Higher education and research in Switzerland
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These successes are the result of generous investments aimed at creating an efficient system of education and research. This system is maintained at various levels through public-private partnerships and is constantly adapted to face future needs.

Equally important are the values and principles shared by the agencies and institutions involved in education, research and innovation. These values and principles include such things as: complementary nature of public and private initiatives; ensuring that higher education institutions (HEIs), researchers and research bodies enjoy the greatest possible autonomy and take individual responsibility; fostering competition and quality when allocating public funds; continuous search for ideal operating conditions for public and private participants, especially with regard to research; and, last but not least, openness towards the world. The last of these can be seen in the extent of internationalisation in Swiss universities: around one fifth of all students, more than half of all post-docs and over 35% of all university professors in Switzerland hold a non-Swiss passport.

Geographically speaking, Switzerland may well be a small country located at the heart of Europe, but in terms of its performance in the areas of education, research and innovation, it is one of the most competitive countries in the world. This has been borne out by verified statistics:

- No other country in the world has such a high percentage of students educated at a top university.
- Switzerland ranks at the top both in the Innovation Union Scoreboard (Europe) as well as in the Global Competitiveness Report.
- If we compare Switzerland’s national knowledge output, i.e. the number of scientific papers published in proportion to the country’s total population, Switzerland is ahead of all other countries. The same holds true in terms of the number of patents filed.

Switzerland: a geographical, cultural, economic and political portrait
Switzerland is home to just under 7.8 million people, 20% of whom hold a non-Swiss passport. Covering a surface area of 41,000 km², Switzerland is one of Europe’s smallest states. Thanks to its outstanding natural beauty, Switzerland has also developed an excellent reputation as a tourist destination.

The country is located in the middle of Western Europe and shares borders with countries such as Germany, France and Italy. As a result, Switzerland is very diverse both from an ethnic and cultural standpoint. As a case in point, the country has four national languages: 64% of the Swiss population speak Swiss German (in addition to High German), 20% speak French, 7% speak Italian and around 0.5% Romansh; the remaining 10% or so of Switzerland’s population speak other languages as their native tongue. As in many other European countries, English enjoys considerable prestige in Switzerland where it is mainly used as a language of communication in business, higher education and research settings.

Not only is Switzerland a melting pot for a diverse range of cultures, it also serves as an important communication and transport hub between Northern and Southern Europe. The Alps stretch across the country from the West to the East and include mountain ranges as high as 4,500 metres. This mountain range forms something of a natural cultural boundary that leaves its mark on the country itself. Flat areas such as Central Switzerland are densely populated and are home to more than 75% of the country’s total population. With over one million inhabitants, Zurich is the largest city in Switzerland and the capital city, ranked ninth. The study examined a number of different criteria, encompassing political, economic and social life, together with public service relating to the environment, personal safety, health, education and transport.

An innovative and competitive economy

Switzerland’s economy is modern, very specialised and clearly service-oriented. Some 70% of the country’s working population are active in the Tertiary Sector. Around 25% work in the Secondary Sector, while only 4% earn their living from the Primary Sector.

Thanks to Switzerland’s highly educated population and the ability of the private sector to recognise developments early on, the unemployment rate in Switzerland rarely exceeds 4%, even at times when the global economy is suffering badly.

The Swiss economy derives its strength from the many small and medium-sized enterprises that provide 75% of the country’s jobs. We should not forget, however, that Switzerland is also the home and decision-making centre of many large Swiss and foreign multinationals. Multinationals that originated in Switzerland include the pharmaceutical company, Swatch, the reinsurance company Swiss Re or the pharmaceutical or chemical concerns Novartis, Roche and Merck Serono. Nowadays, over 10,000 foreign or Swiss multinationals manage their worldwide or European activities from their headquarters in Switzerland.

Hi-tech industries play a key role in the Swiss economy. The mechanical engineering, electrical engineering and metalworking industries employ around 130,000 people. The high-tech sector is the country’s largest industrial employer and accounts for exports worth a total of CHF 63 billion (2009), which is equivalent to 35% of all goods exported from Switzerland.

With just under 250 companies and total sales of around CHF 9.3 billion, Switzerland’s biotechnology sector is the European leader. The same thing applies to Switzerland’s medical technology sector, which employs 10% of those working in that sector in Europe. More recently, the environmental technology sector has also begun to make an increasingly important contribution to the country’s economy. Switzerland’s economy is extremely export-oriented. One in every two Swiss francs is earned abroad, predominantly as a result of exports to EU member states. Mechanical, electrical engineering and chemical products account for over half of Switzerland’s export revenues.

Compared to other countries, Switzerland has an extremely export-oriented economy. In the Global Competitiveness Report 2009 – 2010, it tops the list of all of the countries assessed, even higher than the USA and Singapore. The Swiss economy is also an innovative one. One of the main reasons for this lies in the fact that the country provides substantial support to both education and research. Education expenditure accounts for just under 6% of Swiss GDP. Research and development (R&D) activities account for a further 3% of Swiss GDP. Privately-owned companies in particular invest heavily in R&D currently around CHF 12 billion (2008).

In conjunction with public research expenditure, which is mainly intended to promote basic research, the effect achieved by private R&D expenditure has had a very visible impact: on an international level, Switzerland enjoys an extraordinarily solid reputation as a location for knowledge and innovation. In 2010, it scored at the top of the Innovation Union Scoreboard, above Sweden and Finland.

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The quality of its education system and the creativity of its researchers are the main reasons for Switzerland’s high level of innovation and commercial competitiveness. In order to maintain and expand Switzerland’s internationally competitive position as a location for scientific research, the public authorities and the private sector continue to make substantial financial contributions.

According to the OECD, Switzerland’s total spending on education corresponds to 5.5% of its gross domestic product (Figure 1). Compared to other countries, the country occupies a solid position in the middle of the field. Countries that spend considerably more on education include the USA (7.6%) and the Russian Federation (7.4%). Countries that spend less on education than Switzerland include Japan (4.9%), Spain (4.3%) and Germany (4.7%).

In addition, a number of sporting associations are based in Switzerland: the International Olympic Committee (IOC) and the International Federation of Volleyball (FIVB) in Lausanne, the International Federation of Football Associations (FIFA) in Zurich. Although it is not an EU member state, Switzerland takes part in EU education and research programmes. Swiss and EU ties have become closer thanks to bilateral agreements covering specific policy areas where institutionalised cooperation is desirable. One example of this is the Swiss-EU bilateral agreement on the free movement of persons, which enables Swiss and EU nationals to live and work in any of the signatory countries. The mutual recognition of professional qualifications as well as coordination of social insurance systems in signatory countries should help to facilitate the free movement of persons even further.

For its part, the Federal Administration (also referred to as the Confederation) is responsible for national defence, foreign policy, the financial system, the postal system, the railways and the national road network. The federal capital is Bern, which is the seat of the Swiss Parliament, the Federal Council and the Federal Administration.

Switzerland’s foreign policy is based on the principle of neutrality. This does not prevent the country from playing an active role on an international level, such as within the context of the UN, which maintains one of its headquarters in Geneva.

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1 Education expenditure as a percentage of GDP 2007

- United States 7.6
- South Korea 5.0
- Sweden 6.0
- France 6.0
- United Kingdom 5.6
- OECD average 5.4
- Switzerland 5.5
- EU 19 5.3
- Brazil 4.5
- Japan 4.5
- Spain 4.3
- Germany 4.3
- China 3.9
- India 3.3
- Mexico 3.3

Source: OECD, Education at a glance 2010

Constructed between 1929 and 1936 to house the League of Nations, the Palais des Nations in Geneva became the headquarters of the United Nations. Today it is the second most important centre of the United Nations after New York.
Quite a different picture emerges, however, if we relate national education spending to the total of all of those undergoing education and training in the country in question. On that basis and according to the OECD’s figures, the only country to spend more per capita than Switzerland is the USA (Figure 2). In fact, Switzerland, which spends over USD 13,000 on education and training costs per person, is well above the OECD and EU average.

According to the OECD, Switzerland’s total R&D expenditure corresponds to around 3% of its gross domestic product (Figure 3). An international comparison shows that this is one of the highest values achieved thus far. Partly thanks to the significant commitment that Swiss companies show to research activities, this value is significantly above the OECD average. Moreover, the corresponding figure achieved by major industrialised nations such as the USA and Taiwan (2.8%), Germany (2.6%), France (2%) or the United Kingdom (1.8%) are significantly lower than that of Switzerland. In a European context, countries such as Sweden (1.8%) and Finland (1.7%) are worthy of mention, as they invest a significantly higher sum in R&D than Switzerland.

Moreover, Sweden, Finland and Switzerland are the only European countries to have achieved the Lisbon targets: Since the Lisbon Summit in 2000, the EU member states have been pursuing the objective of increasing European research and development spending as a percentage of GDP to 3% by 2010. Given that the figure currently stands at just over 1.8%, achievement of this target is still very far off.

A further indication that Switzerland’s higher education landscape is quite literally international can be derived from the figures relating to the teaching staff at Swiss universities: Around half of mid-level staff (academic personnel, assistant lecturers) and over one-third of all professors are foreign nationals.

Together with Australia, the United Kingdom and New Zealand, Switzerland has been among the most successful at attracting foreign students (Figure 4). Of all students enrolled at a Swiss higher education institution, 14% did not complete their compulsory and post-compulsory education in Switzerland. An additional 7% do not hold a Swiss passport, even though they grew up in Switzerland. The proportion of foreign students is therefore approximately 21% of the total number of students, which is a record percentage among OECD nations. The proportion of foreign nationals is also significantly higher in the case of postgraduate and PhD students (to excess of 50% and just under 50% respectively).

Ever since the Shanghai Ranking was first devised by the Jiao-Tong University in Shanghai, the federal institutes of technology in Zurich and Lausanne and the cantonal universities of Zurich, Basel, Bern, Lausanne and Geneva have all figured among the top 200 higher education institutions in the world. In fact, the quality of Switzerland’s higher education sector is so high that around 50% of students here are registered at a top 200 university. In the United Kingdom, in contrast, that figure stands at around 30% of all students. In the USA, Italy and Germany, the figure stands at only 20%.
If the impact of national research output is broken down into specific fields, Switzerland actually appears in first place in three of the disciplines in question: in “Engineering, Computing & Technology”, “Physical, Chemical & Earth Sciences” and “Life Sciences”. Switzerland achieves fourth place after the Netherlands, Denmark and Belgium in the field of “Agriculture, Biology & Environmental Sciences”.

As far as the impact of scientific output is concerned (measured in terms of the number of citations), Switzerland occupies a prominent position (Figure 7). In fact, Swiss scientific papers are regarded as possessing above-average authority within the research community. Only the USA achieves a higher score in that regard.

Swiss researchers produce roughly 1.2% of all scientific papers published worldwide. If we consider the actual number of scientific papers produced in Switzerland to the country’s total population, we find that Switzerland and Finland (which are small countries) are at the top of the list (Figure 6). Switzerland’s result of just 3.2 scientific papers per 1,000 inhabitants is significantly better than countries such as the United Kingdom or the USA (which scored 2 publications each), and in particular Germany (which scored 1.4 publications).
The second largest group of partner countries is the extent to which their institutions and researchers take part in international networks. In the case of Switzerland, the same rule applies here as earlier on, namely that though the average proportion had already risen as high as 70%, Swiss researchers who give rise to equally significant success in the securing of patents. They are not only active at one of Switzerland’s universities. Four of them work at the Federal Institute of Technology in Zurich, another four at the University of Zürich, two at the University of Basel and one at the University of Bern. In the statistics relating to the number of Nobel Prizes per capita, Switzerland scores at the top of the international table, considerably ahead of Norway and Sweden (Figure 10). Not included are those Nobel prizes, no fewer than 18 in number, that were awarded to foreign scientists working at institutions in Switzerland.

Albert Einstein, who was a Swiss citizen from 1901 onwards and who worked in Switzerland for many years, is one of the most famous thinkers of all time. He developed the theory of relativity and wrote revolutionary academic papers. In 1921, he was awarded the Nobel Prize in Physics, joining the ranks of many Swiss scientists. The first of these was Emil Theodor Kocher (who won the Nobel Prize in Medicine in 1929). After Kocher and Einstein, that list continues with a long list of other names. So far, 20 scientists who hold Swiss citizenship have been awarded a Nobel Prize: five of them for their achievements in physics, six in chemistry and nine in medicine (see the list alongside).

Eleven of those twenty Nobel Prize laureates were or are currently active at one of Switzerland’s universities. Three of them work at the Federal Institute of Technology in Zurich, another four at the University of Zürich, two at the University of Basel and one at the University of Bern. In the statistics relating to the number of Nobel Prizes per capita, Switzerland scores at the top of the international table, considerably ahead of Norway and Sweden (Figure 10). Not included are those Nobel prizes, no fewer than 18 in number, that were awarded to foreign scientists working at institutions in Switzerland.
The Swiss education system and higher education sector

The OECD regularly rates the Swiss education system as good to very good. The system stands out for two reasons: its federal structure and the fact that Switzerland gives much greater importance to upper-secondary level vocational education and training (VET) and tertiary-level B professional education and training (PET) than other countries do. Most VET programmes in Switzerland are dual-track, meaning they combine a paid apprenticeship at a host company with classroom-based instruction at a VET school. Switzerland’s VET sector draws two-thirds of all young people coming out of lower-secondary school (i.e. completing compulsory education). The combined focus of dual-track VET programmes enables students to acquire theoretical knowledge at the VET school as well as practical skills at the host company.

There are several options available to VET graduates wishing to continue at tertiary level. The first option is tertiary-level B professional education and training (PET), which provides students with the competencies needed to hold managerial and specialized positions in their field. The PET sector is comprised of around 400 federal PET examinations (candidates may enrol in optional preparatory courses or prepare on their own) and 400 PET college degree programmes (formal curricula). The second option is to enrol in a tertiary-level A university of applied sciences. This option is only open to VET graduates who obtain the Federal Vocational Baccalaureate (an optional academic qualification) in addition to the Federal VET Diploma (the standard VET qualification).

In addition to the VET sector, the Swiss education system also includes an upper-secondary level general education sector. This is the path chosen by the remaining one-third of students coming out of lower-secondary school. After graduating from a baccalaureate school, these students obtain their Baccalaureate (Matura) and normally go on to enrol in a tertiary-level A institution such as a cantonal university, one of Switzerland’s two federal institutes of technology (ETH in Zurich and EPF in Lausanne), a university of teacher education or, with adequate work experience, a university of applied sciences.

Collectively, all of these tertiary-A level institutions are referred to as higher education institutions (HEIs) and form Switzerland’s higher education sector. The tertiary level is therefore comprised of both the higher education sector (tertiary-level A) and the PET sector (tertiary-level B).

As in many other countries, Switzerland too is witnessing an increasing trend towards the academisation of society: while the proportion of Switzerland’s population that held a higher education...
degree was only 15% in 1998, this percentage has since risen as high as 26%. The overall increase in the number of higher education students is a result of both the diversification of the Swiss higher education sector and the development of Swiss universities of applied sciences since the late 1980s.

**Traditional universities**

While Switzerland considers all tertiary-level A institutions to be higher education institutions (HEIs), it draws a distinction between HEIs that prepare students for specific professions, i.e., universities of applied sciences and universities of teacher education, and HEIs that are highly academic and research intensive. The term “traditional university” or simply “university” specifically refers to this latter category of HEIs, which is comprised of Switzerland’s ten cantonal universities and its two federal institutes of technology (ETH in Zurich and EPFL in Lausanne). At present (2009/2010), just over 15,000 postgraduate students study at these twelve universities. Of these, around 50% are women and approximately 21% foreign nationals. The higher the level of studies, the greater the proportion of foreign students. Most postgraduate students and nearly half of all PhD students are foreign nationals.

The main courses and research activities at federal institutes of technology relate to science, engineering and architecture. While it is possible to attend courses in sciences and architecture at a number of cantonal universities, the two federal institutes of technology are the HEIs that are highly academic and research intensive. The term “university” specifically refers to this latter category of HEIs, which is comprised of Switzerland’s ten cantonal universities and its two federal institutes of technology (ETH in Zurich and EPFL in Lausanne). At present (2009/2010), just over 15,000 postgraduate students study at these twelve universities. Of these, around 50% are women and approximately 21% foreign nationals. The higher the level of studies, the greater the proportion of foreign students. Most postgraduate students and nearly half of all PhD students are foreign nationals.

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**Universities of applied sciences**

Switzerland has seven regional public universities of applied sciences, which were developed out of tertiary-level B institutions (PET colleges) from the mid-1990s onwards. By offering degree courses that provide students with practical skills, universities of applied sciences prepare students for activities they will perform in the workplace. Students develop the ability to apply scientific knowledge and methodologies and, in some cases, use artistic abilities. In contrast to universities, which mainly conduct basic research, universities of applied sciences focus on applied research and development to serve the needs of the economy.

Although not all universities of applied sciences offer the full range of courses, the courses on offer include: engineering, information technology, architecture, construction and planning, chemistry, life sciences, agriculture and forestry, business and services, design, health, social work, music, theatre and other artistic disciplines, applied psychology, applied linguistics and physical education. There are also universities of teacher education, which train future teachers for various levels within the Swiss education system, from kindergarten through to baccalaureate level.

Taken together, universities of applied sciences offer around 300 degree programmes. Full-time programmes at universities of applied sciences generally last three years, while part-time programmes last four or five years. Since they respond to actual needs of the economy, universities of applied sciences also play an active role in professional development. In total, they offer around 1,000 different continuing education and training (CET) programmes leading to issuance of a Certificate of Advanced Studies (CAS), a Diploma of Advanced Studies (DAS) or a Master of Advanced Studies (MAS). In 2009/2010, around 70,000 people were studying at a university of applied sciences in Switzerland, around 17% of these students were foreign nationals and almost half were women.
Switzerland as a location for higher education and research

Rectors’ Conference of the Swiss Universities (CRUS)

CRUS represents the shared concerns and interests of all Swiss universities in their dealings with political authorities, companies, social and cultural institutions and the general public. While preserving the autonomy of each individual institution, CRUS promotes inter-university cooperation in teaching, research and the provision of services. Its core activities include the following: ensuring that universities keep such other informed of recent developments; harmonising academic processes and definitions; seeing to it that tasks are suitably allocated among Swiss universities and universities of applied sciences; promoting international cooperation; and working with Swiss universities to implement the Bologna Declaration. www.crus.ch

Rectors’ Conference of the Swiss Universities of Applied Sciences (KFH)

KFH was established for the purpose of representing the interests of Swiss universities of applied sciences (UAS) in their dealings with federal and intercantonal agencies, education and research institutions and the general public. This means that KFH works closely with EDK’s UAS Council and maintains regular contact with OPET, which is responsible for managing and co-funding the UAS sector. www.kfh.ch

Swiss Conference of Rectors of Universities of Teacher Education (COHEP)

COHEP is a specialised body within the Swiss Conference of Cantonal Ministers of Education (EDK). COHEP advises EDK on all issues pertaining to teacher training. In addition, COHEP also coordinates and supports the professional development of teachers in areas such as teaching theory, research, continuing education and training and services. www.cohep.ch

Swiss Academies of Arts and Sciences

The Swiss Academies of Arts and Sciences is an umbrella organisation for the following institutions: the Swiss Academy of Natural Sciences (SCNAT), the Swiss Academy of Humanities and Social Sciences (SAHS), the Swiss Academy of Medical Sciences (SAMS) and the Swiss Academy of Engineering Sciences (SATW). The purpose of umbrella organisation is to coordinate the competencies and resources of the various academies. As such, it performs three core tasks: early recognition and announcement of socially relevant developments in education, research and innovation, together with an explanation of the impact of these developments; showing a commitment to ethical principles in relation to scientific discoveries and their practical applications; maintaining a collaborative dialogue between science and society. This umbrella organisation, together with the individual member academies, receives public funding for services rendered on behalf of the Confederation. www.akademien-schweiz.ch

Swiss Conference of Cantonal Ministers of Education (EDK)

EDK enables the cantons, which are generally responsible for education policy matters, to find national solutions to important issues. Typical examples of policy matters handled by the EDK include a national agreement on key education indicators (structures, objectives), exchange programmes or the recognition of qualifications. www.edk.ch

From basic research to market-ready innovation

The traditional distribution of private and public sector roles has meant that basic research has mainly been the preserve of universities. Applied research as well as the development of research findings into marketable products and services (collectively referred to as R&D) has mainly been driven by the private sector. In Switzerland, three-fourths of all R&D expenditure is funded by the private sector.

The lion’s share of public funding for basic research has been channelled to Swiss cantonal universities and its two federal institutes of technology (ETH in Zurich and EPFL in Lausanne) as well as to four specialised research institutes within the ETH Domain: the Paul Scherrer Institute, the Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), the Swiss Federal Laboratories for Materials Science and Technology (EMPA) and the Swiss Federal Institute of Aquatic Science and Technology (EAWAG).

Switzerland’s two federal institutes of technology also conduct extensive joint R&D projects with the private sector, which ensures that their research is closely aligned with the needs of the economy, culture and public authorities. This cooperation between universities and the private sector also enables the transfer of knowledge from the research laboratory to the market and is therefore an important link in the innovation chain.

The Swiss private sector devoted nearly CHF 12 billion to research and development (R&D) activities in 2008, which corresponds to 2.2% of Switzerland’s gross domestic product (GDP). Compared to other countries, Switzerland holds a strong international position, ranking 6th worldwide in terms of R&D to GDP ratio (EU average stands at 1.1% of GDP).

Domestic R&D expenditure is concentrated in a relatively small number of economic branches. At CHF 4.6 billion in R&D expenditure, the pharmaceuticals industry is the largest group, constituting one-third of total private sector R&D expenditure in Switzerland. The second largest group is comprised of technology-intensive economic branches (especially information and communication technologies and high-technology instruments), which spent CHF 2.3 billion on R&D in 2008. The third largest group is the machine industry, which spent CHF 1.4 billion on R&D. Swiss companies focus mainly on in-company research and are now less likely to purchase external knowledge than in the past. In recent years, there has been a sharp increase in expenditure by the foreign branch offices of Swiss companies for R&D research activities abroad. Growing by 64% between 2004 and 2008, this R&D expenditure reached a record high of CHF 15.8 billion.
A grant funding institution to support basic research

The Swiss National Science Foundation (SNSF) is the most important public grant funding institution for basic research in Switzerland. The SNSF does not conduct its own research but rather provides funding to non-profit research projects both in and outside the higher education sector. Within the context of its public-service agreement with the Federal Administration, the SNSF mainly funds basic research of a general nature. Its grant funding programmes are also specifically intended to foster the development of junior researchers and professors so that the next generation of researchers will be as highly-qualified as the previous one.

In addition to funding basic research projects, which are subject to the most stringent quality criteria, the SNSF is also responsible for implementing national centres of competence in research (NCCRs), national research programmes (NRPs), and national centres of competence in research (NCCRs) are institutionally supported research initiatives with a nationwide scope. Funding is only provided to the highest quality research projects that place special emphasis on interdisciplinary approaches and/or new and innovative issues within a given discipline. NCCRs also play an active role in promoting the development of women and the next generation of researchers as well as in facilitating knowledge transfer.

Each NCCR consists of a competence centre and a network of national and international partners from the university or non-university sectors. As a tool, the NCCRs have existed since 2000 and have assisted in the development of 27 research focuses to date:

1. NCCR Affective Sciences: Emotions in Individual Behaviour and Social Processes
   - This NCCR is one of the world’s first interdisciplinary research networks to examine emotions in a comprehensive manner. The influence of emotional factors is becoming increasingly important in explaining human behaviour not only in research, but also in politics and economics. Psychologists, neuroscientists, philosophers, economists, lawyers and anthropologists work together on research on the psychological, biological and social mechanisms that generate and control emotions. They explore the emergence of emotions and feelings, their regulation and their social functions. Their findings may help to improve physical and mental health, foster well-being in the family and the workplace, and develop skills in the handling of emotions.

2. NCCR Chemical Biology–Visualisation and Control of Biological Processes Using Chemistry
   - This NCCR makes use of a combination of biological in vivo protein marking methods and chemical screening processes. The starting point of the research carried out by the NCCR relates to recognised needs to develop new chemical approaches to enable biochemical processes in living cells to be visualised, quantified and manipulated.

3. NCCR Climate – Climate Variability, Predictability and Climate Risks
   - This NCCR investigates processes in the climate system, its variability and predictability, as well as the complex relationships between climate, economy and social factors. Scientists from a wide range of disciplines work together towards this end. The main general focuses of the projects are the impact of climate change on the water cycle, climate change and extreme events, and the assessment of climate risks. Risk considerations focus on sectors of industry which are particularly affected: from agriculture to the insurance and financial sectors.

4. NCCR CoME – Computer Aided and Image Guided Medical Interventions
   - This NCCR develops leading-edge technology for the operating theatre, focusing on surgical interventions on the head. The key issues include protection of tissue by using minimally invasive surgery and reducing the size of surgical instruments. The researchers work closely with surgeons and medical practitioners to ensure that technological developments are tested in practice and brought to the market as quickly as possible.

5. NCCR Democracy – Challenges to Democracy in the 21st Century
   - This NCCR examines the key challenges facing democracy today in the light of globalisation and the influence of the media. The NCCR achieves a combination of political, journalism and communication sciences that is unique in Europe. It aims to develop proposals for improving political decision-making processes, political education and the quality of media reporting.

6. NCCR FINRISK – Financial Valuation and Risk Management
   - This NCCR is devoted to understanding risks associated with financial decision-making and the influence of such risks on asset and company valuation. The programme focuses on the study of financial and non-financial risk factors affecting wealth creation and the optimal operation of financial institutions.

A grant funding institution to support basic research

For cutting-edge research, made in Switzerland: national centres of competence in research

National centres of competence in research (NCCR) are institutionally supported research initiatives with a nationwide scope. Funding is only provided to the highest quality research projects that place special emphasis on interdisciplinary approaches and/or new and innovative issues within a given discipline. NCCRs also play an active role in promoting the development of women and the next generation of researchers as well as in facilitating knowledge transfer.

Cutting-edge research, made in Switzerland: national centres of competence in research

Around 8% of the SNSF’s budget is allocated to NRPs, which focus mainly on finding ways to solve problems of national importance. Topics addressed by NRPs range from challenges facing society (for ex. NRP “Gender equality”, NRP “Religions, the State and society”) to medical issues (NRP “Stem cells and regenerative medicine”; NRP “Anantibiotic resistance”) and areas of technology that are thought to represent significant innovation potential (NRP “Smart materials”; NRP “Implants and transplants”).
Vulnerability: Life Overcoming Homeostasis

Kidney Control of Homeostasis

Multimodal Information of Images

Power and Importance of Genes, Chromosomes

Frontiers in Genetics – Switzerland as a location for higher education and research

This NCCR studies the function and regulation of certain genes during their development, as well as their role in maintaining health or favouring the emergence of pathologies. The NCCR promotes exchanges between the different research groups, most of them in the Lake Geneva region, investigating gene expression, chromosome structure and organism development. The NCCR postgraduate programme attracts talented individuals from all over the world. www.frontiers-in-genetics.org

This NCCR examines the digital revolution, which has created a new image-based society. Images are used more today than ever before as a means of universal communication and vehicle for imparting knowledge. The knowledge society has also become an image-based one. However, comprehension of the particularities, functions, power and impact of images has failed to stay abreast of this development. The NCCR gives images the attention they deserve. Its key questions are: How do images create meaning – in science, daily life and art? What influences images and how, in turn, do images influence us? And where does the specific power of images lie? www.eikones.ch

This NCCR is the world’s first research network to explore the physiological processes in healthy and diseased kidneys across a broad thematic spectrum. The aim is to seek insights for new preventive, diagnostic and therapeutical approaches to treating kidney patients. The motivation being that kidney diseases have increased dramatically in recent years. Patients with chronic kidney diseases risk exposure to further secondary diseases such as high blood pressure or osteoporosis. Reduced kidney function has drastic consequences for the body as the kidneys are responsible for maintaining the balance between the most varied of substances in the body (homeostasis). Homeostasis is of central importance to body functions and thus a healthy life. www.nccr-kidney.ch

This NCCR studies materials with outstanding properties. These materials are featured in some magnetic, ferrite-electric and super conductors. All have a large potential for applications, particularly in energy production and distribution, information technology, sensors and nanotechnology. As electronic interactions play an important role in many of these materials, it is difficult to describe their properties theoretically. In order to achieve a better understanding of these new materials and pave the way for future applications, the NCCR works closely with both academic and industry partners. www.munep.ch

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NCCR Nanoscience – Impact on Life Sciences, Sustainability, Information and Communication Technologies

This NCCR focuses on areas of research with significant growth for the future. Nanosciences deal with the fundamental building blocks of matter and their properties in the smallest spatial dimensions and deliver basic knowledge to the disciplines of biology, chemistry, physics and engineering. Yet, the scientific and new approaches in information technology are also based on nanoscale building blocks which is why this NCCR invests in basic science and understanding of nanosciences that are being developed jointly.

NCCR Neuro – Neural Plasticity and Repair

This NCCR seeks answers to the challenges of global change and sustainable development. The programme network includes 350 researchers, active in over 40 countries. Of central importance is the partnership between participants in the industrialised “North” and in developing and transition countries (“South”). The NCCR North-South promotes a transdisciplinary approach to research on sustainable development. Fields of research include livelihoods, armed conflicts, health and environmental sanitation, natural resources, and governance. The universities involved in the NCCR offer a doctoral programme covering subjects on global change, innovation and sustainable development.

NCCR Plant Survival – Plant Survival in Natural and Agricultural Ecosystems

This NCCR seeks potential applications for quantum physics. The research ranges from the physical description of light and its interaction with matter, to the use of these concepts in information and communication technology. One objective is the development of new laser sources that are superior to current lasers in terms of wavelength, spectral properties and pulse duration: one example being Quantum Cascade Lasers, which are also being used in NASA’s Mars Exploration Program. A number of spin-off companies have already emerged from the NCCR’s work.

NCCR Neuro – Neural Plasticity and Repair

This NCCR searches for ways to restore the functions of the nervous system following injury or sickness. It therefore investigates the cellular and molecular mechanisms of regeneration, plasticity and functional repair of damaged nervous systems. The research focuses on Alzheimer’s disease, multiple sclerosis, strokes and spinal cord injuries. The NCCR Neuro promotes synergies between experimental and clinical research in collaboration with biologists, physicians and engineers. They develop new therapies and generate leading edge technologies.

NCCR Structural Biology – Molecular Life Sciences: Three-Dimensional Structure, Folding and Interactions

This NCCR seeks to integrate the disciplines of physiology, structural biology and chemistry and to develop new paradigms in physical basic research. The NCCR Structural Biology has invested heavily in this area and has also set up three technology platforms.

NCCR Neuro – Neural Plasticity and Repair

This NCCR focuses on invasive plants; the NCCR aims to explain why these non-native species are proliferating at ample, the importance of chemical defence compounds produced by plants to attract natural enemies of pests.

NCCR North-South – Research Partnerships for Mitigating Syndromes of Global Change

This NCCR investigates the cellular and molecular mechanisms of regeneration, plasticity and functional repair of damaged nervous systems. The research focuses on Alzheimer’s disease, multiple sclerosis, strokes and spinal cord injuries. The NCCR Neuro promotes synergies between experimental and clinical research in collaboration with biologists, physicians and engineers. They develop new therapies and generate leading edge technologies.

NCCR QISS – Quantum Science & Technology

This NCCR focuses on the interface between preclinical research and clinical development, combining neuroscience with psychiatry. This research focus will help train a new generation of psychiatrists, who will possess both high clinical expertise and a sound knowledge of the basic neurobiological aspects of mental functions and dysfunctions.

NCCR Neuro – Neural Plasticity and Repair

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From basic research to market-ready innovation

Paul Scherrer Institute

Based between Villigen and Würenlingen right at the river Aare in the canton of Aargau, the Paul Scherrer Institute (PSI) is Switzerland’s largest research centre for natural sciences and engineering. It conducts top-level research on the subjects of matter and material, energy and environment, as well as health. By conducting fundamental and applied research, PSI works on long-term solutions for major challenges facing society, industry and science. PSI develops, constructs and operates complex large-scale research facilities. All facilities are available to researchers from academia and industry. Each year, over 2,000 researchers come to PSI from around Switzerland and the whole world for experiments which can only be conducted here.

Swiss Federal Institute for Forest, Snow and Landscape Research

The Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), with sites in Birmensdorf, Davos (Federal Institute for Snow and Avalanche Research), Bellinzona, Lausanne and Sitten, is a research facility specialised in forestry, ecology and landscape research as well as snow and avalanche research in the broadest sense.

“Use, management and protection of semi-natural terrestrial habitats” and “responsible handling of natural hazards” are the two main focal points of WSL activities. Research efforts are designed to ensure the sustainable use of the Swiss landscape by providing information and proposed solutions to decision-makers. Research activities are centred on conurbations and mountainous regions.

The four research institutions of the ETH domain

The Domain of the Federal Institutes of Technology comprises Switzerland’s two federal institutes of technology – the ETH in Zürich and the EPF in Lausanne – and four subordinate research facilities.

Paul Scherrer Institute

Swiss Federal Institute for Forest, Snow and Landscape Research
Switzerland as a location for higher education and research

From basic research to market-ready innovation

An agency that promotes innovation

The Commission for Technology and Innovation (CTI) is the federal agency responsible for promoting innovation. Its motto is “science to market.” The primary aim of its work is to ensure that innovative knowledge developed in the laboratory is transformed more rapidly into marketable products and services. To this end, CTI supports joint R&D projects where higher education and business partners work together.

CTI provides support to R&D projects (which combine applied research with development activities), mainly at universities of applied sciences (UAS). It also runs technology-driven programmes and supports R&D projects in industry. In order to boost the research activities at universities of applied sciences, CTI created what are known as “national competency networks”. These create linkages among Swiss UAS as well as between Swiss UAS, traditional Swiss universities and foreign higher education institutions. This encourages the transfer and development of competencies, which benefits students, the economy, culture and society.

Through the “CTI Start-up” programme, CTI helps start-up companies get off the ground. In order to more effectively encourage entrepreneurial mindsets and company formation, CTI also offers a training course in entrepreneurship.

Global networking

Because Switzerland is such a small country, it places the highest priority on ensuring the closest possible ties with global knowledge networks. In line with their autonomous role, individual higher education institutions in Switzerland maintain their own strategies for international cooperation. The Confederation also provides support for this, by attempting to create the best possible conditions for the internationalisation of university activities. Swiss foreign research policy is intended to make Switzerland and its institutions more appealing and competitive in terms of knowledge and technology.
This particular policy is highly bottom-up in its approach. If the national scientific community is convinced that a research institute or a supranational research institute has the potential to provide a significant scientific and technological boost to the national development of Switzerland, the Confederation will enter into international agreements to ensure that Swiss researchers can take part in these initiatives. At present, over 20% of all federal funding for the promotion of education, research and innovation is spent on international cooperation. This percentage is expected to steadily increase.

European Programmes and Organisations

Given their close geographical proximity, it is only natural that Switzerland’s main international cooperation partners in education and research are EU member states. Since 2004, Switzerland has taken part in EU framework programmes for research and technological development. These framework programmes (FPs) are the most important instrument used by the EU to promote science, research and innovation in Europe. In fact, FPs are the world’s largest international research programmes. In 2011, a new bilateral agreement between Switzerland and the EU came into effect on Swiss participation in two EU education programmes: “Lifelong Learning” (which covers both general education and vocational education and training) and “Youth in Action” (extracurricular youth activities). Participation in these programmes is intended to achieve the highest possible scientific and technological boost to the national development of Switzerland.

Bilateral research cooperation with priority countries outside of Europe

Switzerland has broadened the scope of its foreign science policy beyond its traditional Eurocentric focus. It is now actively working to develop bilateral research cooperation ties with countries outside Europe. In 2007, Switzerland named China, India, Russia, South Africa, Japan, South Korea, Brazil and Chile as priority countries for research cooperation with Swiss universities.

Bilateral research cooperation agreements have been signed with individual governments or are under preparation. Once signed, these agreements pave the way for research cooperation programmes between Swiss higher education institutions and partner institutions in the countries concerned. Bilateral research cooperation programmes are intended to achieve the highest possible scientific quality and develop sustainable partnerships. Several basic principles also apply: both partner countries are required to contribute research resources from their home institution; project partners must fund research projects in equal measure; project partners must also obtain additional funding from national grant funding institutions in their home country or secure this funding from the private sector. The bilateral research cooperation programmes are coordinated by a designated university in Switzerland and in each partner country.

Swiss science attachés and swissnex offices

Swiss science attachés abroad are either employees of the State Secretariat for Education and Research or career diplomats from the Federal Department of Foreign Affairs. The Confederation sent its first science attaché to Washington D.C. in 1958. Switzerland now has a network of 22 science attachés (2009) working in 18 different countries.

Science attaches provide a wide range of different services. They act as liaisons between research institutions in Switzerland and corresponding institutions in the host region. They also facilitate bilateral relations between politicians, civil servants and staff working at education and research institutions.

Swiss science attachés observe scientific, technological and innovative developments as well as changes made to university policies in the host region. They send reports to corresponding federal agencies and other interested parties in Switzerland.

Finally, science attachés build and maintain personal and institutional networks that can be of use to Swiss scientists, universities and businesses.

swissnex offices are an important means of implementing the Confederation’s policy of developing bilateral cooperation ties with select partner countries in the areas of education, research and innovation. To date, swissnex offices have been opened in the following locations:

- Boston, Massachusetts, USA (opened in 2000)
- San Francisco, California, USA (2003)
- Singapore (2004)
- Shenzhen, China (2006)
- Bangalore, India (2011)

Swissnex offices are run by the State Secretariat for Education and Research, which is part of the Federal Department of Home Affairs. With the support of the Federal Department of Foreign Affairs, swissnex offices facilitate ties between Swiss partners and universities, interest groups and private sponsors in the local country or region.

The main objective of each swissnex office is to help Swiss universities and research institutions develop their international activities. swissnex offices therefore establish extensive networks of contacts with local universities, research institutions and companies. These contacts are then used to facilitate contacts with Swiss partners. In order to enhance Switzerland’s profile as a location for higher education and research, swissnex offices organise scientific and cultural events relating to specific sectors. This opens the door for new cooperation opportunities. swissnex offices also make a special contribution in China and India by implementing and supervising bilateral programmes in those countries.
Introduction to Swiss higher education institutions

Swiss Federal Institute of Technology, Zurich (ETH Zurich)

Consistently ranked the top university in continental Europe, ETH Zurich is a leading player in research and education in Switzerland and the world.

The 16 departments of ETH Zurich offer Bachelor’s, Master’s, and doctoral programmes in engineering and natural sciences. The language of instruction in the Bachelor’s programmes is German, whereas courses at the graduate level are taught in English. All degree programmes provide a solid scientific base, preparing ETH graduates to apply their knowledge and skills in industry, business or the public sector, as entrepreneurs or scientists.

The international focus: nearly 60% of professors have been recruited from abroad. The excellent infrastructure and the attractive urban environment of Zurich make ETH Zurich the ideal place for creative personalities. The ties to businesses and industries are very close, the greater Zurich area being the economic centre of Switzerland and home to numerous international companies. Beyond world-class education, Zurich offers many other highlights: metropolitan flair, excellent sports facilities, an extensive range of cultural and recreational offerings, and a vibrant nightlife.

Key Figures 2009

- Nobel Laureates: 21
- Number of students: 16,396
- Female students: 31%
- International students: 32%
- Annual tuition fees for Swiss and non-Swiss students: CHF 1,288

Teaching and Research Areas

- Construction Sciences: Architecture, Civil, Environmental and Geomatic Engineering
- Engineering Sciences: Computer Science, Electrical Engineering and Information Technology, Materials Science, Mechanical and Process Engineering, Micro- and Nanosystems, Biomedical Engineering
- Natural Sciences and Mathematics: Biology, Chemistry, Chemical Engineering and Biotechnology, Computational Science and Engineering, Human Movement Sciences, Mathematics, Physics, Pharmaceutical Sciences
- System-Oriented Sciences: Agricultural Sciences, Earth Sciences, Environmental Sciences, Food Science
- Management and Social Sciences: Management, Technology and Economics, Comparative and International Studies

www.ethz.ch
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Switzerland as a location for higher education and research

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Switzerland as a location for higher education and research

Introduction to Swiss higher education institutions

Key Figures 2009
Number of students: 7,400
Female students: 27%
International students: 46%
Annual tuition fees for Swiss and non-Swiss students: CHF 1,266

Teaching and Research Areas
- Mathematics, Physics, Chemistry and Chemical Engineering
- Architecture, Civil Engineering, Environmental Sciences and Engineering
- Electrical and Electronics Engineering, Mechanical Engineering, Materials Science and Engineering, Microengineering
- Computer Science, Communication Systems
- Life Sciences and Technologies
- Management of Technology and Entrepreneurship
- Financial Engineering

The town of Basel is home to the oldest university in Switzerland. Founded in 1460, Basel University is a modern and attractive centre of teaching, learning, and research situated on the three-nation border of Switzerland, Germany, and France.

Promoting talent stands at the very centre of Basel University. The knowledge-driven society of today’s interdependent world needs best qualified students and universities that cross boundaries – both in mind and in geography. Basel University offers both: top research facilities for highly motivated and enthusiastic students and the encouragement to interdisciplinary research work that leads to new concepts and inventions.

Basel University has full university status. It offers degree programmes across the arts and sciences, ranging from Archaeology to Zoology. One of its distinctive strengths is the focus on “Culture” and “Life Sciences”.

Comprising 7,200 undergraduate and 4,400 postgraduate and doctoral students, Basel University has a warm and personal atmosphere. Its 340 professors and 1,300 academic staff are dedicated to advancing knowledge and fostering independent thinking and socially responsible action. The mission of the University of Basel is to accomplish first-class research, teaching, and public service. It ranks among the world’s one hundred best universities and boasts top-ten place among German-speaking universities.

Key Figures 2009
Number of students: 11,600
Female students: 55%
International students: 24%
Annual tuition fees for Swiss and non-Swiss students: CHF 1,400

Teaching and Research Areas
- Theology
- Law
- Medicine
- Humanities and Social Sciences
- Natural Sciences
- Economics
- Psychology

Swiss Federal Institute of Technology, Lausanne (EPFL)

Uniquely situated in one of Europe’s most beautiful places, 10,000 people share this campus and interact daily to learn and explore. More than a hundred nationalities are represented on campus, and 50% of the teaching staff originates from abroad. EPFL offers 19 master’s programmes in engineering, basic sciences, computer and communication sciences, life sciences, civil engineering, architecture and the environmental studies. Students pursue their studies at Bachelor’s degree, Master’s degree or doctoral level, and enjoy many opportunities for international exchange. The campus is structured to encourage interdisciplinary learning, and students at all levels participate in research projects in the campus’ 250 laboratories and research groups. In addition to excellence in education and research, EPFL is committed to technology transfer as a fundamental part of its mission. An average of 30 new start-up companies are formed each year from innovations discovered at the EPFL.

Key Figures 2009
Number of students: 7,400
Female students: 27%
International students: 46%
Annual tuition fees for Swiss and non-Swiss students: CHF 1,266

Teaching and Research Areas
- Mathematics, Physics, Chemistry and Chemical Engineering
- Architecture, Civil Engineering, Environmental Sciences and Engineering
- Electrical and Electronics Engineering, Mechanical Engineering, Materials Science and Engineering, Microengineering
- Computer Science, Communication Systems
- Life Sciences and Technologies
- Management of Technology and Entrepreneurship
- Financial Engineering

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University of Basel

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The University of Fribourg is the bilingual university "par excellence" in Switzerland. Fribourg is a typical university town, with a high quality of life and excellent conditions for progressing in one's studies. At the crossroads of Germanic and Roman languages, it constitutes a cultural bridge between the German and French traditions, as well as between northern and southern Europe. The university itself reflects this situation: 50% of the students speak German as their mother tongue, 30% French, and 7% Italian. Created in 1889, the university embodies a living dynamic interaction among around 215 professors and 10,000 students from over 100 countries.

Students often choose Fribourg because its programmes can be attended in German and French. Students can obtain a degree with a specific "bilingual" certification which gives them a competitive advantage on the job market. However, bilingual study is not mandatory. English is compulsory at the Master's level in sciences. Lectures in English are available in the major disciplines.

The University of Fribourg has established a number of collaborative partnerships with leading universities around the world to promote exchanges, joint teaching programmes, and research projects. Research at the University of Fribourg is based on teamwork, interdisciplinary strategies, ethical responsibility, and an open dialogue with the commercial world. 200 research groups work on some 650 projects, many of which find an immediate industrial application.

The University of Bern offers top quality across the board: it enjoys special recognition in cutting-edge disciplines, is renowned for the excellent quality of its teaching and offers a delightful setting.

The University’s comprehensive offering includes 40 Bachelor and 60 Master programmes, PhDs in all disciplines and more than 200 executive programmes. Courses include Theology, Humanities, Law, Economics and Social Sciences, Medicine, Veterinary Medicine and Natural Sciences.

The historic roots of the University of Bern go back to 1528. Today, most of the 160 institutes are located within walking distance of the historic main building. The infrastructure is of very high quality and, thanks to its relatively small size, the atmosphere is friendly and personal. The University of Bern leads in a number of research fields, such as translational biomedical research or space research. its Physics Institute took part in the first lunar expedition and continues to supply research instruments and experimental results to NASA and ESA missions. The University of Bern is also the leading institution for four Swiss National Centres of Competence in Research: Climate, North-South (sustainable development), Trade Regulation and TransCure (membrane biology). Additionally, it is co-leader of MUST (experimental physics) with the ETH Zurich. The old town of Bern, nestled in a breathtaking setting surrounded by the Swiss Alps, is listed as a UNESCO world heritage site. The Swiss capital is among the cities that offer the best quality of life.

Key Figures 2009
Number of students: 14,300
Female students: 53%
International students: 12%
Annual tuition fees for Swiss and non-Swiss students: CHF 1,310

Teaching and Research Areas
- Protestant and Old Catholic Theology
- Law
- Economics and Social Sciences
- Psychology and Educational Sciences
- Natural and Life Sciences
- Medicine
- Veterinary Science
Switzerland as a location for higher education and research

Introduction to Swiss higher education institutions

Key Figures 2009
Number of students: 12,000
Female students: 56%
International students: 25%
Annual tuition fees for Swiss and non-Swiss students: CHF 1,160

Teaching and Research Areas
- Arts
- Biology
- Business and Economics
- Criminal Justice
- French as a Foreign Language
- Geosciences and Environment
- Law
- Medicine
- Political Sciences
- Protestant Theology
- Psychology
- Social Sciences
- Sport Science
- Study of Religions

Founded in 1537, the University of Lausanne comprises seven faculties—Arts, Biology, Business and Economics, Criminal Justice, French as a Foreign Language, Geosciences and Environment, Law, Medicine, Political Sciences, Protestant Theology, Psychology, Social Sciences, Sport Science, Study of Religions—where approximately 12,000 students and 2,200 researchers work and study. Emphasis is placed on an interdisciplinary approach, and there is close cooperation between students, professors, and teaching staff.

With a student body from 137 different countries, the University of Geneva is the second largest university in Switzerland, and also hosts the largest number of female students. Just like the town of Geneva itself, the university enjoys a strong international reputation, both for the quality of its research (it ranks among the top institutions among the League of European Research Universities) and the excellence of its education. This acclaim has been won in part due to its strong ties to many national and international Geneva-based organizations, such as the World Health Organization, the International Telecommunications Union, the International Committee of the Red Cross, and the European Organization for Nuclear Research (CERN).

The University of Geneva is a comprehensive university offering a wide range of programmes, from Bachelor’s degree to doctoral level. Its domains of excellence in research include life sciences (molecular biology, bio-informatics), physics of elementary particles, mathematics and astrophysics. Furthermore, the University of Geneva boasts one of the oldest and finest translation and interpretation schools in the world, the ETI.

www.unige.ch
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University of Geneva

The University of Geneva was founded in 1559, upon the initiative of Jean Calvin and Theodore de Beze. It is nestled in the heart of a city of great international renown and intellectual heritage, and defines itself as a place of reflection, teaching, and dialogue.

Attractively located in the heart of the French-speaking region of Switzerland, the University of Geneva pursues an active collaboration at local and international levels. More than 30% of the teaching staff and more than 20% of the students come from abroad. Up-to-date, well-equipped, and at the forefront of the latest technological developments, the University of Lausanne is an ideal centre for the exchange of ideas that lead to intellectual, scientific, and economic progress.

www.unil.ch
international@unil.ch

University of Lausanne
University of Neuchatel

Established in 1838 the “Académie de Neuchâtel” became a University in 1909. Today the University of Neuchatel comprises five faculties, namely, humanities, sciences, law, economics, and theology, which in turn cover more than 30 different disciplines. The university offers a unique setting in French-speaking Switzerland, ensuring close contact between teachers and the 4,100 students, of which 570 are doctoral students.

The University of Neuchatel offers four Master’s degree programmes taught in English: a Master of Science in Finance, a Master of Science in Information Systems, a Master of Science in Statistics and an International Master in Management, Law, and Humanities of Sport, also called the FIFA Master.

Other Master’s degree programmes are conducted partially in English. Also offered – jointly with the University of Lucerne – is a bilingual French-German Master’s degree programme in Law. Its French Language and Civilization Institute (ILCF) is specialised in teaching French for non-native French speakers. ILCF courses are designed for foreign students who wish to reinforce and extend their knowledge of French language, literature, and civilization. It also offers a summer programme during four weeks in July.

University of Lucerne

The University of Lucerne is young. Although its roots go back to 1600, it has been inaugurated as a modern university only in 2000. The convenient size of the university provides students with a great degree of freedom and the possibility to form innovative combinations. Study courses are offered in traditional as well as in interdisciplinary subjects. Moreover, it is possible to combine elements from different faculties.

Excellent support of students is a special feature of the University of Lucerne. Law students are allocated a mentor for the period of their studies in order to ensure optimal support and to maintain a dialogue between the students and lecturers. The academic staff cultivates cooperation with numerous foreign scientific institutions. These include, among others, renowned institutions such as various Max Planck Institutes and Harvard University in Cambridge, MA.

Key Figures 2009

Number of students: 2,400
- Female students: 56.6%
- International students: 12%
- Annual tuition fees for Swiss and non-Swiss students: CHF 1,570

Teaching and Research Areas
- Law
- Humanities and Social Sciences
- Theology

University of Neuchatel

www.unine.ch
contact@unine.ch

www.unilu.ch
studiendienste@unilu.ch
### University of Lugano

Founded in 1996, the University of Lugano (USI) is a recognised interdisciplinary and multilingual university with four faculties. Its relatively small size and high-quality infrastructure facilitate student-teacher interaction and create the ideal conditions for study and research at both the Lugano and Mendrisio campuses.

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<th>Key Figures 2009</th>
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<tr>
<td>Number of students:  2,800</td>
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<td>Female students:  49%</td>
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<tr>
<td>International students:  35%</td>
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<tr>
<td>Annual tuition fees for Swiss students: CHF 2,040</td>
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<tr>
<td>Annual tuition fees for non-Swiss students: CHF 2,240</td>
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#### Teaching and Research Areas
- Architecture
- Computer Science
- Communication Sciences
- Economics

www.unisg.ch
info@unisg.ch

### University of St.Gallen

Founded in 1898, the University of St.Gallen (HSG) continues to pursue the goal of providing students with a practice-oriented education, guided by an integrated conception of business, economics, law, and social sciences. The HSG is consistently ranked among the top business schools in Europe: the University of St. Gallen’s Master’s degree programme “Strategy an International Management” ranked fourth in the Financial Times’ Global MBA Rankings 2010.

With EQUIS and AACSB international accreditation underlining the commitment to a holistic curriculum that meets the highest academic standards. While the five Bachelor’s degree programmes provide general and diversified education, the eleven Master’s degree programmes (four are taught in English) allow students to attain greater depth of understanding of theoretical and practical subjects. Each level of study includes a component of contextual studies intended to develop skills in critical thinking, cultural awareness, and leadership. This is done in order for graduates to meet the practical world’s increasing demands for intellectual flexibility and intercultural qualifications.

Research is centered around 30 institutes and research groups, which bring theory and practice together while providing vital input for teaching. HSG students pursue extracurricular activities in more than 80 initiatives, including the annual St.Gallen Symposium (ISC).

A network of 150 partner universities, including CEMS, PIM and APSIA, offers students a multitude of possibilities to gain international experience. Dual-degree programmes are also available to qualified students.

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<tr>
<td>Number of students:  6,800</td>
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<td>Female students:  30%</td>
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<td>International students:  35%</td>
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<td>Annual tuition fees for Swiss students: CHF 2,040</td>
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<tr>
<td>Annual tuition fees for non-Swiss students: CHF 2,340</td>
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#### Teaching and Research Areas
- Business Administration
- Economics
- Law
- International Affairs and Governance

www.unisg.ch
info@unisg.ch

The official language is Italian, but English, the second working language, is used in many of the Master’s degree programmes, in the graduate schools, and in the Master of Advanced Studies (MAS) programmes. German and French are also used as languages in a few specialist courses.

USI was among the first Swiss universities to adopt the new European university system. By means of teaching and research agreements or partnerships with other Swiss universities and with major universities in Northern Italy, USI has established an academic bridge between Northern and Southern Europe, paving the way for inter-university Master’s degree courses, cross-border doctoral schools, and research projects, notably with the Polytechnic University of Milan and ETH Zurich. The development of research in the sectors of urban planning, finance, healthcare communication, health economics, distance teaching, and in some sectors of informatics, has considerably boosted the number of postgraduates (currently over 100) as well as funding for Swiss and European projects.
Switzerland as a location for higher education and research

Introduction to Swiss higher education institutions

Key Figures 2009

Number of students: 5,800
Female students: 42%
International students: 12%

Schools

- Engineering and Information Technology
- Architecture, Wood and Civil Engineering
- Business and Administration
- Health
- Social Work
- Bern University of the Arts
- Swiss College of Agriculture
- Swiss Federal Institute of Sports Magglingen

Area of Instruction and Research

- Science and Engineering
- Business Administration
- Social Work
- Health
- Architecture
- Construction
- Conservation and Restoration
- Sports
- Arts
- Agriculture
- Food Sciences

The canton of Bern, including the Swiss capital of the same name, is home to a million inhabitants. The Bern University of Applied Sciences consists of six departments at various locations in the cities of Bern, Biel, Burgdorf, Magglingen, and Zollikofen.

Bern, Biel, and Burgdorf are medieval cities which not only have beautiful surroundings, but also offer a wide variety of cultural events and institutions. The Bern University of Applied Sciences welcomes students from all around the globe and provides student services which help students with their curricula, accommodations, career plans, cultural and sports activities. Some of the schools maintain exchange programmes with international partner institutions and encourage their students to study abroad.

www.bfh.ch
office@bfh.ch

Key Figures 2009

Nobel Laureates: 12
Number of students: 5,800
Female students: 56%
International students: 17%
Annual tuition fees for Swiss students: CHF 1,379
Annual tuition fees for non-Swiss students: CHF 1,159

Teaching and Research Areas

- Arts and Social Sciences
- Law
- Economics
- Medicine
- Mathematics and Sciences
- Veterinary Medicine
- Theology

www.uzh.ch
international@int.uzh.ch

The University of Zurich is Switzerland’s largest university and plays an outstanding role in Swiss higher education. The university offers its 26,000 students a wide variety of studies, with more than 100 different degree programs and over 3,000 combinations of disciplines in seven faculties.

The university’s strong commitment to the highest academic standards and responsible research lays the foundation for excellence in both research and teaching. The University of Zurich is a member of the League of European Research Universities (LERU) and, on the national level, it is the leading institution for five National Centers of Competence in Research in life sciences, economics, and the humanities.

The University of Zurich places great emphasis on promoting young academics by encouraging and supporting them in their scholarly pursuits and preparing them for international careers. In addition, the University of Zurich initiates and sustains academic exchange of the highest quality through close cooperation with the ETH Zurich and other higher education institutions both in Switzerland and abroad. A modern infrastructure and its location in the cultural and economic metropolis of Zurich make the University of Zurich an attractive and stimulating environment for all its members from around the world.

The University of Zurich

www.uzh.ch
international@int.uzh.ch

University of Zurich

Bern University of Applied Sciences
Switzerland as a location for higher education and research

Introduction to Swiss higher education institutions

Key Figures 2009
Number of students: 4,500
Female students: 33%
International students: 14%

Schools
School of Engineering and Architecture Rapperswil (HSR); School of Business Administration; Engineering and Social Work and Health St. Gallen (FHS); School of Business Administration and Engineering Chur (HTW); School of Engineering Buchs (NTB)

Areas of Instruction and Research
- Engineering and IT
- Landscape Architecture
- Building Engineering and Planning
- Business Administration
- Management and Tourism
- Social Work
- Health

The University of Applied Sciences of Eastern Switzerland is one of the largest and most renowned educational institutions in its region. Modular study programmes allow students to design their curriculum according to their personal preferences. Most of the faculty have extensive professional experience and are able to present their topics dynamically with a focus on problem-solving research. The various schools conduct applied research and development, allowing the university of applied sciences to maintain close contact with organisations from various sectors of industry, business, and society in general. Due to their solid knowledge and experience in generating solutions to practical problems, students can graduate with an attractive professional profile and have promising prospects in the job market.

Located at the crossroads of Switzerland, Austria, Germany, and the Principality of Liechtenstein, the University of Applied Sciences of Eastern Switzerland promotes cooperation between universities and companies based in all four countries. As part of the International University of Lake Constance, the University of Applied Sciences of Eastern Switzerland encourages an approach combining teaching as well as research and development. In addition, it has partnerships with universities in more than 12 countries, both on an educational and a professional level.

www.fho.ch
info@fho.ch

University of Applied Sciences of Eastern Switzerland

Lucerne University of Applied Sciences and Arts

Lucerne is world-renowned for its beautiful setting, as well as for its rich cultural and outdoor activities. More than a tourist destination, however, Lucerne is also a centre of higher education. The Lucerne University of Applied Sciences and Arts, the University of Lucerne and the University of Teacher Education of Central Switzerland closely collaborate in the “Campus Lucerne”.

The Lucerne University of Applied Sciences and Arts comprises five schools with over 4,400 students enrolled in Bachelor’s and Master’s degree programmes and approximately 4,050 students in continuing education (Master of Advanced Studies, Diploma of Advanced Studies, Certificate of Advanced Studies). Together the five schools offer bachelor’s and master’s degree programmes in engineering, architecture, economics, social work, art, design and music. More specialised programmes, such as the Master of Advanced Studies and courses in continuing education, are directly focused on the practical needs of postgraduates and their employers. To foster national and international mobility and networks, the Lucerne University of Applied Sciences and Arts collaborates with other Swiss and foreign higher education institutions, offers study programmes in English and encourages extra-curricular activities.

Key Figures 2009
Number of students: 4,400
Female students: 41%
International students: 11%

Schools
School of Engineering and Architecture; School of Business; School of Social Work, School of Art and Design, School of Music

Areas of Instruction and Research
- Engineering and Architecture
- Business
- Social Work
- Art and Design
- Music

www.hslu.ch
info@hslu.ch

Lucerne University of Applied Sciences and Arts

www.hlue.ch
info@hlue.ch

Key Figures 2009
Number of students: 4,500
Female students: 33%
International students: 14%

Schools
School of Engineering and Architecture; School of Business; School of Social Work and Health St. Gallen (FHS); School of Business Administration and Engineering Chur (HTW), School of Engineering Buchs (NTB)

Areas of Instruction and Research
- Engineering and IT
- Landscape Architecture
- Building Engineering and Planning
- Business Administration
- Management and Tourism
- Social Work
- Health

www.hlu.ch
info@hlu.ch
The University of Applied Sciences of Northwestern Switzerland comprises nine schools and academies that cover a wide range of studies. They offer very individualised, high-quality programmes to their approximately 9,400 students.

Nationally, the University of Applied Sciences of Northwestern Switzerland works closely with PSI (ETH Zürich), the University of Basel and the universities of applied sciences, and, on the international level, it cooperates with many foreign institutions. Applied research generates solutions to resolve practical problems, which is of particular interest to the private sector in Switzerland and abroad. The University of Applied Sciences of Northwestern Switzerland emphasises human aspects in its learning environment, and is committed to internationalise its research and academic instruction.

Key Figures 2009
Number of students: 9,400
Female students: 48%
International students: 18%

Schools
- School of Applied Psychology
- School of Architecture, Civil Engineering and Geomatics
- Academy of Arts and Design
- Academy of Music
- School of Life Sciences
- School of Social Work
- School of Engineering
- School of Business
- School of Teacher Education

Areas of Instruction and Research
- Applied Psychology
- Engineering
- Architecture, Civil Engineering Geomatics
- Arts and Design
- Music
- Business
- Teacher Education
- Life Sciences
- Social Work

www.fhnw.ch
info.business@fhnw.ch

The University of Applied Sciences of Northwestern Switzerland (SUPSI) is the only Italian-language University of Applied Sciences in Switzerland. As a higher education institution, SUPSI’s remit includes the provision of education and training for specific professions as well as the rendering of applied research services. Since its founding in 1997, the University of Applied Sciences of Southern Switzerland has been a fundamental part of the Italian-speaking university system in Switzerland with approximately 4,000 students in the marvelous Lugano region. It works closely with the University of Lugano and creates a bridge toward Italy. In addition to its regional orientation, it also has a national strategy through its affiliation with the Swiss Distance University of Applied Sciences in 2004.

The University of Applied Sciences of Southern Switzerland is noted for providing learning opportunities to individuals who have already gained some professional experience and who continue to operate in a professional capacity. The faculty includes full-time lecturers/researchers and part-time professionals. Moreover, it offers Bachelor’s and Master’s degree programmes, continuing education programmes, and conducts applied research projects in collaboration with companies and institutions within the region.

Key Figures 2009
Number of students: 2,700
Female students: 45%
International students: 18%

Affiliated Schools
- Swiss Distance University of Applied Sciences
- Dimitri Theater School

Areas of Instruction and Research
- Architecture
- Business Administration
- Civil Engineering
- Computer Science
- Conservation and Restoration
- Electronics
- Interior Design
- Mechanical Engineering
- Engineering and Management
- Business Information Technology
- Music
- Nursing
- Occupational Therapy
- Physiotherapy
- Social Work
- Theater
- Visual Communication

www.supsi.ch
info@supsi.ch

www.fhnw.ch
info.business@fhnw.ch
Switzerland as a location for higher education and research

Key Figures 2009
Number of students: 15,300
Female students: 51%
International students: 11%

Universities
ZHAW Zurich University of Applied Sciences; Zurich University of the Arts; Zurich University of Teacher Education

Areas of Instruction and Research
- Architecture
- Building Engineering and Planning
- Business Facility Management
- Management and Services
- Chemistry and Life Sciences
- Design and Art
- Engineering and IT
- Health
- Applied Linguistics
- Music
- Performing Arts and Film
- Fine Arts
- Applied Psychology
- Social Work
- Teacher Education

The Zurich Universities of Applied Sciences and Arts (Zürcher Fachhochschule ZFH) are among the largest institutions of their kind in Switzerland. Currently the ZFH includes three universities: applied sciences, arts, and teacher education.

Zurich has one of the world’s highest standards of living and a lively cultural scene with a wide selection of first-class theaters, museums, and cinemas. In this environment, the Zurich Universities of Applied Sciences and Arts offer a broad range of study programs, including Bachelor’s and Master’s degree programs, Master of Advanced Studies (MAS) programs, and other continuing education and training courses. The universities conduct research that serves practical purposes. Through their services, the universities make their know-how available to the Federal administration and non-profit organizations. Numerous projects are done in cooperation with other universities and the private sector, ensuring knowledge and technology transfer to the business and industrial sectors. The Zurich Universities of Applied Sciences and Arts promote the mobility of students and faculty and are part of international research networks.

The University of Applied Sciences of Western Switzerland (HES-SO) is noted for its faculty and its support staff. 40 Bachelor’s and 15 Master’s degree programs are offered in six different fields of study. The Master of Advanced Studies program and continuing education courses provide further possibilities for attaining professional excellence.

Applied research, technology transfer, and postgraduate studies are conducted in so-called “networks of excellence,” which consist of 13 groups of researchers spread all over Switzerland. This enables researchers from different schools to be combined. The main focus of each group is to fulfill public and private expectations to meet a practical need. This strengthens cooperation between the universities and industry on the national level and helps, very promising research and development projects to earn international recognition. The UAS Western Switzerland is involved in many European research projects (FP7, SCienX) and is leading institution for 3 of them. The University of Applied Sciences of Western Switzerland has more than 100 cooperation agreements with universities abroad with special programmes to enable international mobility of students and faculty.

Key Figures 2009
Number of students: 15,400
Female students: 55%
International students: 28%

Schools
HES-SO Fribourg – Fribourg; HES-SO Geneva; HES-SO Valais – Wallis; HES-SO Arc; HES-SO Vaud; School of Engineering Changins; Ecole Hôtelière de Lausanne (School of Hospitality Management); School of Theatre La Manufacture

Areas of Instruction and Research
- Engineering and Architecture
- Business, Management and Services
- Design and Fine Arts
- Health
- Social Work
- Music and Theatre

The University of Applied Sciences of Western Switzerland
Practical links for potential students and researchers from abroad

Studying at university
(summary) www.sbf.admin.ch/uni.htm

Access to higher education
www.swissuniversity.ch/enrollment-and-admission.htm

Visas
www.swissuniversity.ch/immigration-and-visa.htm

Course fees and scholarships
www.swissuniversity.ch/grants-scholarship-fees.htm

Master’s degree programmes at Swiss universities
www.swissuniversity.ch/master-programs.htm

PhD programmes at Swiss universities
www.swissuniversity.ch/phd-programs.htm

Life in and around Swiss higher education institutions
StudySurf.ch

Studying at a university of applied sciences
(summary) www.sbf.admin.ch/uas.htm

Studying at a university of teacher education
(summary) www.sbf.admin.ch/ute.htm

Bachelor’s and Master’s degree programmes at Swiss universities of applied sciences
www.kfh.ch/index.cfm?nav=2k

Careers portal for researchers
www.myscience.ch/en/jobs_and_careers