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# **Elective programme elements 2016-2018**

**Bachelor in Agricultural and Environmental  
Management**

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Professionsbachelor i Jordbrugsvirksomhed

## **Learning objectives and subject descriptions**

- Second semester for the study programme Biology  
(specialisation Environment and Nature Management)

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## **Contents**

1. General .....	3
1.1 Subjects/learning objectives for biology (Study line/speciality: Environmental and Nature Management).....	3
1.1.1 Climate.....	3
1.1.2 Sustainability .....	4
1.1.3 Ecotoxicology.....	5

# 1. General

The following learning objectives and subject descriptions for the elective programme elements are a supplement to the joint national curriculum and the institutional curriculum. The elective elements' catalogue/Part III. There is not a free choice between all the subjects, the choice is made implicitly through the student's choice of speciality on the programme.

## 1.1 Subjects/learning objectives for biology (Study line/speciality: Environmental and Nature Management)

1.1.1 Climate	
Scope	28 lessons / 2.5 ECTS (approximately 70 study hours)
Content	<ul style="list-style-type: none"> <li>• Climate plans - and objectives</li> <li>• Climate strategies at local, national and EU-level</li> <li>• Renewable energy and energy flows</li> <li>• Climate adaptations in relation to rainfall and surface water</li> </ul>
Portfolio	One or more tasks within the subject's framework.
Curriculum list	Academic articles and reports from professional forums/symposiums/conferences as well as from journals and magazines.
Learning objectives	<p><b>Knowledge and understanding</b> The student will gain knowledge about:</p> <ul style="list-style-type: none"> <li>• climate change planning in municipalities, regions and companies</li> <li>• climate and energy plans, strategies and goals</li> <li>• practical measures in relation to stormwater discharge and increased quantities of surface water</li> <li>• possible ecological and human consequences of increased rainwater and surface water.</li> </ul> <p><b>Skills</b> The student will get the skills to:</p> <ul style="list-style-type: none"> <li>• apply theories and tools to calculate climate implications for public and private companies</li> <li>• apply relevant theory to prepare energy plans</li> <li>• apply relevant theory to analyse and assess implications of climate-induced changes in relation to surface water.</li> </ul> <p><b>Competencies</b> The student will learn to:</p> <ul style="list-style-type: none"> <li>• independently develop climate change strategies for public and private companies, and assess the effects of climate change plans and programmes</li> <li>• independently collect relevant data, analyse and evaluate climate-induced problems in relation to surface water, and submit qualified solutions.</li> </ul>

1.1.2 Sustainability	
Placement	2nd semester
Scope	70 lessons / 6.5 ECTS (approximately 165 study hours)
Content	<ul style="list-style-type: none"> <li>• Definition of the concept of sustainability.</li> <li>• Preparation of green accounting/Carbon calculations</li> <li>• Green conversion/industrial symbioses</li> <li>• CSR/LCA, Global Compact, Cradle2Cradle</li> <li>• Sustainability at company and consumer level</li> <li>• Upcycling of waste</li> <li>• Sustainable production/forests as a natural resource.</li> </ul>
Portfolio	Preparation of a company's carbon footprint. One or more tasks within the subject's framework.
Curriculum list	Academic articles and reports from professional forums/symposiums/conferences as well as from journals and magazines.
Learning objectives	<p><b>Knowledge and understanding</b> The student will gain knowledge about:</p> <ul style="list-style-type: none"> <li>• nutrients, purification processes and the utilisation of residual products in relation to agricultural and environmental management</li> <li>• the importance of nutrients for the environment and a product's quality, digestibility and soundness as well as how to reflect on their use in practice</li> <li>• an understanding of reporting within LCA, Carbon footprint, CSR, global compact and cradle to cradle.</li> </ul> <p><b>Skills</b> The student will get the skills to:</p> <ul style="list-style-type: none"> <li>• analyse and assess the impact of production on substance circulation and energy flows in relation to agriculture, the environment or nature</li> <li>• apply relevant theory for solutions in relation to the impact of production on agriculture, the environment or nature.</li> </ul> <p><b>Competencies</b> The student will learn to:</p> <ul style="list-style-type: none"> <li>• independently gather assessment data and carry out analyses of the environmental consequences of agricultural production and come up with qualified solutions</li> <li>• independently participate in academic and interdisciplinary collaboration and assume responsibility within the framework of a professional ethics</li> <li>• identify their own learning needs and develop their knowledge, skills and competencies in relation sustainable development.</li> </ul>

<b>1.1.3 Ecotoxicology</b>	
Placement	2nd semester
Scope	30 lessons / 3 ECTS (approximately 70 study hours)
Curriculum list	Principles of Ecotoxicology by C.H. Walker, R.M. Sibly, S.P. Hopkin, D.B. Peakall, 4th edition Handed-out literature.
Portfolio	Dissemination of experimental results in the form of an article
Content	<ul style="list-style-type: none"> <li>• Introduction to xenobiotics</li> <li>• Ecological effects of xenobiotics</li> <li>• Biomarkers, solution models and monitoring</li> </ul>
Learning objectives	<p><b>Knowledge and understanding</b> The student will gain knowledge about:</p> <ul style="list-style-type: none"> <li>• relevant toxins and the distribution of these in the environment</li> <li>• the effects of toxins on individual species, populations and ecosystems</li> <li>• the relevant legislation.</li> </ul> <p><b>Skills</b> The student will get the skills to:</p> <ul style="list-style-type: none"> <li>• apply relevant theory to analyse ecotoxicological issues in relation to real-life problems</li> <li>• analyse and evaluate the consequences of exposure to toxins at the individual, population and ecosystem level.</li> </ul> <p><b>Competencies</b> The student will learn to:</p> <ul style="list-style-type: none"> <li>• independently gather data and carry out analyses of the ecotoxicological consequences and provide qualified solutions.</li> </ul>