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DEGLI STUDI
DI PALERMO

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2015

Basic and
Applied
Sciences School

*Subjects, Educational Offer,
Professional opportunities*



Scuola
delle **Scienze di Base
e Applicate**
di Palermo

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- | Environment | Biology and Biotechnology |
- | Mathematics and Computer Science |
- | Chemical, Physical and Pharmaceutical Sciences |
- | Agricultural Technology |

Basic and Applied Sciences School

The School consists of the following departments: Biological, Chemical and Pharmaceutical Sciences and Technologies; Agricultural Sciences and Forestry; Physics and Chemistry; Mathematics and Computer

Science; Earth and Sea Sciences; Experimental Biomedicine and Clinical Neurosciences, and the School of Specialization in Hospital Pharmacy. In the School 30 Courses of Study are active (12 degrees, 15 master degrees, and 3 integrated master degrees) offering a

remarkable choice for students who wish to pursue studies in basic or specialist science. It is also the appropriate forum where the scientific community evaluates the validity of the educational offer in relation to the impact in the employment sector, in

order to adapt this offer also according to the requests that come from the territory. The institutional office is located in Via Archirafi 28, in the premises of the former Faculty of Sciences.

The President of the School
Valerio Agnesi

Subjects

Environment

The industry of the environment is a developing field and the demand for professionals with a synthetic and systematic vision of the environment for the management of environmental issues is growing in the public administrations and the private sector. To meet this need, the Science of Nature and the Environment and Geology provide a wide offer for those who want to operate in the management and protection of the environment. These disciplines base their studies on modern analytical techniques developed by Physics, Chemistry, Mathematics, Computer Science, Biology and Geology. With these methods, graduates in Science of Nature and the Environment and in Geology conduct refined analysis, in basic research and providing models for the assessment of natural risks and for the finding and management of natural resources.

Biology and Biotechnology

Biology and Biotechnology, fields in continuous development, study at various levels and with different methodological and technological aspects, living organisms. For their interdisciplinary nature, they provide answers to current issues in medical and health, agricultural, environmental, pharmaceutical, industrial areas. The degrees in this field provide a solid basic knowledge of mathematics, chemistry and physics and a good command of the methodologies and technologies related to the fields of scientific research. The course of Biological Sciences offers adequate preparation for assimilating the scientific and technological advances related to the life sciences, while the course of Biotechnology, articulated in the agrifood or biomedical curriculum, provides knowledge aimed to use biological functions and systems for the production of goods and services.

Mathematics and Computer Science

The aim of mathematical knowledge is to establish the necessary relationships, the logical connections, between the properties of objects. Mathematics uses the tools of logic and develops its knowledge in the context of hypothetical-deductive systems that, from strict definitions and axioms regarding the properties of the defined objects, reaches new certainty, by means of demonstrations on properties less intuitive than the objects themselves, expressed by the theorems. Computer science concerns the scientific aspects behind the design and development of computer systems and the transmission and processing of information. Computer Science has deep roots in mathematics, but, at the same time, look at many aspects of the real world and other scientific fields, looking for automated solutions to questions of everyday life so as to more complex ones raised by scientific communities.

Chemical, Physical and Pharmaceutical Sciences

Physical and Chemical Sciences arise with the man questioning about universe and existence. Chemistry and Physics are called "hard sciences" because they use strictly experimental method: the formulation of interpretative hypotheses, whose validity is tested through experiments, follows the observation of phenomena. Chemistry studies the composition of matter, its behaviour and its transformations; physics studies the natural phenomena in order to establish the principles and laws that govern the interactions between physical values and accounts for their mutual variations. Developments of the hard sciences have given rise to other disciplines such as Pharmaceutical Sciences concerning the design, development and analysis of medicines. Among the various applications diagnostic, analytical and instrumental techniques are used in issues related to the environment, cultural heritage and its conservation, or forensics.

Agricultural Technology

Whatever is used by the world food industry, but also other areas, such as renewable energy or sustainable building and planning and land management, derives from agricultural production and technology. The professional who graduates in Agricultural Science and Technology, Forest and Environmental Science, Viticulture and Enology and Agricultural Engineering, acquires an interdisciplinary background in important topics, approached with appropriate balance between theory and practical experience in agro-food businesses. This training allows to have the appropriate skills to deal with the management of agribusiness and forestry, following the entire path of the supply chain, from the production to the consumer.

Educational Offer

Degree (3 years)

L-2 – Biotechnology
L-13 – Biology
L-25 – Agricultural Engineering
L-25 – Forest and Environmental Sciences
L-25 – Agricultural Science and Technology
L-25 – Viticulture and Enology (TP)
L-27 – Chemistry
L-30 – Physics
L-31 – Computer Science
L-32 – Science of Nature and the Environment
L-34 – Geology
L-35 – Mathematics

Integrated master degrees (5 years)

LM-13 – Pharmaceutical chemistry and technologies
LM-13 – Pharmacy
LMR-02 – Conservation and restoration of the cultural heritage

Master degrees (2 years)

LM-6 – Biodiversity and Evolution
LM-6 – Cellular and Molecular Biology
LM-6 – Health Biology
LM-6 – Plant Biology and Ecology
LM-6 – Marine Biology
LM-8 – Biotechnologies for industry and scientific research
LM-17 – Physics
LM-18 – Computer Science
LM-40 – Mathematics
LM-54 – Chemistry
LM-60 – Natural Sciences
LM-69 – Agricultural Engineering
LM-73 – Forest and Environmental Sciences
LM-74 – Geology
LM-75 – Environmental Rehabilitation and Soil Bioengineering Sciences
LM-75 – Analysis and Environmental management

Professional opportunities

Degrees

Employment opportunities for graduates of the School of Basic and Applied Sciences are many and expendable in both public and private sectors. They range from agricultural to chemical, physical to pharmaceutical, biological to biotechnological, mathematician to computer areas. For some graduates registration in the professional category is expected. They may also continue their studies with first level professional Master Courses, Master Degrees and Specialization Courses.

Master Degrees

Postgraduates, with specific in-depth training, may work as freelance professionals or perform research and professional activities in public and private structures. In particular, they can provide consulting and planning in farms, protected areas, processing enterprises, diagnostic laboratories and businesses, research institutions in the bio-health field, certification activities and security control, conservation and recovery of the natural biological heritage, management in specialized structures in agricultural production, environmental planning and landscape. And also for the environmental control and monitoring, the development of new innovative products and processes in biological and/or environmental industries: for some postgraduates registration in the professional category is expected. They may also continue their studies with second level professional Master Courses, PhD, Specialization Schools and Higher Education Courses.