

# **Future Semester Certificate Programme**

**Specialisation: Sustainability**

Kleve, 3 November 2020

## Contents

<b>Specialisation in Sustainability .....</b>	<b>3</b>
<b>Learning Agreement.....</b>	<b>5</b>
<b>Module overview winter semester .....</b>	<b>7</b>
<b>Module overview summer semester .....</b>	<b>9</b>

## Future Semester: Specialisation in Sustainability

### - Solution-oriented, eco-friendly, intergenerationally fair, goal-driven

Have you already earned an undergraduate degree, but find you are not quite ready for a master's yet? Are you disappointed with the current job market as a new graduate? Would you like to enhance your résumé with additional qualifications and improve your long term career prospects? Then consider enrolling in the Future Semester certificate programme offered by Rhine-Waal and Ruhr-West Universities of Applied Sciences. Choose between several exciting specialisation paths!

While specialising in Sustainability you will learn about the responsible use of bio-local resources and sustainable methods for managing agriculture and forestry.

#### What can you expect from a specialisation in Sustainability?

- You will familiarise yourself with different dimensions of sustainability (intergenerational justice, quality of life, social cohesion and international responsibility).
- You will learn about the goals behind the German Sustainability Strategy.
- You will learn the deeper meaning of “intergenerational justice” as a special form of justice within the fields of academics, politics and society.
- You will familiarise yourself with the most important environmental technology processes and their applications, as well as risk reduction strategies for substances with a potentially catastrophic environmental impact.
- You will learn to balance the social, ecological and ethical impacts of decisions in this field, and honing your ability to assume social responsibility and make meaningful contributions to society.
- You will learn how to implement continuous improvement processes and develop valid indicators for measuring progress.

#### Specialisation overview

Outcome	Professional training programme with certificate upon completion
Start	Winter semester and summer semester
Campus	Kleve Note: courses in the winter semester 2020/21 will be held mostly online; exams for some modules may be held in-person.
Standard duration	1 semester (maximum 2 semesters possible)
Credits	25-30 ECTS credits (generally over five modules)
Department / faculty	Faculty of Life Sciences, Rhine-Waal University

Admission requirements	Completed undergraduate degree from Rhine-Waal or Ruhr-West Universities of Applied Sciences
Admission restrictions	None. However, some modules may have limited capacities.

## Learning Agreement

The Future Semester is a one-semester certificate programme offered jointly by Rhine-Waal and Ruhr-West Universities of Applied Sciences. It is not a degree programme, but rather a professional training programme that builds upon the knowledge and proficiency students acquired in their undergraduate studies at either of the aforementioned universities.

A total of 25-30 CP must be earned to successfully conclude the programme and be awarded a certificate for the chosen specialisation. This generally corresponds to **five modules** which must be passed at either Rhine-Waal or Ruhr-West Universities of Applied Sciences.

A **Learning Agreement** defining which five modules each student will complete will be concluded during the first four weeks of lectures.

Please also read and understand the **examination regulations** for the Future Semester programme, which are applicable to both universities.

**Your contacts** for Learning Agreements for the Sustainability specialisation are:

Specialisation in Sustainability	Rhine-Waal University of Applied Sciences	Ruhr-West University of Applied Sciences
Contact	Prof. Dr. Rudolf Schumachers	

Students enrolled in the Future Semester programme will be granted admission to the corresponding university for the agreed-upon modules in the Learning Agreement. Accordingly, a Learning Agreement is a mandatory requirement for registration in the chosen modules for both universities.

Please be aware that in some modules partial performance examinations (*Teilleistungsprüfungen*) may already occur in the first weeks of instruction. Thus we strongly advise you to conclude your Learning Agreements as soon as possible so that you do not miss any lectures.

### Ineligible modules

When concluding your Learning Agreement please be aware that you cannot select modules that you have already passed during your undergraduate studies. As a rule of thumb: you cannot select a module which shares at least two-thirds of the learning outcomes of a module that you passed as an undergraduate.

## Overview of modules in winter semester

Module	Description	CH / SWS	University
Grundlagen des Umweltschutzes	naturwissenschaftliche Grundlagen; Einführung umweltrechtlicher Rahmenparameter; Umweltschadstoffe in Gewässern, Böden, Luft; Grundlagen und Methoden der Trinkwasseraufbereitung, der kommunalen und industriellen Abwasserreinigung, der Behandlung von Klärschlämmen, der Altlastensanierung, der Abluftreinigung; Konzepte zur Abfallreduzierung, Verfahren der Verwertung und Entsorgung von Abfällen; Lärmschutz, regenerative Energieerzeugung; Produkt- und produktionsintegrierter Umweltschutz	VL 2SWS Ü 2SWS  VL digital Ü zum Teil in Präsenz	Rhine-Waal
Grundlagen des Arbeitsschutzes	Geschichtliche Entwicklung des Arbeitsschutzes; Grundlagen der Arbeitssicherheit; methodisches Vorgehen in der Arbeitssicherheit; Schutz vor Unfällen; Schutz vor arbeitsbedingten Erkrankungen und Belastungen; Arbeitsmittel und Anlagen; Arbeitsstätten; Arbeitsverfahren; persönliche Schutzausrüstungen; Schutz bestimmter Personengruppen; sicherheitsgerechtes Verhalten der Beschäftigten	VL 4 SWS in Präsenz	Rhine-Waal
Sustainable Learning / Learning Sustainability	Definitions, concepts and dimensions of sustainability and sustainable development; stakeholders and driving forces; introduction to methods of sustainability assessment (e.g. footprints, LCA); introduction to sustainability management, auditing, labelling and control systems (e.g. EMAS, ISO, Codex Alimentarius); multi-, inter- and transdisciplinarity; basics of land use and supply chain systems; sustainable agroecosystems	Lect. 1 SWS Sem. 2SWS Ex 2SWS  Digital course; seminar only in the first half of the semester.	Rhine-Waal
Processing Biological Resources	Basic procedural, chemical, and microbiological operations and techniques; nature of essential raw materials of plant/animal and microbiological origin; secondary (plant) metabolites; processing of selected raw materials; recovery of valuable components from by-products and waste resulting from food industry; fermentation processes	Lect. 2SWS Pract. Training . 2SWS  Digital course	Rhine-Waal

Forest Management and Governance	Global scale and importance of forests; forest types, functions and services; introduction to forest growth, forest inventory and management planning; management of natural forests; plantation forestry; agroforestry; timber use, forest certification and timber trade; non-timber forest products; forests and nutrition; interests and conflicts in the forest sector; instruments of forest policy; global forest governance; forests and climate change; forests in the bioeconomy	Lect. 2SWS Sem 2SWS  Digital Course	Rhine-Waal
International Markets, Trade and Agricultural Policy	Introduction to agricultural policy and trade; the functioning of agricultural markets; global agricultural markets and trade; agricultural trade and development; agricultural commodity trading; agricultural policy as public policy; EU Common Agricultural Policy; land policy; the role of agricultural cooperatives; agricultural policy in other global regions.	Lect. 1SWS Sem. 3 SWS  Digital Course	Rhine-Waal

## Overview of modules in summer semester

**If courses are taught in presence or digitally will be announced as soon as possible**

Module	Description	CH/SWS	University
„Rural Development and Sustainable Behaviour“ (AB_10)	<p>Lecture: Introduction to rural development; human-ecological systems; economic development theories; measures of development; strategies for rural development; financing of rural development; rural tourism; sustainable development goals; rural public policies</p> <p>Seminar: For the seminars, students will complete weekly reading assignments, group tasks or online tutorials. These materials deepen and complement the topics covered during the lectures. Students will present their materials and discuss selected questions during the seminars.</p> <p>Exercise: Students will practice selected concepts during the exercise.</p>	Lect. 1SWS Ex. 1 SWS Sem. 2 SWS	Rhein-Waal
„Agricultural Extension“ (AB_19)	<p>Lecture: Role and scope of agriculture extension and business consulting; principles of human behaviour and behaviour change; perception and defence mechanisms; agriculture extension paradigms; selected extension approaches and models; diffusion of innovations theory; agriculture innovation systems and stakeholders in agriculture extension; innovations and innovation networks in agriculture; extension methods; agricultural extension as public vs. private good; pluralistic extension systems; agricultural extension in Germany; the business consulting process and the role of advisers; the role of business consulting firms; basic skills and competencies of business consultants; principles of project management</p> <p>Exercise: In groups of 4-6 students, students are confronted with a close-to-real decision problem of a typical farm (e.g., machinery investment, farm expansion, business diversification, etc.). During the course of the semester, students will complete the problem-solving cycle in a structured manner step-by-step. Based on a thorough problem analysis, the students are to identify potential solutions, analyse and evaluate the various options and to present their final recommendations to a fictional client during a role play situation.</p>	Lect. 2SWS Ex. 2 SWS	Rhein-Waal



Module	Description	CH/SWS	University
„Focus Field Sustainable Development I“ AB_23.2	Alternative food networks and rural development, marketing of regional and local products and services; understanding consumer demand and preferences in relation to regional and local products and services; trends and developments in different countries; specificity of regional marketing; geomarketing Tourism and rural development, introduction to tourism; community based tourism; introduction to destination analysis: background and situation analysis, supply analysis, demand analysis, assessment of tourism potential, product market combinations (PMCs), visioning on sustainable tourism development, strategy for sustainable tourism development; social media in tourism; tourism trends, demand and trends relevant for alternative tourism and agribusiness;	Lect. +Ex. +Sem. = 4SWS	Rhein-Waal
SAg_11: „Agricultural Economics and Farm Management“ (Prof. Dr. Pauling)	The farm, farming and food system; business economics with special reference to businesses in the agrifood sector; business objectives; the behaviour of firms; farm management; production economics; production factors, costs of production; budgeting; enterprise choice; linear programming; entrepreneurship	Lect. 1SWS Ex. 1SWS Sem. 2SWS	Rhein-Waal
SAg_12: „Basics of Animal Sciences“ (Prof. Dr. Wiedemann)	Lecture: introduction to animal husbandry and sciences; domestication; basic animal anatomy and applied physiology (skeletal system, working of nerves and muscles, digestive system, circulatory system, respiratory system, endocrine system, sensory systems, reproductive system, lactation); basics of animal growth and development, similarities and differences among groups of animals, introduction to the composition and quality assessment of feedstuff and animal-derived products; exercises during the lecture; field trip  Lab course: enhancement of knowledge by demonstration of relevant organ systems, organs, milk and feed stuff; basic quality assessments of milk and feed stuff	Lect. 3SWS Lab. Course 1SWS	Rhein-Waal

Module	Description	CH/SWS	University
SAg_21: „Horticulture and Agroforestry“ (Prof. Dr. Gebauer)	<p>Lecture:            Nomenclature and systematics of horticultural plants;            origin and domestication of horticultural plants;            assessment of agro-biodiversity and its importance in sustainable production systems;            diversity of important horticultural plant species (fruit s, vegetables, herbs and spices, ornamentals, trees);            horticultural production systems in temperate and tropical regions, their importance and aspects of their sustainability; harvest and post-harvest handling; seed production and storage of orthodox and recalcitrant seeds; sexual and vegetative propagation techniques; temperate and tropical agroforestry systems and their aspects of sustainability; tree-crop interactions; homegardens as small scale agroforestry systems;            non-timber forest products including wild fruit trees</p> <p>Lab course:            Training in identification of crops (hortiversity), sexual and vegetative propagation of annual and perennial crops, seeding, weeding, thinning, pruning, harvesting and post-harvest handling, farm visits</p>	Lect. 1SWS Ex. 1SWS Sem. 2SWS	Rhein-Waal
SAg_23.3: „Focus Field Analysis of Sustainability and Food Sciences“ (Prof. Dr. Moenickes und Prof. Dr. Kleinke)	<p>The elective modules in this focus field deal with subjects in the way of analysing sustainability in agricultural systems and in the field of food sciences and provide the students an opportunity to strengthen their knowledge base and to specialize in this domain. In addition to lectures and seminars, students will elaborate on their practical, methodical and analytical skills in field trips/excursions, exercises and lab courses. The core area of the analysis of sustainability deals mainly with the investigation of various practical examples e.g. of urban farming and sustainable agricultural technologies; factors influencing urban farming and sustainable agriculture; aspects of non-sustainable development in agriculture; challenges of sustainable urban farming, land use and agriculture.</p> <p>In nature conservation as part of an sustainable land use the focus is primarily on important animal and plant species for nature conservation; endangered species and biodiversity; classification of relevant natural habitats and their position in landscapes; nature conservation approaches; investigation of interactions between agriculture and natural ecosystems; conflicts, regulations and laws; drivers of and stakeholders in nature conservation; examples of nature conservation.</p> <p>To the area of modelling ecological systems one focus is developing models for growth, harvesting, population interaction, environmental effects; computer based modelling, sustainability as steadiness and stability of critical points. In food sciences the following topics are relevant: nature of food, basics of human nutrition, technological influences on food availability; processing of selected products, nutrition value as influences by technology, eating habits, nutritional advices, food policy, influences on food choices</p>	Sem. 4SWS	Rhein-Waal

Module	Description	CH/SWS	University
BR_04: „Closing Cycles: Use and Reduction of By-products“	biological resources and their cycles; anthropogenic impacts on natural materials cycles; environmental impact; fundamentals in waste and water management; use and reduction of biological by-products; energy production from biological resources, utilization of biofuels and biomaterials	Lect. 2SWS Lab Course 2SWS	Rhein-Waal
BR_5.1: Biological Resource Value Chains and Sustainability Management“	Value chains link producers and consumers; along the chains firms create value for competitive advantage. Students will learn how biological resource sector(s) work, get an overview of the actors, organization and governance of biological resource value chains. Students will learn approaches of value chain analysis. Based on selected models from institutional economics and industrial organization students will study public and private governance of (sustainable) agrifood and biological resource value chains. Students will learn alternative approaches to environmental and sustainability accounting, reporting and management of sustainable agrifood and biological resource value chains.	Lect. 1SWS Sem. 1SWS Ex. 1SWS	Rhein-Waal