Environmental Sciences

The interfaculty field Environmental Sciences offers seven minor study programmes. They all have the basic course in common, which imparts basic, broad, interdisciplinary, knowledge. This includes scientific, ethical, economic and legal content. Lecturers from different faculties and specialists with practical experience demonstrate focal points and approaches to solutions and impart theoretical knowledge. Through field trips insights are gained into technical facilities, manufacturing and recovery processes, research laboratories or protected areas.

Two study programmes that go beyond the basic course enable the future environmental scientists to specialise either in environmental law or in management of the environment. For the other study programmes, the following focal points are possible: sustainability, ecology, environmental ethics, environmental economy and resources.

Profile of the study programme

The interfaculty field Environmental Sciences offers two study programmes with 60 ECTS credits and five study programmes with 30 ECTS credits. The large study programmes are offered with different specialisations. In the first part, both impart basic, broad, interdisciplinary knowledge. Scientific lectures present approaches to understanding chemical, physical and biological systems and their processes, cycles and interconnections; the students gain important insights into what the environment consists of and how it functions. In preparation for decision-making tasks later in professional life, ethical and economic issues are discussed and dealing with legal texts is practiced. Problems in the area of the environment can be multi-layered, far-reaching and complex and precise considerations of ecological, economic and moral values are needed. In addition, interests and responsibilities must be recognised and consequences must be taken into consideration across different levels. For the lectures in the basic courses on resources, ecology and environmental law/economy, the book by Prof. Brenner on environmental ethics, which was written specifically with this in mind is recommended as supplementary literature.

In addition to the mandatory basic course, Environmental sciences offers individual lectures and field trips. Topics such as sustainability, the relationship between humans and the environment from a social anthropological point of view and the effects of electromagnetic radiation (for example mobile phone radiation) on the environment are dealt with in so-called special events. The courses that are offered in environmental science are continuously being evaluated and are currently being developed further in the direction of sustainability. Lecturers from different faculties of the University of Fribourg and specialists with practical experience discuss focal points and describe approaches to solutions and impart basic theoretical knowledge. The students learn to limit the term «sustainability», which tends to be used excessively, and to understand it. The lectures are discussed on the Moodle learning platform and in regularly held synthesis sessions. The first course gave rise to a group (NEUF) in 2012, in which students got actively involved in the sustainable operation of their own university.

A field trip programme, which changes slightly every year, deals with issues such as energy, waste, nutrition, nature protection and urban development. Field trips are a valuable supplement to theoretical knowledge; students gain insight into technical facilities, get to know manufacturing and recovery processes, visit research laboratories, protected areas, exhibits, modernised flats and much more.

Those who wish to gain solid basic legal knowledge choose the specialisation in environmental law, which constitutes more than half the study programme and consists of lectures on public law and environmental law at the Faculty of Law.

In the study programme with a specialisation in management of the environment, students have the possibility of choosing those courses that interest them the most from a broad offering of courses from all faculties. Some study modules are offered at the University of Berne. In addition to field trips and seminars with group work, this study programme contains a feature that is unusual for university studies: a three-month full-time internship.

Environmental sciences also offers study programmes with 30 ECTS credits. All programmes are identically structured: the basic course, which is described above and which is also a part of the large study programmes, as well as the field trips are mandatory; thereafter, the students attend courses that they can choose freely from an extensive list. The courses correspond to the following main focal points:

- **Sustainability**
  The focal point «sustainability» begins with a factor that strongly influences the environment: human actions. Courses in ethics, behavioural psychology, geography and further disciplines locate the human being and his/her actions and movements in the environment and in society and discuss theories regarding behavioural mechanisms. They are supplemented by future-oriented courses and seminars that deal, for example, with nature protection and socio-economic changes or a sustainable economy, development and politics.

- **Ecology**
The focal point «ecology» builds on the ecological issues dealt with in the basic course; in-depth biological, geographical and geological knowledge is imparted that is relevant for the environment. Depending on one's personal interest, the orientation can concentrate on one of these subjects or else a wider spectrum can be covered, combining biological and geo-scientific courses. It is recommended that students from non-scientific faculties attend at least one basic lecture in biology, geography or geology.

– Environmental ethics
The focal point «environmental ethics» encompasses a range of courses (lectures, seminars and special events) from the Faculty of Arts and Humanities and the Faculty of Theology. On the one hand, the courses offer an in-depth introduction to ethics (basics, methods) and on the other hand they deal with the various topics of applied ethics (especially issues of environmental ethics and social ethics), as well as special ethical topics from a philosophical or theological perspective.

– Environmental economy
The basic idea behind the focal point «environmental economics» is to make such aspects of economics and social sciences that deal with environmental problems, issues and effects within the framework of business economics (especially marketing and business management), political economics and social sciences, applicable to the subject of environmental science. The relationship to the environment is not always explicit. For example: while NPO (Non-Profit Organisations) marketing does not only apply to environmental organisations, it does still apply to them. An essential aspect of business management is, of course, the company’s relationship to its environment, etc. therefore all recommended and possible courses and events should relate to the economic point of view and rationale in relation to ecological topics and problems.

– Resources
In the focal point «Resources», the basics of analytics are taught (general and organic instrumental analytics with internship), including how they are used in environmental science, for example to detect environmental pollutants, toxic gases, etc. Additionally, the two lectures «Chemistry in Everyday Life» and «Physics in Everyday Life», as well as «Radioactivity and Radiation» constitute a part of this focal point. The material that is taught in the basic lectures in physics and chemistry is necessary to understanding the course with the focal point resources.

Studies organisation

Structure of studies
60 ECTS credits as a minor study programme

Curriculum
http://studies.unifr.ch/go/NW1tn (French)
http://studies.unifr.ch/go/DVvZG (German)

Alternatives
Also offered as a minor study programme with 30 ECTS credits.

Contact
Coordination Office Environmental Sciences
Christof Rothenberger
environment@unifr.ch
http://studies.unifr.ch/go/fr-environmentalsciences (French)
http://studies.unifr.ch/go/de-environmentalsciences (German)