



Faculty of Health, Science and Technology

PROGRAMME STUDY PLAN

BIOLOGY

Programme Code	NGBIO
Programme Title	Biology programme
Programme Approval	The Programme Study Plan was approved by the Faculty Board of Life and Social Sciences on 24 January 2007 (Reg.no. FAK3 2007/16) and is valid from the autumn semester of 2007 at Karlstad University. Revised on 8 August 2008, 18 December 2008, 1 October 2009, 8 March 2012.
Credits	180 ECTS cr.
Language of Instruction	Swedish
Degree Level	Bachelor's
Degree Type	General qualifications
Prerequisites	General university admission requirements and upper secondary school level Mathematics C/3b/3c, Biology A/1 and Chemistry A/1 (field-specific requirements 12A, excluding Biology B/2, Chemistry B/2 and Physics A/1). See http://www.kau.se/en/education/application-admission .Elective courses may have different requirements.

Revision

28 Aug 2008. Faculty Board: Addition of Student Expulsion Procedures, effective from date of decision.

18 Dec 2008, Study Board: Practical Placement 15 ECTS cr is an elective rather than a mandatory course, effective from the date decision.

1 Oct 2009. Dean: Addition of field-specific eligibility as admission requirement, effective from autumn admission 2012.

8 March 2012: Study Programmes Board: Clarification of courses in biology, effective from date of decision.

General Information

The Biology Programme provides basic education and upon completion, students are awarded a Bachelor's degree with a major in biology. Students can broaden their studies and create their own degree by including other subjects. Many biologists work with environmental and nature conservation in various local and national public administrations; others teach in compulsory school, upper secondary school, or at university level. Pharmaceutical companies and the food industry are other possible work places for biologists who have specialised in cell biology, physiology or microbiology.

Upon completion of the Bachelor level programme, students can continue studying for a year at the Master's level (60 ECTS cr.) and earn a Master's degree with a major in biology, which gives eligibility for doctoral studies, or continue towards a two-year Master qualifications (120 ECTS cr). Karlstad University specialises in continuation courses in ecology and ongoing research has a focus on freshwater ecology.

Aims

Chapter 1, § 8, of the *Higher Education Act* (SFS 1993:100) states that Bachelor level students are expected to

- develop their ability to make independent and critical assessments,
- develop their ability to define, formulate and solve problems, and
- develop their ability to deal with changes in working life.

In the field of study, students should, beyond the knowledge and skills required, also develop their ability to

- seek and assess scientific knowledge,
- follow the knowledge development, and
- exchange information with non-experts in the field.

The *Higher Education Ordinance* lists the following national aims and objectives for a Bachelor's degree (SFS 1993:100):

Knowledge and understanding

For a degree of Bachelor students must

- demonstrate knowledge and understanding of the main field of study, including knowledge of the scientific basis of the field, knowledge of applicable methods in the field, in-depth knowledge of some part of the field and a general sense of current research issues.

Skills and abilities

For a degree of Bachelor students must

- demonstrate an ability to seek, gather and critically interpret information that is relevant to a problem and to critically discuss phenomena, issues and situations,
- demonstrate an ability to independently identify, formulate and solve problems and to perform tasks within specified time limits,
- demonstrate an ability to present and discuss information, problems and solutions in dialogue with different groups, orally and in writing, and

- demonstrate the skills required to work independently in the field that the education concerns.

Judgement and approach

For a degree of Bachelor students must

- demonstrate an ability to make assessments in their main field of study, taking into account relevant scientific, social and ethical aspects,
- demonstrate insight into the role of knowledge in society and people's responsibility for how knowledge is used, and
- demonstrate ability to identify their need of further knowledge and to upgrade their capabilities.

Upon completion of the Biology Programme at Karlstad University, students should also be able to demonstrate

- the degree of knowledge and skills in biology required for professional work as well as for further studies in biology,
- ability to work independently and in a group,
- skills in solving problems and using scientific methods,
- ability to seek and critically assess information in the field of biology,
- ability to analyse and compile biological information and data and present the results orally and in writing,
- skills in presenting information using different presentational aids,
- knowledge of basic analytical methods and statistics,
- knowledge of and skills in different techniques and methods used in biology in the laboratory and in nature,
- knowledge of and skills in using quantitative and qualitative methods of collecting data.

Programme Structure

In the first three terms, students study basic courses in biology (90 ECTS cr) in preparation for two or more specialisation courses of 15 ECTS cr. each in some areas of biology. Students also carry out a degree project of 15 ECTS cr. In terms 4 and 5, students are free to choose elective courses totalling 45 ECTS cr in biology or another subject.

Instruction is in the form of lectures, seminars, laboratory experiments, group projects and excursions. Students have the opportunity to choose a practical placement course.

Programme Curriculum

The programme includes one mandatory subject, biology, which is the degree major. It is stipulated that the major field of study should comprise three terms of study, which equals 90 ECTS credits. The biology programme comprises at least 120 ECTS cr.

The programme includes a number of courses, the progression of which is indicated as follows:

- basic studies 1-90 ECTS cr. (levels A and B)
- specialisation studies 90-120 ECTS cr. (level C)

Terms 1-3 comprise mandatory courses totalling 90 ECTS cr (3x30 ECTS cr). The remaining terms include a mandatory specialisation course 15 ECTS cr and a mandatory degree project 15 ECTS cr and elective courses 45 ECTS cr.

Term 1

Biology I, 30 ECTS cr comprising four modules

Floristics, 7.5

- plants, fungi and algae

Faunistics, 7.5

- the most common animal groups and species

Methods in biology, 7.5

- basic knowledge of methods commonly used in biology

Biological analysis, 7.5

- basic knowledge of the theoretical background of statistical analysis and knowledge of experimental design in biology and environmental science.

Term 2

Biology II, 30 ECTS cr comprising four modules

Zoology: anatomy and physiology, 7.5

- the structure, function and regulation of different animal organ systems

Cell biology: eukaryotes, 7.5

- the structure and function, metabolism and genetics of eukaryotic cells

Botany: systematics and morphology, 7.5

- the systematic categorisation and morphology of algae, fungi and plants

Ecology; organisms and ecosystems, 7.5

- levels of organisation in nature and the function and organization of ecosystems.

Term 3

Biology III, 30 ECTS cr comprising four modules

Zoology: systematics and morphology, 7.5

- the anatomy of multi-cellular animals and systematic/genealogical categorisation

Ecology: populations and interaction, 7.5

- the dynamics, growth and regulation of populations communities and the consequences of human exploitation for biodiversity

Botany: anatomy and physiology, 7.5

- functional anatomy, photosynthesis, water provision etc.

Cell biology: prokaryotes, 7.5

- the structure, function, metabolism and genetics of prokaryotic cells

Terms 4-5

The terms 4-5 consist of at least one specialisation course in biology 15 ECTS cr, and electives totalling 45 ECTS cr. Students are recommended to take further specialisation courses in biology.

Biology specialisation 30 ECTS cr: Biological effects of climate change 15 ECTS cr/Conservation biology 15 ECTS cr/Freshwater Ecology 15 ECTS cr/Evolution 15 ECTS cr.

Term 6

Electives course 15 ECTS cr, with a possible practical placement course in Biology, 15 ECTS cr.

Degree Project in Biology 15 ECTS cr

Examination

Examination formats are stated in each course syllabus.

Degree Title

Degree of Bachelor of Science. Major: Biology

Credit Transfer

According to the *Higher Education Ordinance* (SFS 1993:100, Ch 6, § 12-14), students may transfer credits from previously completed university courses subject to approval. Transfer of credits for a course module, or university studies generally, is subject to the approval of the course examiner. Transfer of credits for a full course is subject to the approval of the Student Affairs Office.

Additional Information

Duration

Full-time study equals an academic year of 40 weeks (i.e. 60 ECTS credits) (The *Higher Education Ordinance*, SFS 1993:100).

Moving Up

For admission to programme courses, students are required to meet the prerequisites of each course. Prerequisites are specified in each course syllabus.

The local regulations for undergraduate studies at Karlstad University stipulate the obligations and rights of students and staff.

Student Expulsion Procedures

As stipulated in the *Higher Education Act* Ch. 2, sect. 6, SFS 1992: 1434, and Regulations of Student Expulsion from Higher Education SFS 1987: 915, a student who suffers from mental disorder, abuses alcohol or drugs, or has been guilty of a serious offence endangering others or valuable property can be expelled until further notice. In such a case, the Rector files a complaint to the Expulsion Board of Higher Education, which investigates the matter and makes a decision. A decision of expulsion shall always entail that the student must discontinue the education until further notice. The Expulsion Board of Higher Education is responsible for all Swedish higher education institutions.