Bachelor of Science (BSc) in Biology

Students of the program Bachelor of Science (BSc) in Biology will develop a passion for the living and acquire a broad knowledge base in biology. Ranging from basic sciences like chemistry, physics, and mathematics over fundamental aspects of molecular and cell biology to the study of organisms and ecosystems, the BSc program in biology will provide a profound understanding of life at all levels of its complexity. Advanced instructions will provide students with a first research experience. In addition to offering a solid scientific education, the BSc program in Biology aims at the development of critical thinking, in particular regarding the growing significance of biology for our society, an analytical approach to complex problems, and the capacity of independent learning and self-management. This training of the scientific mind is complemented by the development of communication skills, and the ability to work as member of a team, which will further contribute to the polyvalence of graduates. The program BSc in Biology will prepare students to pursue their studies without any complement in a program Master of Science (MSc) in biology. Together with the Master, this will prepare them for a wide range of careers, including research and teaching in an academic context, research and development in the private sector, functions in public or private regulatory agencies, as well as work in the media sector and political institutions.

DESCRIPTORS:

Subject knowledge, understanding and skills

Describe and explain biological concepts and phenomena at all levels of organisation, ranging from molecules to organisms, populations, and ecosystems.

Appreciate evolution as the overarching basis for function, interaction and diversity of all living organisms.

Recognize biology as a constantly evolving discipline with current knowledge strongly dependent on the experimental setup, the available technologies, and the interpretation of data.

Apply principles of quantitative biology and the use of state-of-the-art informatics and computational tools and methods.

Gain insights into the analytical methodologies of disciplines that overlap with and complement biology.

Explain the significance and impact of biology for our society.

Develop high standards of laboratory skills and record keeping.

Application of knowledge and skills

Develop the capacity of observation.

Apply knowledge about biological concepts and research areas of biology, as well as from the basic disciplines mathematics (incl. statistics), (bio)physics, and chemistry, in order to solve biological problems.

Formulate hypotheses and develop ways of testing them.

Conduct experiments under guidance, using laboratory and/or field methods and equipment in a safe and effective manner.

Observe, identify, sample, collect, analyze biological material, and record data both in the laboratory and the field in a goal-oriented and precise manner.

Judgment

Analyze and interpret data with appropriate qualitative and quantitative techniques

Develop a critical and analytical spirit regarding scientific and ethical issues.

Develop responsible use of intellectual resources respecting the rules of intellectual property and copyright.

Communication and organizational skills

Communicate results and ideas effectively in written and oral form in the official language of the University and in English.

Work in small teams, plan the time and structure the work effectively, defining priorities in order to meet deadlines.

Self-directed study and self-management

Use primary and secondary literature to extract, review, and summarize information in a constructively critical manner.

Use internet-based information and scientific networks to acquire information in an independent manner.