the end-of-first-year federal exams in human and dental medicine, as well as the first-year exams in pharmacy.
At the heart of the Jura region, the science faculty can boast numerous synergies with research and development departments of the large watchmaking companies, as well as with affiliated institutions such as the Swiss Centre for Electronics and Microtechnology or the Swiss Foundation for Research in Microtechnology. At the time of writing, more than 15 spin-offs have originated from the research laboratories of the Neuchatel science faculty.
(http://www2.unine.ch/recherche/page1639.html)

Law

The Faculty of Law offers two Master's: one exclusively at Neuchatel, the other bilingual one together with the University of Lucerne. The law faculty shares the original university building with the Faculty of Economic Sciences. It offers all the traditional legal disciplines, as well as European law, health law and sports law. Some 20 professors and course directors, together with about 30 teaching and research assistants, play host to more than 500 students and 40 graduate students, who benefit from a very high supervisory standard.
In research terms, the law faculty houses the Institute of Health Law, which is common to Bern and Fribourg universities, as well as the International Centre for Sports Studies.

Economic sciences

This faculty trains the economists constantly in demand on the labour market. At the Bachelor's degree level, the direction of study is fine-tuned in line with individual choices already by the end of the second year: political economy, management and management of information systems are the three possible options. The proximity of the Swiss Federal Statistical Office, the Swiss Forum for Population and Migration Studies, the Swiss Information and Data Archive Service for the Social Sciences and the Swiss Household Panel opens a variety of opportunities for students and researchers.
The Institute of Psychology of Labour and of Organisations is responsible for educating psychologists as of the second stage. Finally, the computer sciences domain boasts an inter-faculty structure.

Theology

The home of the theology faculty is a small historic building, which also houses the prestigious Bibliothèque des Pasteurs. In the framework of the Federation of Theology Faculties in Geneva, Lausanne and Neuchatel, the Faculty of Theology in Neuchatel is responsible for practical education in theology at the Bachelor's level, while at the Master's level, it ensures education indispensable to carry out the ministry in churches in French-speaking Switzerland; it also offers courses aimed at students in the Faculty of Arts and Human Sciences on the interpretation of the Judeo-Christian tradition. It is also the the centre for doctoral education in practical theology in Protestant communities in the French-speaking world.

University of Neuchatel at a glance*

Language of instruction	French (except for some Master's courses)
Number of students	3,300
Proportion of female students	55 %
Proportion of foreign students**	19 %
Students in Bachelor's and Master's courses***	27 %
Graduates per year	458
Doctorates per year	58
Diploma supplement	Yes
ECTS	Yes
Annual expenditure (incl. research)	CHF 125 million
Funding	
▪ Public contributions (Confederation and cantons)	65 %
▪ Third parties	35 %
Faculties with proportion of students	
▪ Arts and human sciences	44 %
▪ Sciences	27 %
▪ Law	14 %
▪ Economic Sciences	14 %
▪ Theology	≤ 1 %

* official figures for 2004
** according to residence before beginning of studies
*** NB: In October 2005, all students began their studies in the Bologna system

University of St Gallen (HSG)

Practice-oriented, cross-disciplinary education

Characteristics for studies at the HSG are the compulsory curricula and rigorous examination system.

University of St Gallen

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The University of St Gallen (HSG) was originally founded as a commercial college in 1898. The principle of practice-oriented education, a concept of the time in which the university was founded, has continued to guide the school through its change to the university it is today. The University of St Gallen is now one of Europe's leading management schools accredited by EQUIS and AACSB. In European terms it is a small university, but it is nevertheless Switzerland's largest Faculty of Economics offering majors in economics, law and political science.

Characteristic for studies are broadly arranged, interdisciplinary courses – the university also has a humanities department – a clearly structured, mandatory curriculum and a rigorous examination procedure.

Bachelor's/Master's system since 2001

In 2001 the University of St Gallen became Switzerland's first university to offer Bachelor's and Master's degrees after a comprehensive, fundamental reform of courses. Today in addition to academic subjects much emphasis is put on building character and development of social competence. Bachelor's/Master's courses involve three levels of study: Assessment, Bachelor and Master. During the assessment year the students' suitability to study at the University of St Gallen is examined and initial tuition begins. For the subsequent Bachelor's level, a technically specialised course but with a generalistic approach, students select majors within the fields of economics, law or political sciences. At this level they are prepared for daily business life and the subsequent Master's course.

Ten Master's programmes

Graduates can choose from 10 Master's courses: five in business management, two in economics, one each in law, economy and law and international affairs. A clear academic curriculum and close cooperation with lecturers ensure these one to two year programmes are of the highest standard. Courses of study are structured around three pillars: contact studies (lectures, exercises, seminars), independent study (virtual lectures, reading courses with tutorials, projects), and context studies (cultural and social studies to cultivate critical thinking, training units for cultural competence). Finally graduates take a supplementary research-oriented course to gain their doctorate/PhD.

International orientation

In recent years, the university has continuously expanded its network of exchange and cooperation agreements with leading international schools of

The architecture of the university buildings blends in with the parks, sculptures and works of art.

The ISC Symposium, organised by the students, brings leaders from the science and business sectors to St Gallen.

management and economics in Europe, North and South America, and Asia. For example the HSG is a member of CEMS (Community of European Management Schools); as a result, in addition to an HSG degree, students can also obtain a European degree. The HSG is also a member of PIM (Partnership in International Management), a group of 50 first-class business schools. In total there are over 80 universities in the University of St Gallen's exchange network some of which have made agreements to issue joint diplomas. A new feature for Bachelor's students is the opportunity to spend a term in Asia at the Singapore Management University. The university also offers Master's and doctorate programmes exclusively in English.

Continuing practical education

Continuing education is another mainstay of the University of St Gallen. The focus is on current daily management practice. Courses offered include postgraduate studies, seminars and courses addressing widely differing target groups – managers and technicians from various branches and institutions. These students may obtain an Executive MBA in General Management, or enroll in intensive part-time postgraduate courses in media and communications management, business engineering or logistics

One programme concludes with a joint degree (Executive MBA HSG/MBA University of Toronto), in another postgraduate law course, students can obtain an Executive Master of European and International Business Law.

Since the beginning of 2005, students have been able to enroll for a full-time postgraduate general management course in English which concludes with an MBA HSG. This one-year program attracts young academic professionals from all over the world. They are drawn by the prospect of acquiring or deepening management theory and skills in a practice-oriented course that qualifies them for higher management office.

Institutes with entrepreneurial spirit

Research is the third mainstay of the HSG's educational programme and this is conducted at almost 30 institutes and research units affiliated to the university. As integrated units, they have financial, planning and most importantly, staff links to the university. The heads of the institutes are HSG professors. The institutes are largely autonomous entrepreneurial units that finance themselves through practical research. Each specialises in specific topics in the fields of economics, law and political science leading to research on a broad front including both basic and applied research. The HSG is primarily known for its achievements in implementing research. Many projects are financed by external sources. One of the main differences between the HSG

and other universities is the way institutes function. This has led to a distinct "HSG culture". Both lecturers and students maintain close ties with the university. The alumni association boasts 15,000 members.

Students with initiative

University of St Gallen students have a reputation for showing initiative. One prominent example is the annual ISC Symposium, which is organised by the students. It brings leading figures from the science and business sectors and students from all over the world to St Gallen.

The university is also widely recognised in the art world. The campus itself is a total work of art. The architecture of the university buildings – themselves significant objects from the nineteen sixties – blends in with the parks and integrated sculptures and paintings, which range from Cubist to Arte povera works. The university's interior resembles a modern art gallery with first class works just waiting to be discovered by the visitor.

University of St Gallen (HSG) at a glance

Languages of instruction	German/English
Number of students	5,000
Proportion of female students	30 %
Proportion of foreign students	25 %
Students in Bachelor's and Master's courses	85 %
Graduates per year	650
Doctorates per year	120
Diploma supplement	Yes
ECTS	Yes
Annual expenditure (incl. research)	CHF 150 million
Funding	
▪ Public contributions (Confederation and cantons)	Less than 50 %
▪ Third parties	More than 50 %
Faculties with proportion of students	
▪ Economics	75 %
▪ Law	25 %

University of Lugano

Strengthening academic relations and cultural exchange

The youngest Swiss university was founded in 1996.

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As the university of the Italian-speaking region of Switzerland, and the youngest in the country, USI is a highly innovative academic institution. The privileged relations it enjoys with other Swiss universities, institutes of technology and major institutions in nearby Italy, help USI fulfil a major goal: to strengthen academic relations and cultural exchange between the two countries. USI was one of the first Swiss universities to adopt the new European model of higher education, aimed at harmonising the structure of academic degrees across Europe and promoting student mobility.

The academic bridge between north and south of the Alps

The university was founded in 1996, with three faculties: architecture, communication sciences and economics. The first degrees were awarded in 2000. The new Faculty of Informatics opened in October 2004 with an international teaching staff and English as the main language of tuition. Thirteen different Master's programmes were launched in October 2004 involving communication and economics, either individually or jointly. With their two-year-long curricula, these programmes follow the directives of the Bologna agreement.
USI's official language is Italian, but most courses at Master's and PhD levels are held in English. In addition, the use of French and German is encouraged, which confirms USI's multilingual and multicultural vocation.
Thanks to its small size, generous classroom space and its excellent technical facilities, USI offers an ideal environment for learning and research. Its geographical, political, and cultural position fosters a positive exchange between the scholarly traditions of the north and the south of Europe.

Consolidation and innovation

USI is supported by public and private funds, and is run as an independent institution by the University Council. This lean structure facilitates exchange with internationally renowned institutions, investments, and innovative developments. USI is set on consolidating further its teaching programmes and teaching body, and boosting its scientific research activities. At present, it is investing nearly CHF 20 million on extending its Lugano campus and building the new Faculty of Informatics.

Faculties and study programmes

The *Academy of Architecture* offers a six-year cross-disciplinary study programme, based on the continuous integration of the architectural project with the pertinent technical, theoretical and cultural disciplines. The curriculum

Academy of Architecture: Internationally renowned teaching staff.

Multilingual and multicultural vocation: students at Lugano campus.

Culture and architecture under one roof: Palazzo Turconi.

consists of four stages: one year of basic courses in architecture is followed by a year of practical training in a firm of architects. Theoretical and professional training combine in the subsequent three years, and the cycle concludes with an entire year devoted to the diploma project.

According to the new European system of higher education, undergraduate studies in the *Faculties of Communication Sciences* and *Economics* are divided into two stages: a three-year foundation curriculum leading to the Bachelor's degree, completed by a two-year specialisation programme leading to the Master's degree. The Master's degree entitles graduate students to enter a profession or to undertake PhD studies.

During the first three years, communication students are taught the core disciplines enabling them to build the foundations and to select an initial layer of specialisation. The two-year Master's programmes offer specialisations in the different fields of communication, e.g. media management, communication technologies, educational, and institutional communication. The initial three-year curriculum in economics provides students with a solid background in this complex discipline; henceforward students can specialise in one of three two-year Master's programmes: finance, economics and management, economics, institutions and public policies, the latter being run jointly with the Catholic University of Milan.

Additionally, the two faculties offer joint Master's programmes in corporate communication, marketing, financial communication, and international tourism.

The *Faculty of Informatics* has been conceived to respond to the changed demands of the business world and of research in the latest technologies as well as to contribute its expertise to the existing faculties. The courses are organised according to the European study system. The three-year foundation programme concentrates on areas seen as fundamental, such as the theoretical principles of informatics, computer science technology, systems analysis, knowledge of application areas, project planning and management. In each semester, subjects are integrated into an informatics project, which becomes the core teaching element and guides the students toward practical and research issues. The two-year specialisation curricula leading to the Master's degree are constructed around subjects like finance, business, modelling, intensive data processing grid computing, embedded systems design.

Research

Research activities are one of USI's assets, as witnessed by more than 100 PhD students at work in the various institutes and the three graduate schools.

Their objective is to push back the frontiers of knowledge in relevant fields such as finance, new media, health care economics, and communication. The Academy of Architecture has decided to privilege research within its new Institute of contemporary urban planning.
Scientific research is a basic constituent in the development of the Faculty of Informatics. From the outset, the faculty launched an international doctoral programme, which is closely connected with research projects supported by the Swiss National Science Foundation. Fields covered are software engineering, accountable managements of data banks, distributed systems, and security of information systems. Other research is conducted in the framework of European projects, in areas such as new-technology-based services and the reliability of data banks.

National and international links

USI wants to act as a north-south academic bridge, and to strengthen existing relations between the Swiss and the Italian university systems.
USI has thus set up formal cooperation agreements for teaching and research with five major institutions in Northern Italy: with Milan's Politecnico in the case of architecture and informatics, and with the Bocconi University, the State University and the Catholic University of Milan, and the University of Pavia in the case of economics and communication sciences.
Partnerships with Swiss institutions include a collaboration and research agreement in the field of architecture with the federal institutes of technology in Zurich and Lausanne, and several joint research projects with most Swiss universities within national framework programmes.
USI has signed specific agreements for the recognition of university degrees and for student mobility in Europe (student exchange programmes) with Austria, France, Germany, and Italy.

University of Lugano at a glance

Languages of instruction	Italian (Bachelor) English (Master, PhD) English, French and German for special courses
Number of students	1,900
Proportion of female students	48 %
Proportion of foreign students	43 %
Students in Bachelor's and Master's courses	since WS 2004/05
Graduates per year	200
Doctorates per year	10 (first PhD in 2002)
Diploma supplement	in progress
ECTS	Yes
Annual expenditure (incl. research)	CHF 53 million
Funding	
▪ Public contributions (Confederation and cantons)	70 %
▪ Third parties	30 %
Faculties with proportion of students	
▪ Architecture	27 %
▪ Economics	26 %
▪ Communication	43 %
▪ Informatics (since WS 2004/05)	4 %

University of Zurich

Committed to diversity

The University of Zurich is the largest and most diverse tertiary-education institute in Switzerland. (Photo: Christoph Schumacher)

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The University of Zurich (UZH) is the largest university in Switzerland. It is dedicated to scientific diversity, promotes free discourse and interdisciplinary cooperation, and offers a range of services for the benefit of the general public. For researchers, it offers framework conditions that pave the way for top-level performance. Its nearly 24,000 students work closely together with researchers, and are thus optimally prepared to take on demanding roles in business and society at large

Creating knowledge for the future

With seven different academic faculties, the University of Zurich caters for all relevant scientific areas. Some 400 professors are responsible for research, teaching and services at more than 140 institutes, seminars and clinics. They are supported by roughly 7,000 scientific and administrative staff.
Research and teaching at the University of Zurich are inextricably intertwined. Independent research represents both the precondition for teaching and its basis. As a research institution, the University of Zurich places fundamental research at the centre of its activities. It sets itself the highest international standards in this respect.

National and international cooperation

In order to strengthen research areas, it promotes national and international cooperation and the formation of centers of competence: the various university institutes coordinate their work – often on an interdisciplinary basis and across faculty and university boundaries. The University of Zurich also operates such centres of competence together with its neighbouring university, Zurich's Federal Institute of Technology (ETHZ). They include the Centre for Neurosciences Zurich (CNZ), the Centre of Competence Finance in Zurich (CCFZ) and the Centre for Comparative and International Studies (CIS). Thanks to this cooperation based partnership, both Zurich universities can today offer the broadest range of life science options available anywhere in Switzerland.
The University of Zurich also carries out applied research and actively supports its researchers in the commercial application of research results, as well as in the negotiation of research agreements (www.unizh.ch/forschung/index.en.html).
The population at large also profits from the university's diverse activities: five university hospitals and centres ensure a qualitatively top-level medical

Natural sciences and the non-clinical sector of medicine are located at the Irchel campus. (Photo: Christoph Schumacher)

Young, dynamic, international researchers at the UZH. (Photo: Jos Schmid)

service provision. Eleven university museums and collections offer members of the public an attractive introduction to scientific subjects. Facilities such as the University of the Third Age or the Children's University, as well as a broad range of in part unique further education possibilities, make the University of Zurich an ideal location for life-long learning.

E-Learning and Bologna

The University of Zurich provides its students with a scientific education that aims to equip them to grasp problems and to acquire knowledge methodically, judge critically and communicate their findings to others. Teaching takes place in a variety of teaching and learning formats. The University of Zurich is particularly active in developing Internet-based teaching activities. With the implementation of the Bologna reform which all study courses will have completed this year, the learning freedom of the student body and the quality of the teaching will be further increased.

International connections

In the framework of international research programs, the University of Zurich takes part in 70 major multinational projects per year. The main emphasis is placed on European Union research programmes. In addition, it participates in a range of other international initiatives. More than 100 cooperation deals and around 100 mobility arrangements in the framework of the Erasmus-Socrates programme mean that the University of Zurich is linked to universities world-wide (www.int.unizh.ch/index.en.html).

Exceptional scientific qualifications

Since its foundation in 1833, many leading academic figures have performed teaching and research work at the University of Zurich. Top-level scientific distinctions both past and present underline its international importance as a scientific institution. More than a dozen Nobel Prize winners worked or work at the University of Zurich – from the very first prize winner, Wilhelm Röntgen, via Alfred Mommsen, Albert Einstein and Paul Karrer, through to Alex K. Müller, emeritus professor for solid state physics, and immunologist Rolf Zinkernagel, who is still teaching and researching at the University of Zurich. Year after year, scientists from the University of Zurich are honoured with national and international awards. Thanks to pioneering research work, the University of Zurich enjoys international recognition in the fields of

molecular biology and neuroscience particularly. However, scientists in many other fields regularly ensure that the name of the University of Zurich stays high in the international academic league tables.

Profile

The University of Zurich is the first university established by a democratic state in Europe. Today, it is an institution that enjoys its own legal status under public law, a global budget and a high degree of autonomy. It is run by the members of the university management team and a body of representatives from the worlds of politics, business, science and the arts – the Board of the University. University members have a say in relevant areas.

Part of the institutes, seminars and clinics can be found in the vicinity of the city centre. Since 1971, the Faculty of Science and the non-clinical part of the Faculty of Medicine have been based at the Zurich-Irchel university campus. The university offers all members a comprehensive infrastructure and a wide range of sporting and free time activities. The central location, the airport and the many cultural offerings combine to lend the city of Zurich a thoroughly international atmosphere. It is not without good reason that Zurich has now been nominated for the fourth time as the city with the highest quality of life.

University of Zurich at a glance

Languages of instruction	German, partly English
Number of students	23,421
Proportion of female students	54 %
Proportion of foreign students	14 %
Students in Bachelor's and Master's courses	since WS 2004/05 (916)
Graduates per year	2,140
Doctorates per year	640
Diploma supplement	Yes
ECTS	partly
Annual expenditure (incl. research)	CHF 933 million
Funding	
▪ Public contributions (Confederation and cantons)	82 %
▪ Third parties	18 %
Faculties with proportion of students	
▪ Theology	1.0 %
▪ Law	14.9 %
▪ Economics	14.3 %
▪ Medicine	9.9 %
▪ VetSuisse	2.8 %
▪ Humanities	46.3 %
▪ Mathematics and natural sciences	10.8 %

University of Applied Sciences of Bern

A university of applied sciences that's on the move

Study at the University of Applied Sciences of Bern: practice-oriented studies to hone professional skills.

Bern University of Applied Sciences

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The University of Applied Sciences of Bern is a multi-facetted institution with a long past, and its eyes on the future. Its student body of more than 5,000 can choose from some 30 Bachelor's courses many of which are unique in Switzerland.

Courses are offered in engineering and information technology, economics, administration, health and social work, arts, agriculture and sport. The hallmarks of studies at the UASB are practice-oriented teaching closely tied to economic applications, short study periods and continuous dynamic development of the whole curriculum. In addition to Bachelor's studies, the UASB offers a raft of attractive postgraduate courses including e-government, business IT, mentoring, case management, and even pop music. To broaden its network of national and international contacts the UASB engages in numerous projects in cooperation with reputed institutes of higher education and research facilities throughout the world. This paves the way for students to complete their studies in other attractive environments both within Switzerland and abroad.

Bachelor's degree in IT: the most comprehensive offer at any UAS in the country.

Six schools meeting the challenges of the future

The University of Applied Sciences of Bern is "on the move". It is constantly adapting its offer to keep up to changing societal, economic and technological needs. Despite all the recent changes at the university, its main goal remains the same. Studies at the UASB are open to all those interested in getting to grips with the scientific principles applicable to their own professional field. The UASB aims to help students become successful in the profession of their choice, make its own mark on the higher education landscape, innovate with vigour and exuberance, trigger creative processes, carry out research and provide services to the business world and society.
The UASB is an amalgamation of six departments. These are presented individually in the next section.

Biel School of Engineering and Information Technology

The School of Engineering and Information Technology (HTI) at Biel offers Bachelor's study courses in electrical and communications science, information technology, mechanical engineering, microtechnology and automotive engineering. The HTI Biel is the only university in Switzerland offering the latter course. The department of computer science offers the broadest choice of IT courses of all Swiss universities of applied sciences. With the exception of automotive studies and microtechnology, part-time courses are available in all branches of study.

The Bern Biennale is organised by the School of Arts.

At the HTI Biel, postgraduate studies are offered in the following sectors: mobile application management, international Master's in engineering, medical technology management, software engineering, object technologies and Internet, telecommunications, information technology and telecommunications, applied economics, management and innovation management.

Bern School of Economics, Business Administration, Health and Social Work

The School of Economics, Business Administration, Health and Social Work (HSW) in Bern turns out qualified specialists and managers for the private sector, business administrations, health and social services: industrial managers, business IT experts (from 2006), physiotherapists (from 2006), nurses (from 2006), nutritional advisers (from 2007), midwives (possibly from 2007), social workers. A broad range of continuing education courses offers practitioners extensive possibilities to broaden their skills, specialise and further develop. In addition, the Department of Applied Research and Development is active in these specialised fields and offers services.

Burgdorf School of Architecture, Civil Engineering and Wood Construction

The School of Architecture, Civil Engineering and Wood Construction (HSB), in Burgdorf, is one of the largest educational facilities serving this sector in Switzerland. In addition to Bachelor's courses in architecture, civil engineering and wood materials technology, postgraduate courses are offered in wood construction, and conservation and restoration. HSB in Burgdorf is the only university in Switzerland teaching wood materials technology.

Bern School of Arts

The Bern School of Arts (HKB), Switzerland's first university of the arts, offers students a wide choice of study courses in visual, plastic and performing arts. In a newly established institute called "Y – Art as Research" an interdisciplinary approach involving art and science is being applied. The HKB also houses the Swiss Competence Centre for Conservation and Restoration.
With more than 200 concerts, exhibitions and other events the school guarantees a practice-oriented education and at the same is a major regional culture source. The programme of continuing education includes two courses that are unique in Switzerland: "Signaletic" and "Conservation of Modern Materials and Media".

Swiss School of Agriculture, Zollikofen

The Swiss School of Agriculture (SHL) at Zollikofen is the only bilingual university (German and French) in Switzerland offering unique Bachelor's study courses in agronomy, forest management and food technology for the dairy sector. At SHL, trainee agronomists work at the interface between the natural sciences, technology, and society.
Through the "SHLexpertise" institute for applied research and development, services and continuing education, SHL has entered successful partnerships with companies, institutions and organisations from the agricultural, forest management and food technology sectors.

Swiss School of Sports, Magglingen

In Switzerland, the Swiss School of Sports in Magglingen (EHSM) is the sole provider of sport studies. During such studies trainee sports instructors and physical education teachers acquire the information and ability needed in both the scholastic and extracurricular sectors and gain a thorough grounding in such themes as "Schools and education", "Sport and health", "Competitive sport", "Sport management" or "Sport and tourism". EHSM also has a postgraduate study programme.

University of Applied Sciences of Bern at a glance

Languages of instruction	German, French, English
Number of students (diploma studies)	>5,000
Proportion of full-time students	80 %
Proportion of part-time students	20 %
Proportion of female students	25 %
Graduates 2003 (diploma studies)	1,500
Diploma supplement	Yes
ECTS	Yes
Annual expenditure (incl. research)	CHF 190 million
Funding	
▪ Public contributions (Confederation and cantons)	70 %
▪ Third parties	30 %
Departments with proportion of students	
▪ Mechanics and IT	36 %
▪ Economy and Social Work	32 %
▪ Arts	13 %
▪ Architecture	11 %
▪ Agriculture	5 %
▪ Sports	3 %

University of Applied Sciences of Central Switzerland

A long tradition

The UAS of Central Switzerland (the picture shows the Lucerne School of Business) is strongly engaged in international student exchange programmes.

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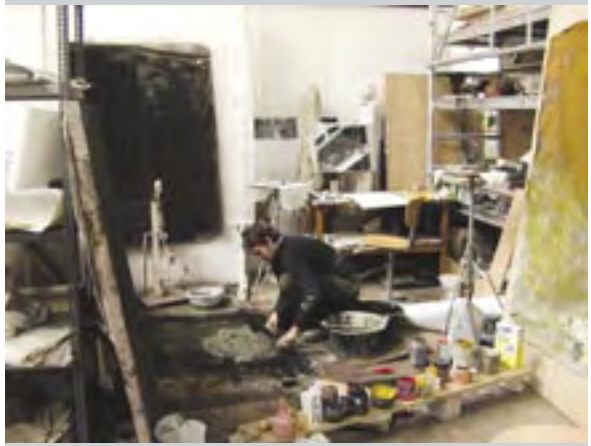
The University of Applied Sciences of Central Switzerland (FHZ) was created in 1997 by the merger of institutions of higher education, some of which are more than 50 years old. The FHZ offers a wide range of degree programmes and postgraduate courses of study in the fields of engineering and architecture, economy, social work, design, art and music. It is also active in research and development and provides a variety of services. In 2004, the FHZ had a student body of 3,715, of which 876 were enrolled in postgraduate studies. The five institutions making up the FHZ are all situated in the city of Lucerne or its metropolitan area. In the general framework of Campus Lucerne, the FHZ, along with the University of Lucerne and the Pedagogical Institute of Central Switzerland (PHZ), offer a range of trans-disciplinary studies. Lucerne is a city of culture and tourism in Central Switzerland and as such offers not only world renowned gems of urban architecture, rural beauty and cultural events but also an attractive oasis of education with a diverse programme of studies in tertiary education.



Fine Arts is one of the degree programmes of the Lucerne School of Art and Design.

Introduction of the Bologna reform and the first English-language studies

Since the fall of 2005, the FHZ offers 14 Bachelor's study courses with 25 programmes. The School of Engineering and Architecture (HTA) has begun a Master's programme in architecture. In the other schools, the first Master's courses begin in 2008. From fall 2006, the FHZ will offer a new sphere of studies in English: The course in Design Management International at the School of Art and Design (HGK) is aimed at Swiss and foreign students

School of Engineering and Architecture

(Hochschule für Technik+Architektur, HTA Luzern)

This school started its activities as part of the FHZ in October 1997. In 2004 it had a total of 830 students in the degree programmes and more than 100 students in postgraduate courses. It offers degree programmes in architecture, civil and structural engineering, electrical engineering, information and communications technology, mechanical engineering, as well as heating, ventilation, air-conditioning and sanitary engineering. The degree programmes in heating, ventilation and air-conditioning engineering are unique in Switzerland at this level. Attached to the school are six institutes which carry out research and development projects as well as technology transfer, all in close connection with their teaching activities. The school is a national centre of excellence in building technology and plays a leading role in the Swiss network of

The "Junge Philharmonie Zentralschweiz" is the orchestra of the "Musikhochschule Luzern".

excellence in building technology and renewable energies "brenet". The school has been successfully working together for several years with other UAS, the Federal Institute of Technology in Zurich, the University of Zurich and foreign universities.

School of Economics
(Hochschule für Wirtschaft, HSW Luzern)

Situated above the railway station in Lucerne, this school started as part of the FHZ also in October 1997. It offers degree programmes in controlling, accounting, finance, banking, public management, economics, business IT, business communication, tourism and mobility. In 2004 the school had 685 students in degree programmes and more than 900 in postgraduate courses. It also houses a School of Tourism Management with 140 students. The numerous continuing education courses to expand or hone skills are organised and run by five institutes. These also serve as skill centres for knowledge and technology transfer and research and development. Their core competencies are: financial services, management of private and public institutions, corporate communication, business information technology and tourism. The school is also strongly engaged in international student exchange programmes.

School of Art and Design
(Hochschule für Gestaltung+Kunst, HGK Luzern)

This school became part of the FHZ in 1998. At the UAS level it offers degree courses in visual communication (graphic design, illustration, video, animation) and in industrial design (textile design), the plastic arts and aesthetics. In 2004 the school had some 240 degree programmes and about 110 postgraduate course students and another 170 at the preparatory level (introductory and foundation courses). Since 2001 it has coordinated and directed through the Institute "Relais" an increasing number of tasks related to research and development, continuing education and third-party services. The school has a good international network of contacts which it is trying to expand.

School of Social Work
(Hochschule für Soziale Arbeit, HSA Luzern)

Located next to the Lucerne culture and convention centre by the lake, the HSA is an education, counselling and research centre in the field of social work. It offers degree programmes at UAS level in social work and in socio-cultural

animation. In 2004, this school had about 450 students following a degree programme and about 1,000 students taking postgraduate courses. For several years this school has had a considerable amount of commissioned work in R&D as well as an imposing number of services and counselling projects. The HSA Luzern specialises in the following areas: social work and law, prevention and health, socio-cultural and inter-cultural development, social economics and management as well as social planning and social policy. The school works in close collaboration with other UAS and universities abroad and is planning to extend its international network in the near future.

School of Music
(Musikhochschule Luzern)

This school started in 1999 with the merger of the conservatory, the Academy of School and Church Music and the Jazz School. It offers degree programmes in music teaching, interpretation and performance, school and church music, conducting, and specialised education in music theory, composition and arrangements. In 2004 it had a student body at UAS-level of about 470 students and another 420 at preparatory school level. In order to meet its broader responsibilities, the MHS established an institute in 2001 that is active in applied R&D and an institute which deals with continuing education and music communication, postgraduate work and advanced education courses as well as music events. It also makes considerable efforts to develop its contacts with well-known schools of music and with other institutions in Switzerland and abroad.

University of Applied Sciences of Central Switzerland at a glance

Languages of instruction	German, partly English
Number of students (2004/2005)	2,839
Proportion of full-time students	81 %
Proportion of part-time students	19 %
Proportion of female students	39 %
Proportion of foreign students	8 %
Annual number of graduates (diploma studies)	586
Postgraduates per year	448

Since fall 2005:
- 14 Bachelor's programmes with 25 courses
- One Master's course in architecture

From fall 2006:
- English-language studies in Design Management International

From 2008:
- Master's courses

Annual expenditure (incl. research)	CHF 131 million

Funding

▪ Public contributions (Confederation and cantons)	73 %
▪ Third parties	27 %

Faculties with proportion of students

▪ Engineering and IT	19 %
▪ Architecture, Construction and Planning	11 %
▪ Economics and Services	27 %
▪ Social Work	16 %
▪ Design	6 %
▪ Arts	3 %
▪ Music	18 %

University of Applied Sciences of Eastern Switzerland

The UAS is one of the largest educational institutions in Eastern Switzerland.

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The UAS of Eastern Switzerland is an association of four schools of higher education with programmes for approximately 2,800 students in the fields of technology, information technology, construction and planning, economics, tourism, social work and health. This association between the St Gallen Institute of Technology, Economics and Social Work (UAS), the Rapperswil Institute of Technology (HSR), the Chur Institute of Technology and Economics (HTW) and the Buchs Institute of Technology (NTB) has created one of the largest educational institutions in Eastern Switzerland.
The decentralised organisational structure and the strategic objectives of the UAS are aimed at strengthening the regional economy. Impulses from the economy and society are integrated into the application-oriented instruction and into the further development of the study courses. The UAS has introduced the European Bachelor's and Master's degree system and its studies correspond to international standards. The services and research activities of the schools are closely linked to industrial firms, small- and medium-sized companies and the public authorities. In knowledge and technology transfer the UAS of Eastern Switzerland makes an important contribution to innovative development in the region.

Impulses from the economy and society are integrated in application-oriented teachings.

Characteristics, priorities

The interdisciplinary *UAS St Gallen* offers Bachelor's studies in business administration, business IT, social work, social pedagogy and nursing. The courses in business management have been awarded the international seal of quality by the renowned Foundation for International Business Administration Accreditation (FIBAA). A broad choice of postgraduate studies in the technology, economic and social fields enable students to strengthen their technical and management skills or develop modern cross-cutting skills in such fields as economics engineering or social computer science.
The *HSR Rapperswil* offers study courses in the fields of engineering, information technology and construction and planning. The study offer includes electrical engineering, computer science, mechanical engineering, civil engineering, landscape architecture and spatial planning, two courses that are unique in the German-speaking part of Switzerland and indeed throughout the country. Continuing education courses cover all specialised areas. In cooperation with German Universities of Applied Sciences, students can acquire an International Master's of Landscape Architecture (IMLA).
The study courses offered by *HTW Chur* concentrate on five fields: entrepreneurship/management, tourism, information science, telecommunication/

The UAS of Eastern Switzerland in collaboration with foreign partners offers cross-border courses in the Lake Constance region.

electrical engineering as well as construction and design. The internationally oriented study course "Tourism and Hospitality" is unique in Switzerland. Unique to German-speaking Switzerland is the Bachelor's course "Information and Documentation". In continuing education, the HTW Chur works with the EMBA programme consisting of basic and secondary stages with the five consolidation courses in industrial and services management, entrepreneurship and innovation, international tourism management, construction management and international business.

The *NTB Buchs* offers a comprehensive education in engineering aimed at professionals from the fields of mechanics, electrical engineering, computer science and laboratory work. The holistic approach to studies at NTB Buchs puts the emphasis on disciplinary and application-oriented education. Systems engineers can tackle complex problems holistically and combine different components into functioning systems. In international cooperative courses students can graduate with a "Master of Science in micro- and nanotechnology" and a "Master of Science in opticals systems engineering".

Research activities and priorities

The UAS of Eastern Switzerland is active in various fields in applied research and development.

The *UAS St Gallen* focuses its research activities on five subjects: strategic management of small- and medium-sized companies, information and process management, technological innovation management, generation matters and social spaces. These subjects give special attention to the interdisciplinary approach which is possible through the cooperation between different UAS institutes.

The *HSR Rapperswil* is successfully involved in application-oriented research and development and is a member of different national networks such as "brenet" (building technology and renewable energies), ICTnet (Internet communication), MICROSWISS (microelectronics), Netzwerkholz.ch (high-tech wood products) and TOURESPACE (tourism and living space).

The *HTW Chur* offers research and services in its areas of specialisation to five institutes, the main one being the Tourism and Leisure Time Research Institute with its focus on product innovation, customer care and future analyses. The Swiss Institute for Entrepreneurship runs the E Tower which supervises and promotes start-ups.

The *NTB Buchs* has made a name for itself internationally in the fields of micro- and nanotechnology. Of supra-regional importance are also the com-

petence centres for microsystems technology and quality technology. In the Lake Constance area its activities in fields of optics and laser technology hold an important position. Important research areas are medical engineering, automation and production technology.

International contacts

The UAS of Eastern Switzerland cooperates globally with different schools and, as a member of the International University of Lake Constance (IBH), also offers cross-border courses in the Lake Constance region in cooperation with foreign partners. It also cooperates with schools in the United States such as Babson College, Boston, California Polytechnic State University, California Institute of Technology, Pasadena, the Robert Morris University, Pittsburgh, and the University of Delaware. There are close contacts in China with the Hong Kong University of Sciences and Technology, the Nanyang Technological University in Singapore and the Swiss German University in Jakarta, Indonesia. There is also an annual student exchange between Singapore and the HSR Rapperswil and the UAS St Gallen.

University of Applied Sciences of Eastern Switzerland at a glance

Languages of instruction	German, partly English
Number of students (diploma studies)	2,800
Proportion of full-time students	74 %
Proportion of part-time students	26 %
Proportion of female students	27 %
Proportion of foreign students	12 %
Graduates 2003 (diploma studies)	650
Diploma supplement	Yes
ECTS	Yes (partly)
Annual expenditure (incl. research)	CHF 95 million
Funding	
▪ Public contributions (Confederation and cantons)	79 %
▪ Third parties	21 %
Faculties with proportion of students	
▪ Engineering and IT	50 %
▪ Architecture, Construction and Planning	13 %
▪ Economics and Tourism	24 %
▪ Social Work	13 %

University of Applied Sciences of Northwestern Switzerland

Professionalism. Quality. Innovation.

Research, services, cooperation: transferring knowledge and technologies to applications.

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The University of Applied Sciences of Northwestern Switzerland, UASNW, is a regional institution with national and international impact and networks. It aims to make a contribution to the development of the economic, scientific, cultural and social milieu. In a spirit of enterprise, it focuses on present and future markets and the needs of different groups. In terms of quality its activities are pathbreaking on an international level and it sees itself as a learning organisation with the necessary courage to change.

The UASNW consists of eight schools in architecture, construction and geomatics, life sciences, engineering and IT, economics, design and art, applied psychology, pedagogics and social work. On January 1, 2008, the Music Academy of Basel will become the ninth school in the UASNW. Thus, the UASNW covers all educational fields prescribed by the federal government for a school of higher education. In doing so, it is active along the entire value chain. The schools are located in Aarau, Basel, Brugg/Windisch, Muttenz and Olten.

Study courses are practically oriented and in line with market requirements. They are offered as full-time studies, part-time or combined. The UASNW has consistently modularised its study courses and aligned its directions of specialisation; this allows for a concentration of competencies and a cross-cutting study offer per location in selected basic subjects.

Domestic and foreign tertiary education experts have carried out a peer review and given the UASNW high marks for professionalism and high quality teaching standards. At the end of 2003, the Federal Council approved all of the study courses offered.

Study courses in three countries and some in English

The UASNW is the only school of its kind in Switzerland to offer courses in three countries: technical project management in mechatronics, civil engineering and international business management. One year of training each takes place in Germany, France and Switzerland. Students come from all three countries in equal numbers. Following four-year studies with integrated practical work, graduates are granted diplomas from all three of the partner countries. The UASNW also offers complete courses such as international management exclusively in English

Interdisciplinary cooperation

The UASNW is aiming to become even more innovative and develop into a leading school of applied sciences in Switzerland and abroad. Therefore it promotes interdisciplinarity, broad cooperation in networks, international partnership

Attractive continuing education possibilities in all subjects.

The specialised centres of the UASNW

School of Art and Design
(Basel, Brugg/Windisch)

- Institute Interior Decoration and Scenography
- Institute Industrial Design
- Institute Media Art
- Institute Fashion Design
- Institute HyperWork
- Institute Art
- Institute Teaching Professions in Art and Design
- Institute Visual Communication
- Institute Design and Art Research

School of Life Sciences
(Muttenz)

- Institute for Chemistry and Bioanalysis
- Institute for Ecopreneurship
- Institute for Medical and Analysis Technology
- Institute for Pharma technology

School of Applied Psychology
(Olten)

- Institute for Teaching Applied Psychology
- Institute of Man in Complex Systems
- Institute for Cooperation Research and Design

School for Social Work UASNW
(Olten, Basel, Brugg/Windisch)

- Institute for Teaching Social Work Basel
- Institute for Teaching Social Work Olten
- Institute for Counselling, Coaching and Social Management
- Institute for Integration and Participation
- Institute for Youth Work
- Institute for Social Work and Health
- Institute for Professionalisation and Cooperative Knowledge Development

School of Architecture, Construction and Geomatics (Muttenz)

- Institute of Architecture
- Institute of Civil Engineering
- Institute of Surveying and Geoinformation
- Institute of Energy efficient construction

School of Technology
(Brugg/Windisch)

- Institute of Mathematics, Natural Sciences, GSW
- Institute of Microelectronics
- Institute for Aerosols and Sensor Technology
- Institute for 4D Technologies and Data Spaces
- Institute for Power and Signal Processing
- Institute for Logistics and Process Design
- Institute for Automation
- Institute for Synthetics Technology
- Institute for Thermo- und Fluid Engineering
- Institute for Mobile and Distributed Systems
- Institute for Product- and Production Engineering

School of Economics
(Basel, Brugg/Windisch, Olten)

- Institute for Finance
- Institute for Sustainable Management
- Institute für Applied Business Administration
- Institute for Management Development
- Institute for Management and Computer Science and Economics
- Institute for Man and Organisation
- Institute for Business Communication
- Institute for Interdisciplinary Economic and Social Research

Teacher training school
(Brugg/Windisch, Solothurn, Basel)

- Institute for Elementary School Training
- Institute for Secondary School Training
- Institute for School and Continuing Education
- Institute for Knowledge and Communication
- Institute for Knowledge and Communication; Centre for Reading

(USA, China, Europe) and international exchanges of students and lecturers. Numerous courses such as computer science and economics, business processing or applied psychology and such institutes as the one for interdisciplinary economic and social research, IWS, are evidence of the interdisciplinary approach. The international focus is reflected in more than 60 agreements with foreign universities and offers such as the course “Microeconomics of Competition”, a result of cooperation with the Harvard Business School.

International university development project

The UASNW is the leader in the international university development project called POLE Europe, in which 60 students from renowned universities work together as a team connected by Internet on joint planning activities.

University region Northwestern Switzerland – integral product development

Without research there is no education: In the field of application-oriented research and development, the UASNW collaborates with renowned partners from the economy and with public institutions in Switzerland and abroad. A project entitled “Universities in Northwestern Switzerland – Integral Product Development” (IPE) was launched in cooperation with the University of Basel, the Paul Scherrer Institute PSI and the Friedrich Miescher Institute with the aim of establishing and further developing competencies in future-oriented subjects. IPE programmes are being developed on the basis of the strengths available at the schools involved. The goal is to position the UASNW as a platform for knowledge transfer between school, the economy and society by transferring new research results by services and counselling. Mainly small and medium size enterprises in the regions are addressed along with public institutions and administrations. In doing so, the UASNW is strengthening the region as an economic centre.

Institutes

The UASNW and its schools combine research, counselling and continuing education, look for new forms of cooperation between the economy and schools and contribute to finding solutions for urgent problems in society. In this way, the UASNW accepts its social responsibilities.

Continuing education

The UASNW has a varied and in some cases leading programme of attractive continuing education: Executive Master's programmes and postgraduate studies, postgraduate courses, specialised courses, seminars and conferences. As a result it has a good reputation among decision makers.

Bachelor's degree studies since fall 2005

The UASNW implements the Bologna reform process in accordance with the planning guidelines of the Federal Office for Professional Education and Technology. Bachelor's programmes began in fall 2005 and Master's courses are scheduled to start in the winter semester 2008/09. A coordination committee is supervising the process. As a result, the UASNW is amply equipped to deal with future competition with other national and international schools of higher education.

What is important to us

The UASNW places great importance on four things: innovation, interdisciplinary cooperation, international partnerships and a personal atmosphere. We are certain that the close contact between students and lecturers results in successful learning and that a stay at a school of higher learning abroad is very important.

University of Applied Sciences of Northwestern Switzerland at a glance

Languages of instruction	German, partly English
Number of students (diploma studies)	about 6,000
Proportion of female students	38 %
Proportion of foreign students	12 %
Graduates (diploma studies)	1,500
Diploma supplement	Yes
ECTS	Yes
Annual expenditure (incl. research)	about CHF 300 million
Funding	
▪ Public contributions (Confederation and cantons)	82 %
▪ Third party	18 %
Faculties with proportion of students	
▪ Architecture, Construction and Geomatics	4 %
▪ Technology and IT	19 %
▪ Life Sciences	3 %
▪ Economics	23 %
▪ Art and Design	8 %
▪ Social work	14 %
▪ School of Applied Psychology	3 %
▪ Teacher training	26 %

University of Applied Sciences of Southern Switzerland

Developping an efficient academic infrastructure

Trevano is one of the six SUPSI locations and the one closest to Lugano.

Scuola Universitaria Professionale
della Svizzera Italiana

SUPSI

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The main aim of the University of Applied Sciences of Southern Switzerland (SUPSI) is to develop Canton Ticino's plan of rapidly constructing, in the Italian speaking part of Switzerland, a unique and efficient academic infrastructure, consisting of both the University of Lugano and SUPSI.

In order to accomplish this objective, SUPSI brought together in 1997 pre-existing technical, economic and artistic schools and institutes that had been supplying applied research results and services to small- and medium-sized firms in the region.
SUPSI also operates in the fields of graduate and continuing education. A broad range of programmes is offered throughout the year.

The Laboratory for Energy and Environment supervises various research projects in the solar sector.

Department of Environment, Construction and Design (DACD)

Degree programmes are offered in architecture, civil engineering, interior design, visual communication, conservation and fresco restoration.
The Institute for Earth Sciences (IST) is employed by Canton Ticino to monitor and avert potential natural hazards in the pre-alpine and alpine areas, by the application of measurement and alarm systems. One laboratory (LEEE) deals mainly with energy problems, particularly the use of energy in construction. Another laboratory (LTS) concentrates on research into the testing and measurement of construction materials. Research activities are also conducted on the preservation of the cultural heritage of the Italian part of Switzerland and on the application of new media in visual communication.
Continuing education is offered to professional architects, engineers, geologists, etc.

Department of Innovative Technologies (DTI)

Three degree programmes are offered: information technology, electronics and mechanics.
The main research activities focus on the management and networking of information systems, and integrating electronic systems from sensors to technical electronics. The Institute for Applied Computer Science in Industrial Design and Manufacturing (ICIMSI) is concerned with technology transfer. The main fields of activity of the Institute Dalle Molle for Artificial Intelligence (IDSIA) are artificial neural networks, reinforcement learning, evolutionary computation and combinatorial optimisation.
A Master's in advanced computer sciences is offered, and also a broad range of further education programmes for professional engineers.

Degree programmes

- Architecture
- Civil engineering
- Interior design
- Visual communication
- Conservation and restoration
- Business administration and management
- Social work
- Computer science
- Electrical engineering
- Mechanical engineering
- Music
- Theatre

Starting in 2006

- Nursing
- Physiotherapy
- Ergotherapy

Information technology, electronics and mechanics are pooled in the Department for Innovative Technologies.

Department of Business Administration and Social Work (DSAS)

This department has two main degree programmes: business administration and management, social education and social work.
Research and further training focus on the areas of tax law, management consulting for small- and medium-sized companies, quality management of public enterprises and bodies, as well as on the field of social policy programmes.
Postgraduate studies are offered in business administration and international tax law.

Distance learning (FFHS)

Since 2004, SUPSI integrated the Fernfachhochschule Schweiz (FFHS), the most important distance learning UAS in Switzerland, based in Brig (German speaking part of Valais) and with training centres in Zurich, Basel and Bern. FFHS has degree and graduate programmes in engineering and business administration.

Music and Theatre (STD and CSI)

Since 2005, the Scuola Teatro Dimitri in Verscio and the Conservatorio della Svizzera Italiana, both schools with a tradition of international students, have been integrated in SUPSI.
In the Scuola Teatro Dimitri, opened in 1975, pantomime, acrobatics, dance and theatrical improvisation have been chosen as principal subjects.
The Conservatorio della Svizzera Italiana is offering professional training in the branches of music pedagogy, performance, conducting and composition.

New campus

In the next years SUPSI will integrate health care and become a small university offering a broad range of applied sciences, uniting – with the University of Lugano – 5,000 students on a common campus.

University of Applied Sciences of Southern Switzerland at a glance

Languages of instruction	Italian, distance learning offered in German, some graduate studies in English
Number of students (diploma studies)	1,706
Proportion of full-time students	59 %
Proportion of part-time students	41 %
Proportion of female students	36 %
Proportion of foreign students	17 %
Graduates 2004 (diploma studies)	274
Diploma supplement	Yes
ECTS	Yes
Annual expenditure (incl. research)	CHF 65 million
Funding	
▪ Public contributions (Confederation and cantons)	60 %
▪ Third parties	40 %
Faculties with proportion of students	
▪ Architecture (SUPSI)	6 %
▪ Civil Engineering (SUPSI)	4 %
▪ Interior Design (SUPSI)	3 %
▪ Visual Communication (SUPSI)	5 %
▪ Conservation and Restoration (SUPSI)	1 %
▪ Business Administration (SUPSI)	31 %
▪ Social Work (SUPSI)	12 %
▪ Computer Science (SUPSI)	14 %
▪ Electronics (SUPSI)	5 %
▪ Mechanics/Microtechnics (SUPSI)	1 %
▪ Engineering and Management (FFHS)	3 %
▪ Business Information Technology (FFHS)	5 %
▪ Theatre (STD)	2 %
▪ Music (CSI)	8 %

University of Applied Sciences
Western Switzerland

The building housing the engineering and architectural school in Fribourg.

Hes·so

Haute Ecole Spécialisée
de Suisse occidentale

Fachhochschule Westschweiz

University of Applied Sciences
Western Switzerland

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No less than 31 schools in seven cantons make up the University of Applied Sciences Western Switzerland (HES-SO). The network consists of schools which are strongly anchored in their local socio-economic structure and able to react quickly to changing requirements. The complete reorganisation of the study courses has imbued higher professional training with fresh know-how and innovative spirit.

The University of Applied Sciences (UAS) Western Switzerland is highly competent in fields ranging from engineering sciences and architecture, economy and services, design and, since 2002, health, social work and music. A course in visual arts will soon be added thus creating a large multicultural space where the widest range of sensibilities can meet and communicate.

A reorganised offer and new study courses …

This concentration of offers, however, can be developed further and improved only if major coordination takes place on the pedagogic, scientific, financial and administrative levels. For this reason, the UAS Western Switzerland has designed a strategy that satisfies both the teaching requirements – particularly in view of its integration into the Bologna model – and also those concerning the network management. With regard to teaching, the UAS has transformed its structures and reorganised its study courses into nine educational domains. Each of these is managed by a domain head and an advisory board of specialists takes charge of the responsibility.

The grouping of the 39 subjects has resulted in the following educational domains:

- Chemistry and Life Sciences
- Construction and Environment
- Information and Communication Technologies
- Industrial Technologies
- Economy and Services
- Design
- Social Work
- Health
- Music (new)

There are some rare pearls among this comprehensive offer. These include degree programmes that are unique in Switzerland, such as media engineering, life technologies, oenology, hospitality management and hotellery. The HES-SO is currently the only school of higher education offering seven degree

Industrial design of products: glass lamps integrating the images of insects according to a new image transfer procedure developed at the HEAA.

Medical radiology technology: a scanner is connected to the control screen permitting an examination of a selected part of the body in sections.

programmes in the health field. These include nursing, midwifery, physiotherapy, ergotherapy, nutrition, medical radiology and psychomotor therapy. Also on the curriculum are telecommunication, landscape architecture, agronomy, nature management as well as documentary information.

… using the Bologna model as the basis

More than 10,000 students are currently enrolled at the UAS Western Switzerland. Most of the new students have either passed the grammar school exam or hold a professional matriculation certificate. Study courses last three years – four years in the health field – and can be attended as full-time, part-time or while employed.

In view of Bologna and in order to optimise its offer, the UAS Western Switzerland has modularised its teaching. Most of the courses are in French, but German is also used in a few professions. The prestigious hotellery and hospitality programme is even held in three languages and attracts students from all over the world. The UAS offers ideal prerequisites to promote the mobility of students in Switzerland and abroad as well as to offer them an optimal integration into professional life or further studies.

In addition to the basic study courses, the UAS Western Switzerland, as prescribed by the law, offers postgraduate studies that allow students to deepen their know-how or gain new knowledge. There are two different possibilities. On the one hand, there are postgraduate courses credited with 15 ECTS points that lead to a regularised confirmation by the UAS. On the other hand, there are postgraduate study courses credited with 60 ECTS points that lead to a federally approved degree following an examination and a diploma thesis.

Close to reality

The UAS Western Switzerland has a third task: applied research and development (R&D), a logical and necessary complement to education. This function is of major importance for the economy as well as the health and social policies of the country. It stimulates innovation connected with directly applicable state-of-the-art technologies and contributes to solving the problems with which the fields of health and social work are confronted.

R&D activities are carried out in competency networks whose members are researchers from the UAS Western Switzerland and others. Two main topics have been defined in line with the needs of the economy and of institutions: microtechnology and communication technologies. A bundle of coherent knowledge and applicable know-how is to be expected in order to be able to prevail in an ever changing environment.

A school that is open internationally

National and international relations is the fourth task of the UAS Western Switzerland. They stimulate collaboration between the institutions and promote better recognition of diplomas and efficient study courses.

The UAS Western Switzerland finances the international exchange of students and professors. Moreover, a part of this exchange takes place within the framework of a mobility structure comparable to the European Erasmus programme. It allows Swiss students to take advantage of EU conditions that also include mobility scholarships. They are granted to Swiss students for study abroad, but also to foreign students enrolling at a Swiss school of higher education.

Swiss students at the UAS Western Switzerland are also entitled to other European exchange and cooperation programmes such as Leonardo, Eurodyssee and IAESTE.

There is also the possibility of an exchange on a "private" basis, the fruit of many years of collaboration with schools and partners abroad. The most important include exchange programmes with France, Germany, Canada, Indonesia, Japan and Singapore.

By putting the focus on Switzerland and beyond, the UAS Western Switzerland is able to provide its students with a first class education leading to a fulfilling professional life.

University of Applied Sciences Western Switzerland at a glance

Languages of instruction	French/German/English
Number of students (diploma studies)	10,008
Proportion of full-time students	83 %
Proportion of part time students or taking courses while employed	17 %
Proportion of female students	48.6 %
Proportion of foreign students	13.1 %
Graduates 2003 (diploma studies)	1,182
Diploma supplement	Yes
ECTS	Yes
Annual expenditure (incl. research)	CHF 340.5 million
Funding	
▪ Public contributions (Confederation and cantons)	97.1 %
▪ Third parties	2.9 %
Faculties with proportion of students	
▪ Construction and environment	5.4 %
▪ Chemistry and Natural Sciences	4.3 %
▪ Information and Communication Technologies	9.2 %
▪ Industrial Technologies	11.1 %
▪ Economics and Services	28.3 %
▪ Fine Arts	4.5 %
▪ Social Work	13.1 %
▪ Health and Health Training	17.9 %
▪ Mobility and Rehabilitation	6.2 %

University of Applied Sciences of Zurich

Attractive institution in metropolitan Zurich

The UAS Zurich is the largest in Switzerland.

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The canton of Zurich as the centre for research, education and employment is the home of the largest multi-branch university of applied sciences in Switzerland next to the UAS of Western Switzerland. It is a merger of state and private schools of higher education with locations in Zurich, Winterthur and Wädenswil.

Thanks to its broad offer of studies, the UAS Zurich has excellent possibilities to promote and realise innovative and future-oriented education and continuing training as well as application-based research and development projects. In addition to the University of Zurich and the Swiss Federal Institute of Technology Zurich (ETHZ), it is an attractive educational institution in metropolitan Zurich and a partner for companies engaged in the economy, culture and society. The UAS Zurich also aims for close cooperation with other schools in the region, in Switzerland and abroad.

Students at group play.

Wide choice of education and continuing education

Every student benefits from a broad range of courses in architecture, construction and planning, technology and IT, chemistry and life sciences, economics and services, applied linguistics, applied psychology, social work, design, music, theatre and teacher training. The following courses can be taken only at the UAS Zurich: biotechnology, facility management, European studies in business and management, translation and interpreting. In the 2005/2006 winter semester most courses had changed over to the Bologna system. Beginning in autumn 2008, when the first Bachelor's degrees are awarded, studies for the Master's degree should start.

No professional advancement without continuing education: Accordingly, the UAS Zurich aims to continue to increase its offer in line with market demands. In doing so, it offers a wide range of continuing education possibilities in its educational and research programmes. These take different forms (postgraduate studies, postgraduate courses, continuing training courses, meetings, seminars) and also allow interested employed individuals to delve into a special field or to acquire new knowledge in an additional field.

Applied research and development/services

Apart from teaching and continuing education, the schools of the UAS Zurich also conduct application-based research and development. The knowledge thus gained is regularly incorporated into education. Numerous projects are realised in cooperation with other tertiary-level schools, private sector companies, public services and administrations as well as non-profit organisations.

Studies in biotechnology are available only at the UAS Zurich.

With its offer of services, the schools also make know-how available. These activities ensure knowledge and technology transfer between the schools and the economy.

The main research fields are:

- Technology and IT:
  electromagnetic tolerance, security/reliability of electronic systems, mechatronic systems, data analysis and process design, thermo and fluid engineering.
- Economy and services:
  administrative management, banking & finance, business law, health economy, education economy, business intelligence, e-business, facility management.
- Chemistry and life sciences:
  chemistry and biotechnology, food technology, environmental technology.
- Social sciences and pedagogy:
  result and process evaluation research in working and organisational psychology, occupational and career consulting, clinical psychology as well as development and school psychology; research in social work sciences and development in the fields of youth welfare, schools, disability, aging, migration and intercultural matters: conceptualisation of the newly existing research landscape in the field of education and further development in schooling and teaching.
- Design:
  design, digital communication, cultural studies in art, media and design.

You will find further information on the individual research fields and projects on the websites of the individual schools.

Quality management

In order to continuously improve its teaching offer, education and further training, application-related research and development as well as its services, the UAS Zurich together with its schools of higher education aim for a comprehensive quality approach in accordance with Total Quality Management. In realising this quality philosophy, it orients itself on the EFQM model (European Foundation of Quality Management). This ensures that the university is seen as a whole from a qualitative viewpoint: on the one hand the input and output dimension and on the other hand the service providers and the

recipients of these services. This quality approach also permits the formulation of the same quality objectives for all of the schools.

Strategies for the future

The council as the executive body of the UAS Zurich decided in October 2003 to give the university an organisational form that meets today's demands for a modern educational institution. The existing partial schools under the umbrella of the UAS Zurich are to be pooled in three equal, independent state schools of higher education. The School of Music and Theatre and the School of Art and Design will merge to form the new School of Arts Zurich (Zürcher Hochschule der Künste). The Schools of Applied Psychology and Social Work as well as the Zurich UAS at Wädenswil together with the Zurich UAS at Winterthur will form the new School of Applied Sciences (Zürcher Hochschule für angewandte Wissenschaften). The School of Pedagogy Zurich will be continued as an independent school of higher education. The new structure will be set up in stages with completion by 2010.

The University of Applied Sciences of Zurich (UAS Zurich) currently consolidates the following schools:

- Zurich UAS at Winterthur (Zürcher Hochschule Winterthur ZHW)
  www.zhwin.ch
- Zurich UAS at Wädenswil (Hochschule Wädenswil HSW)
  www.hsw.ch
- School of Applied Psychology (Hochschule für Angewandte Psychologie Zürich HAP)
  www.hapzh.ch
- School of Art and Design Zurich (Hochschule für Gestaltung und Kunst Zürich HGKZ)
  www.hgkz.ch
- School of Social Work Zurich (Hochschule für Soziale Arbeit Zürich HSSAZ)
  www.hssaz.ch
- School of Music and Theatre Zurich (Hochschule Musik und Theater Zürich HMT)
  www.hmt.edu
- School of Economics and Business Administration Zurich (Hochschule für Wirtschaft und Verwaltung Zürich HWZ)
  www.fhhwz.ch
- School of Engineering Zurich (Hochschule für Technik Zürich HSZ-T)
  www.hsz-t.ch
- School of Pedagogy Zurich (Pädagogische Hochschule Zürich PHZH)
  www.phzh.ch

University of Applied Sciences of Zurich at a glance

Languages of instruction	German/English
Number of students (diploma studies)	9,181
Proportion of full-time students	78 %
Proportion of part-time students	22 %
Proportion of female students	49 %
Proportion of foreign students	10 %
Graduates 2004	
▪ UAS diploma	1,770
▪ UAS post-diploma	290
Diploma supplement	Yes
ECTS	Yes
Annual expenditure (incl. research)	CHF 403 million
Funding	
▪ Tuition fees	12.5 %
▪ Public contributions (Confederation and cantons)	81.5 %
▪ Third parties	6.0 %
Faculties with proportion of students	
▪ Economics and Services	28.2 %
▪ Teacher Training	21.0 %
▪ Technology and IT	12.1 %
▪ Music, Theatre and other arts	11.3 %
▪ Design	6.3 %
▪ Chemistry and Life Sciences	6.2 %
▪ Social Work	5.5 %
▪ Architecture, Construction and Planning	3.8 %
▪ Applied Psychology	3.0 %
▪ Applied Linguistics	2.6 %