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09-BK 01 (A/Ö/U)	**Basic Chemistry Laboratory**	**1st sem.**	**6 CP**
Module	Basic Chemistry Laboratory		
Module code	BK 01		
Faculty/Chair/Department	FB 08/Chemistry/Institute for Organic Chemistry and Institute for Inorganic Chemistry		
Associated degree course(s)/Semester taken	Medicine, Veterinary Medicine, Bachelor Agricultural Sciences, Nutritional Science and Home Economics, Environmental management/1st semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • are familiar with the fundamentals of laboratory work and the principles of good laboratory practice, • are familiar with fundamental chemical properties, measurement of mass and concentration as well as the nomenclature, • have an overview over the principles and the carrying out of redox reactions and acid-base-reactions (including titrations), • have gained knowledge and abilities in the analysis of ions, inorganic and organic compounds, • can discuss reaction kinetics and catalysis, • understand the composition of organic compounds.		
Module content	• fundamental chemical properties, measurement and calculation of concentration • acids and bases, pH-value, chemical equilibrium • titrations, salts, buffers • redox reactions, galvanic cells, redox potentials • equilibrium constants, solubility products • complex formation • types of organic compounds, molecule models • stereochemistry of organic compounds • separation methods of organic compounds, chromatography • analysis of organic compounds • natural substances and macromolecules		
Form(s) of instruction	Seminar and tutorial in small groups (45%), laboratory work (45%), lecture (10%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	158		
Aa contact hours	71, consisting of: laboratory: 32, seminar: 32, lecture: 7		
Ab preparation/revision	87, consisting of: laboratory: 24, seminar: 24, lecture: 7, homework: 32		
B Autonomous work in the module:	-		
C Final module examination	22		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, (required: journals, homework and successfully completed exercises), Mark: written examination (100%) - Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	600		
Language	German		

Homepage: http://www.uni-giessen.de/cms/resolveuid/85c3dfe911a5a7a456b2e0463708116d
Required literature: see Stud.IP or department website

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09-BK 02 (A/E/Ö/U)	**Biology**	**1st sem.**	**6 CP**
Module	Biology		
Module code	BK 02		
Faculty/Chair/ Department	FB 08/Animal Ecology/Institute for General and Systematic Zoology, Institute for Plant Ecology, FB 09/Institute for Applied Microbiology		
Associated degree course(s)/ Semester taken	Bachelor Agricultural Sciences, Nutritional Sciences, Home Economics, Environmental Management/1st semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • are familiar with the fundamentals of botany, zoology and microbiology and are able to classify and understand the botanic, zoological and microbiologic questions which arise within their subject area.		
Module content	• hypotheses regarding the origin of life; primal atmosphere; evolution, endosymbiotic theory • structures and functions of the prokaryotic cell • universal genealogical tree of organisms, phylogenetics of bacteria and archaea, diversity of prokaryotes • mushrooms, viruses • metabolism of micro-organisms: breathing processes, fermentation, chemotrophy and phototrophy • microbial growth • composition of animal and plant cells; cell division; cell identification, cell discrimination; mutability; differentiation, heredity; immunity • receptors and the sensory system; transmission of stimuli and impulses; nervous systems; hormones • functional morphology of tissue, organs and organic systems • ingestion and the gastrointestinal tract • gas cycle, water and salt resources; excretion – secretion; ion acceptance; mass transport • autotrophy – heterotrophy • synthesis activity and metabolism of plants and animals • food webs; parasitic diseases – symbioses • reproduction methods and development; growth • growth plans for plants and animals • systematics of flora and fauna		
Form(s) of instruction	Lecture (100%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, Mark: written examination (100%) - Written examination		
Frequency, duration	Winter semester, annually,1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb08/biologie/tsz/tieroekologie/mitarbeiter/professoren/prof-dr-volkmarwolters/?searchterm=Volkmar%20Wolters

Required literature: see Stud.IP or department website

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09-BK 03 (A/E/O/U)	**Economics and Business Management I**	**1st sem.**	**6 CP**
Module	Economics and Business Management I		
Module code	BK 03		
Faculty/Chair/ Department	FB 09/Theory of Markets/Institute for Agricultural Policy and Marketing Research		
Associated degree course(s)/Semester taken	Bachelor Agricultural Sciences, Nutritional Sciences, Home Economics, Environmental Management/1st semester		
module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have a clear overview of the basic concepts of consumer theory, of the theory of production and price and their meaning for the analysis of the economic process; • realise how governmental interference in market economics can be justified and evaluated with a welfare economic strategy; • know how the achievement and economic potential of entire national economies can grow and what such growth is dependent upon; • are capable of naming and explaining the most important functional areas of companies; • understand how management decisions in production, finance, investment and sales planning can be derived from aims of the company.		
Module content	• consumer theory • corporate theory • market prices • role of the government • basics of welfare economics • national accounts • consumption and saving • investment and growth • employment and income • money and currency • terms and main functional areas of a factory • decision process and level of information • microeconomic systems • goal setting and goal hierarchy • corporate governance and management systems • organisation structuring and human resource management • production management in a company • financial processes in a company • fundamental approaches to sales planning		
Form(s) of instruction	Lecture (80%), tutorial (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	 150		
Aa Contact hours	60		
Ab Preparation/revision	90 (45 each)		
B Autonomous work in the module:	 -		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, Mark: written examination (100%) - Written examination (100%)		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-agrarpolitik.php
Module guidance: Prof Dr Herrmann **Required literature:** see Stud.IP or department website

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09-BKA 04 (04)	**Soil Science and Landscape Hydrology**	**1st sem.**	**6 CP**
Module	Soil Science and Landscape Hydrology		
Module code	BK 04		
Faculty/Chair/Department	FB 09/Soil Science and Soil Conservation/Institute for Soil Science and Soil Conservation, Resource management/Institute for Landscape Ecology and Resource Management		
Associated degree course(s)/Semester taken	Bachelor Agricultural Sciences[1)]/1st semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • are familiar with the fundamentals of soil science as a knowledge basis for the agricultural and environmental sciences and a prerequisite for understanding and applying academic working methods, • have basic natural scientific and technical knowledge of mass, energy and information transfer, • are familiar with the scale of water resources, • have a knowledge of the meaning of the water transport in the soil, • have an overview of the most important measurement and mathematical methods of water management.		
Module content	• meaning of soil and its functions in ecosystems • soil composition and constituents • physical and chemical soil characteristics, basics of soil systematics • development, range and use of important types of soil in Germany • soil maps and soil assessment • scale of water resources and their spatial distribution • water transport in the saturated and unsaturated zone • control quantities of water transport (potentials, radiation) • simple mathematical calculation methods for water resources		
Form(s) of instruction	Lecture (100%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60		
Ab Preparation/revision	90		
B Autonomous work in the module:	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, Mark: written examination (100%) - Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/bodenkunde/

Required literature: see Stud.IP or department website

[1)] May also be selected by students from other degree courses as a specialisation module

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09-BK 05 (A/E/Ö/U)	**Applied Mathematics and Statistics**	**1st sem.**	**6 CP**
Module	Applied Mathematics and Statistics		
Module code	BK 05		
Faculty/Chair/ Department	FB 09/Biometry and Population Genetics/Institute for Crop Production and Plant Breeding 2		
Associated degree course(s)/Semester taken	Bachelor Agricultural Sciences, Nutrition Sciences, Home Economics, Environmental Management/1st semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • can mathematically solve specialized problems within their degree course, • are familiar with probability theory and the laws of mass phenomena and can apply them, • can interpret and analyse experiments and studies.		
Module content	• set theory • functions of one and several fluctuating matrices and vectors, systems of linear equations • differential and integral calculus • probability theory and combinatorics • random variables and distributions • methods of descriptive statistics • test theory and simple testing procedures		
Form(s) of instruction	Lectures (50%), tutorial with computer (50%)		
Total workload in hours	180		
Module composition: A Courses	90		
Aa Contact hours	60, consisting of: lecture: 30, tutorial: 30		
Ab Preparation/revision	30		
B Autonomous work in the module:	60 (autonomous exercises using computer)		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: weekly exercises and written examination. Mark: tutorial (30%), examination (70%) Written examination Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-pflanzenbau2.php
Required literature: see Stud.IP or department website

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09 BK 06 (E/Ö)	**Biochemistry I**	**2nd/3rd sem.**	**6 CP**
Module	Biochemistry I		
Module code	BKE/BKÖ 06		
Faculty/Chair/ Department	FB 09/Plant Nutrition/Institute for Plant Nutrition		
Associated degree course(s)/Semester taken	Bachelor Nutritional Sciences, Home Economics[1)]/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Introductory Chemistry Laboratory (BK 01)/(BKE 43) and Biology (BK 02)		
Learning outcomes	The students • have theoretical knowledge of biochemical metabolic processes, • are familiar with the interrelationship and analogies of assimilation and dissimilation, • have an overview of the fundamental functions of enzymes.		
Module content	• biochemical reactions • enzyme activity • structure and functions of ATP • structure and functions of NAD(P)H • oxidation and reduction • photosynthesis • synthesis and decomposition of carbohydrates • synthesis and decomposition of lipids • structure of biological membranes • nitrogen and sulfur assimilation • synthesis and decomposition of amino acids • structure and functions of proteins • nucleic acids • transcription and translation		
Form(s) of instruction	Lecture (75%), seminar (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	120		
Aa Contact hours	60		
Ab Preparation/revision	60		
B Autonomous work in the module	30 (Presentation)		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination and active participation in the seminar. Mark: written examination (75%) and active participation in the seminar (25%). Passing the module requires passing the examination. Seminar mark will be accredited for one year. Written examination Written examination		
Frequency, duration	Summer semester, 1 semester		
Intake capacity	400 (per semester)		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-pflanzenernaehrung.php

Required literature: see Stud.IP or department website

[1)] May also be selected by students from other degree courses as a specialisation module

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09-BK 07 (E/Ö)	**Anatomy and Physiology**	**1st sem.**	**6 CP**
Module	Anatomy and Physiology		
Module code	BK 07		
Faculty/Chair/ Department	FB 11/Anatomy and Physiology/Physiological Institute		
Associated degree course(s)/Semester taken	Bachelor Nutritional Sciences, Home Economics[1)]/1st semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge of the fundamentals of cytology, histology as well as microscopic and macroscopic anatomy in relation to human nutrition and metabolism, • are familiar with the function of selected human organ systems.		
Module content	Anatomy • structure of the human body regions • digestive tract and adjacent organs • locomotor system • kidneys and urinary system • heart and circulatory system • overview of sensory organs and nervous system as well as respiratory system Physiology • endocrine regulatory circuits • heart and circulation • nervous and sensory physiology • muscle physiology		
Form(s) of instruction	Lecture (80%), demonstration (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	90		
Aa Contact hours	60, consisting of: lecture: 48, demonstration: 12		
Ab Preparation/revision	30		
B Autonomous work in the module	60		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination Mark: written examination (100%) - Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	350		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb11/institute/physiologie/forschung/skrandies/?searchterm=Skrandies
Required literature: see department website
[1)] May also be selected by students from other degree courses as a specialisation module

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09-BK 08 (A)	**Operational Production Management and Process Engineering**	**2nd sem.**	**6 CP**
Module	Operational Production Management and Process Engineering		
Module code	BK 08		
Faculty/Chair/Department	FB 09/Business Operations of Agrarian Economy/Institute for Business Operations of Agrarian and Nutrition Economy		
Associated degree course(s)/Semester taken	Bachelor Agricultural Sciences[1)]/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge of and the ability to configure and manage the significant branches of production in agricultural enterprises, • are familiar with the techniques for solving decision problems in product planning concerning the definition of the production programme in accordance with environmental and economic conditions, • have fundamental natural science and technical knowledge regarding the correlation and functional principles of mass, energy and information transfer, • have knowledge of the methods of agricultural process engineering, • are proficient in the structuring, application and optimization of tools and methods for soil cultivation and livestock farming.		
Module content	• techniques for solving decision-making problems in product planning with the help of plan-cost-efficiency calculations • definition of the relative advantages alternative courses of action in and between the branches of production • production and cost functions with variable production factors • methods of business and corporate planning • deDateants for configuring crop rotation and cultivation conditions • decision problems for agricultural production procedures • operational basics of plant production and livestock farming • process engineering of agricultural production procedures • structure and use of agricultural tools and machines • agricultural construction and farm building systems livestock/pigs; economic assessment procedures • location and legal issues		
Form(s) of instruction	Lecture (80%), tutorial (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 48, tutorial: 12		
Ab Preparation/revision	90		
B Autonomous work in the module:	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/foodeconomics/

Required literature: see Stud.IP or department website

[1)] May also be selected by students from other degree courses as a specialisation module

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09-BK 09 (Ö)	**Economics of the Private Household**	**2nd sem.**	**6 CP**
Module	Economics of the Private Household		
Module code	BK 09		
Faculty/Chair/ Department	FB 09/Economics of the Private Household and Family Studies/Institute for Economics of Household and Consumer Research		
Associated degree course(s)/Semester taken	Bachelor Home Economics[1)]/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • learn to logistically distinguish (demand-orientated) scientific concepts from classical economic approaches and to put them into a socio-political context, • can demonstrate the social importance of the performance of private households (national accounts household production satellite system, gender GDP), • can evaluate household processes from an economic point of view • are familiar with the most significant household functions		
Module content	• historical household studies • fundamentals of methods for the evaluation of household production • different approaches of demand-orientated logistic sciences versus acquisition economy • household morphology • principles of household organisation		
Form(s) of instruction	Lecture (100%)		
Total workload in hours	180	Credit points 6 ECTS credits	
Module composition: A Courses	90		
Aa Contact hours	60		
Ab Preparation/revision	30		
B Autonomous work in the module	60		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://wi.uni-giessen.de/wps/fb09/home/wdh/
Required literature: see department website
[1)] May also be selected by students from other degree courses as a specialisation module

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09-BK 10 (E/Ö)	**Nutritional Physiology**	**3rd sem.**	**6 CP**
Module	Nutritional Physiology		
Module code	BK 10		
Faculty/Chair/ Department	FB 09/Animal Nutrition/Institute for Animal Nutrition and Nutritional Physiology		
Associated degree course(s)/Semester taken	Bachelor Nutritional Sciences, Home Economics[1)]/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge of the chemical composition of the body and food. • have knowledge of digestion, transport, metabolism of nutrients. • have basic knowledge of the energy resources (methods of measurement, parameters, factorial derivation of the energy requirement, thermogenesis). • understand tissue-specific metabolic reactions to food, hunger and fasting. • have basic knowledge of important food sources, bioavailability, supply, functions and deficiency symptoms of vitamins and minerals. • have knowledge of nutritional physiological methods (balance, kinetic studies, biochemical and physiological markers). • are familiar with the relationship between nutrition and health.		
Module content	• constituents of the body and of food • general and methodical concepts of nutritional physiology • carbohydrates, proteins, nucleic acids and lipids: digestion, absorption, metabolism, physiological impact, nutritional physiological evaluation. • energy balance: methodology, degrees and efficiency of energy utilization, regulation of body temperature • vitamins and minerals: characteristics, food constituents, biological efficiency, functions and deficiencies, requirements, diagnosis of status		
Form(s) of instruction	Lecture (75%), tutorial (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Winter semester, annually, 1 Semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/animal-nutrition/

Required literature: see Stud.IP or department website

[1)] May also be selected by students from other degree courses as a specialisation module

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09-BK 11 (E/Ö)	**Plant-based Foods**	**3rd sem.**	**6 CP**
Module	Plant-based Foods		
Module code	BK 11		
Faculty/Chair/ Department	FB 09/Food science/Institute for Nutritional Sciences, Institute for Crop Farming & Plant cultivation 1		
Associated degree course(s)/Semester taken	Bachelor Nutritional Sciences, Home Economics[1)]/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have basic knowledge of ingredients, quality attributes and quality standards of important indigenous primary food resources, • are familiar with the most important groups of foodstuffs, their extraction from the respective plant-based raw materials and their ingredients, • have knowledge of the purpose and aims as well as the technologic methods of treating and processing plant-based foods, • are familiar with the methods for eliminating unwanted compounds, • have knowledge of the chemical changes which occur during food processing.		
Module content	• meaning, consumption and occurrence of plant-based primary food resources • ingredients as well as outer and inner quality characteristics of important plant-based foodstuffs from local production (bread grains, cereal grains, raw materials for producing foodstuffs, oil-bearing plants, edible legumes, potatoes, sugar-containing plants, fruits and vegetables, spices) • grain and grain ingredients, bread and yeast, Maillard reaction and mycotoxins, legumes and ingredients, soya products, pectin including gelling and thickening agents, plant pigments (carotinoids, anthocyanins, betalains), vegetable fats and oils and how to treat and process them (refining, fractionation, hydrogenation, transesterification), margarine production, fat spoilage • origin, ingredients and technology of luxury foods (coffee, cocoa, tea) and spices (vanilla, cinnamon, pepper, curcuma and others), table vinegar and mustard, alcoholic fermented food (beer, wine), cane and beet sugar, sweeteners		
Form(s) of instruction	Lecture (67%), tutorial (33%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	90		
Aa Contact hour	60		
Ab Preparation/revision	30		
B Autonomous work in the module	60		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/food/
Required literature: see department website
[1)] May also be selected by students from other degree courses as a specialisation module

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09-BK 12 (E/Ö)	**Human Food of Animal Origin**	**3rd sem.**	**6 CP**
Module	Human Food of Animal Origin		
Module code	BK 12		
Faculty/Chair/ Department	FB 09/Animal Breeding and Genetics/Institute for Animal Breeding and Genetics		
Associated degree course(s)/Semester taken	Bachelor Home Economics[1)]/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have coherent knowledge of the biological basics and methods for producing food of animal origin, • know the quality factors and what affects them in agricultural enterprises, • are capable of estimating the influence of breeding and husbandry on product quality under conventional and ecological production conditions.		
Module content	• production forms and procedures for cows, pigs, poultry, sheep, goats, fish, rabbits • biological quality fundamentals of animal-based foods, • quality factors for meat, milk, eggs • requirements of the customer and the processing • influence of breeding and husbandry on product quality • conventional cultivation/ecological cultivation/genetic engineering • legal conditions		
Form(s) of instruction	Lecture (90%), laboratory (10%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 54, tutorial: 6		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination Mark: written examination (100%) - Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/tierzucht/
Required literature: see Stud.IP or department website
[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 13 (E/Ö)	**Human Nutrition**	**4th sem.**	**6 CP**
Module	Human Nutrition		
Module code	BK 13		
Faculty/Chair/ Department	FB 09/Human Nutrition/Institute for Nutritional Sciences		
Associated degree course(s)/Semester taken	Bachelor Nutritional Sciences, Home Economics[1)]/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	(Introductory Chemistry Laboratory (BK 01/BK 43), Biology (BK 02), Biochemistry 1 (BK 06), Anatomy and Physiology (BK 07), Nutritional Physiology (BK 10)		
Learning outcomes	The students have basic knowledge • of the importance, the functions and the metabolism of nutrients in human beings dependent on age and different physiological and pathophysiological conditions, • of the occurrence and the availability of nutrients in food and of the nutrient supply within the realm of nutrition – including different habits of nutrition, • of the health effects of nutrient deficiency and of plentiful nutrient supply, • of deDateing the nutrient supply state, • of deDateing the nutrient requirements, of the recommendations concerning nutrient supply and of the demand fulfilment of the population; and can apply this knowledge in different areas of professional life.		
Module content	• The human body and its composition • energy balance and its regulation • nutrients providing energy (Carbohydrates, fats, proteins) • water balance • minerals and trace elements • vitamins		
Form(s) of instruction	Lecture (100%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb09/institute/ernaehrungswissenschaft/ag/neuhaeuser-berthold
Required literature: see Stud.IP or department website
[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 14 (A/Ö)	**Policy and Markets in the Agricultural and Food Economy**	**2nd sem.**	**6 CP**
Module	Politics and Markets in the Agricultural and Food Economy		
Module code	BK 14		
Faculty/Chair/ Department	FB 09/Theory of Markets/Institute for Agricultural Policy and Market Research		
Associated degree course(s)/Semester taken	Bachelor Agricultural Sciences, Home Economics [1)]/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Applied Mathematics and Statistics (BK 05), Economics and Business Administration 1 (BK 03)		
Learning outcomes	The students • can explain supply, demand and price formation on markets within the agricultural and food economy; • are aware of the interdependence of these markets; • can explain structural developments in the food industry; • know which basic economic problems of the food sector make political-economic action necessary; • understand the aims of using economic instruments, their effects and how they can be evaluated in comparison to alternatives.		
Module content	Markets: • demand, supply and price formation of goods in the agricultural and food economy • intertemporal, interregional and vertical price connection between the markets of the food industry • quality and price formation in the food industry • structural changes in the food industry: description and causes • governmental influence on markets of processed food Policy: • explaining sector change in structure and income disparity • politics and market failure in agricultural and food policy • objectives, instruments and institutions of agricultural, food and consumer policy • impact analysis and evaluation of selected instruments of agricultural and food policy • basics and financing of agricultural policy in the EU • agricultural reforms and current problems in the food sector		
Form(s) of instruction	Lecture (67%), tutorial (33%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	 150		
Aa Contact hours	60, consisting of: lecture: 40, tutorial: 20		
Ab Preparation/revision	90		
B Autonomous work in the module:	 -		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, Mark: written examination (100%) - Written examination (100%)		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-agrarpolitik.php

Required literature: see Stud.IP or department website

[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 20 (Ö)	**Production and Operations Management in the Food Industry**	**2nd sem.**	**6 CP**
Module	Production and Operations Management in the Food Industry		
Module code	BK 20		
Faculty/Chair/ Department	FB 09/Business Operations of the Food Economy/Institute for Business Operations of the Agrarian and Food Economy		
Associated degree course(s)/Semester taken	Bachelor Home Economics[1)]/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • understand the basic corporate decision areas of the strategic and operational production management in the food industry, • understand the procedures of production management and can evaluate alternative solutions, • can assess theoretical as well as practical problems and find a concrete solution.		
Module content	• production and organisational arrangements in processing enterprises • quantitative concepts for solving capacity problems in different decision and planning areas of the medium-size food industry • quantification of strategic decision problems in different areas of activity • organisational change of enterprise structures and processes • model-based company planning for quality production, for project- and personnel planning; business field analyses and budgeting		
Form(s) of instruction	Lecture (70%), tutorial (30%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 42, tutorial: 18		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/foodeconomics/
Required literature: see Stud.IP or department website
[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 21 (A)	**Crop Production**	**3rd sem.**	**6 CP**
Module	Crop Production		
Module code	BK 21		
Faculty/Chair/ Department	FB 09/Plant Cultivation/Institute for Plant Cultivation and Plant Breeding 1		
Associated degree course(s)/Semester taken	Bachelor Agricultural Sciences[1)]/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have a basic knowledge of soil use, the study of species and the cultivation of annual and perennial cultivated plants of farm- and grassland, • understand the interrelation of crop production methods.		
Module content	• location factors and fundamentals of agricultural soil use • agricultural crops: biological basics, characteristics and use of the most important plant species (corn, legumes, oil-yielding plants, root and tuber crops, specialized cultivation), methods of cultivation • study of grassland and agricultural forage production (habitat requirements, grass sorts, utilisation of grassland, characteristics, importance and use of agricultural forage crops)		
Form(s) of instruction	Lecture (80%), tutorial (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 45, tutorial: 15		
Ab Preparation/revision	90		
B Autonomous work in the module:	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, Mark: written examination (100%) - Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/~gh1262/ipz/ipz.html
Required literature: see Stud.IP or department website
[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 22 (A)	**Animal Nutrition**	**3rd sem.**	**6 CP**
Module	Animal Nutrition		
Module code	BK 22		
Faculty/Chair/Department	FB 09/Animal Nutrition/Institute for Animal Nutrition and Nutrition Physiology		
Associated degree course(s)/Semester taken	Bachelor Agricultural Sciences[1)]/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • are able to describe digestion and metabolic utilization of the main nutrients. • are familiar with the properties of energy utilization and of the energy evaluation systems, • have an overview of the origin, quality characteristics, quality control, conservation and use of foodstuffs. • know the main points of animal feed law. • are able to formulate practical feed rations for various animal species. • know the relationship between nutrition and animal performance, emission of nutrients, animal health and product quality.		
Module content	• Nutrition physiology of livestock animals • chemical composition of food and animal body • digestion and utilization of nutrients (carbohydrates, proteins, lipids) • energy utilization and energy evaluation systems • minerals and vitamins (functions, metabolism and distribution, supply, deficiency symptoms) • characterization of feedstuffs • basics of animal feed conservation and storage • livestock nutrition • needs of animals for energy and nutrients in the phases of growth and reproduction • feeding strategies and formulation of feed rations • influence of nutrition on animal performance animal performance, emission of nutrients, animal health and product quality		
Form(s) of instruction	Lecture (80%), tutorial (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	 150		
Aa Contact hours	60, consisting of: lecture: 50, tutorial: 10		
Ab Preparation/revision	90		
B Autonomous work in the module	 -		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, Mark: written examination (100%) - Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/animal-nutrition/
Required literature: see Stud.IP or department website
[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 23 (Ö)	**Public Health Nutrition**	**4th sem.**	**6 CP**
Module	Public Health Nutrition		
Module code	BK 23		
Faculty/Chair/ Department	FB 09/Comparative Health and Social Policy/Institute for Economics of the Household and Consumer Research		
Associated degree course(s)/Semester taken	Bachelor Home Economics[1)]/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • gain knowledge of the fundamentals and the general conditions of the practical developments and discussions in the area of public health and health promotion on a national and international level; • are familiar with the basic terms and methods of epidemiology of nutritional disorder and diseases and can analyse problem situations epidemiologically; • gain an overview of from a content point of view interconnected programmes of health promotion and prevention concerning public health and nutrition (Public Health Nutrition Approach) in different European countries; • will have the ability to develop and apply the Public Health Nutrition Approach in their own occupational path.		
Module content	• basic concepts of public health and health promotion (historical development, theoretical basics, current institutional characteristics, influential documents) • basics of applied epidemiology (incidence, prevalence, risk, standardised event and disturbance rate, exposure, susceptibility, deDateation) • prerequisites in the form of content and methods for fields of work and strategies in the professional areas of health promotion, food information and advice		
Form(s) of instruction	Lecture (80%), tutorial (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	90		
Aa Contact hours	60		
Ab Preparation/revision	30		
B Autonomous work in the module:	60		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination Mark: written examination (100%) - written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://wi.uni-giessen.de/wps/fb09/home/wdh/ **Required literature:** siehe department website

[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 24 (A)	**Plant Nutrition**	**3rd sem.**	**6 CP**
Module	Plant Nutrition		
Module code	BK 24		
Faculty/Chair/ Department	FB 09/Plant Nutrition/Institute for Plant Nutrition		
Associated degree course(s)/Semester taken	Bachelor Agricultural Sciences[1)]/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Introductory Chemistry Laboratory (BK 01) and Biology (BK 02)		
Learning outcomes	The students • have fundamental knowledge in the subject area of plant nutrition as a prerequisite for understanding and applying academic and practical working methods in the field of crop production.		
Module content	• definition and classification of plant nutrients • physiological characteristics and functions of plant nutrients • nutrient acquisition of plants • yield formation and plant quality • biological nitrogen fixation • nutrient assimilation • nutrient cycles • nutrient availablitity in soils • soil and plant analysis • nutrient balance • fertilizers and fertilizer application		
Form(s) of instruction	Lecture (75%), seminar (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	120		
Aa Contact hours	60		
Ab Preparation/revision	60		
B Autonomous work in the module	30 (oral presentation)		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination and active participation in the seminar Mark: written examination (75%) and active participation in the seminar (25%). Passing the module requires passing the examination. Seminar mark will be accredited for one year. Written examination Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	200		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-pflanzenernaehrung.php

Required literature: Schubert, S.: Pflanzenernährung, Grundwissen Bachelor, Verlag Eugen Ulmer, Stuttgart 2006

[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 25 (A)	**Plant Pathology**	**5th sem.**	**6 CP**
Module	Plant Pathology		
Module code	BK25		
Faculty/Chair/ Department	FB 09/Phytopathology/Institute of Phytopathology and Applied Zoology		
Associated degree course(s)/Semester taken	Bachelor Agricultural Sciences[1)]/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Introductory Chemistry Laboratory (BK 01) and Biology (BK 02)		
Learning outcomes	The students • have fundamental knowledge of phytomedicine as a prerequisite for understanding and applying academic and practical working methods in crop production.		
Module content	• fundamental knowledge of plant protection in crop production • phytomedical problems • basics of modern phytomedicine • fundamental knowledge of plant morphology • systematics of pest arthropods and nematodes		
Form(s) of instruction	Lecture (80%) , seminar (20%)		
Total workload in hours	180 hours	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, seminar Mark: written examination (75%), seminar (25%) each part must be sufficient Written or oral Examination Written or oral Examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/ipaz
Required literature: see Stud.IP
[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 26 (A)	**Housing and Ecology of Farm Animals**	**4th sem.**	**6 CP**
Module	Housing and Ecology of Farm Animals		
Module code	BK 26		
Faculty/Chair/Department	FB 09/Animal Husbandry and Biology of Husbandry/Institute for Animal Breeding and Genetics		
Associated degree course(s)/Semester taken	Bachelor Agricultural Sciences [1)]/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have fundamental knowledge regarding the breeding of cows, pigs, small ruminants, horses and poultry, • are familiar with the legal fundamentals of animal welfare, • have knowledge of the basics of animal behaviour, • are familiar with the basic principles of farm animal ecology, • have knowledge of important herd diseases of agrarian livestock, • have knowledge of the structural facilities in livestock farming.		
Module content	• farming of milk cows, calves, mother cows, pigs, sheep, goats, horses and poultry • basics of breeding techniques • laws of animal welfare • abiotic fundamentals of animal hygiene (barn climate, birth and newborn hygiene) • breeding methods for livestock in consideration of species, race, location, production methods and product quality • basics of animal behaviour • structural facilities for livestock farming		
Form(s) of instruction	Lecture (90%), tutorial (10%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 54, tutorial: 6		
Ab Preparation/revision	90		
B Autonomous work in the module:	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester; annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/tierzucht/ag_hoy/index.htm
Required literature: see Stud.IP or department website
[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 27 (A)	**Economics and Business Management II**	**3rd sem.**	**6 CP**
Module	Economics and Business Management II		
Module code	BK 27		
Faculty/Chair/Department	FB 09/Theory of Markets/Institute for Agricultural Policy and Market Research		
Associated degree course(s)/Semester taken	Bachelor Agricultural Sciences [1]/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • can apply the contents of Economics and Business Administration 1 to problem-oriented questions; • are qualified to create problem-solving concepts; • understand advanced important topics of economics and business administration and can apply their deepened knowledge successfully in practical tutorial-based classes.		
Module content	Economics 2: • tutorial with case studies concerning the topics of Economics 1; • introduction to and case studies concerning further economic topics: – factor markets and income distribution; – theory of competition; – basics of economic policy; – economic theory of policy; – international macroeconomic relations. Business Administration 2: – production theory; – production functions and models; – cost theory; – cost drivers; – cost and efficiency; – short-term and long-term cost; – planning and controlling.		
Form(s) of instruction	Tutorial (100%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, Mark: written examination (100%) - Written examination (100%)		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-agrarpolitik.php
Required literature: see Stud.IP or department website
[1] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 28 (E)	**General Chemistry**	**1st sem.**	**6 CP**
Module	General Chemistry		
Module code	BK 28		
Faculty/Chair/ Department	FB 08/Chemistry/Institute for Organic Chemistry and Inorganic Chemistry		
Associated degree course(s)/Semester taken	Medicine, Veterinary Medicine, BSc Biology, L2-Chemistry, Bachelor Nutritional Sciences[1)]/1st or 2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • are familiar with the basic concepts of chemistry such as: periodic table, formula language, units, stoichiometric calculating, • understand the basic principles of inorganic (acids and bases, redox) and organic (functional groups) chemistry, • have an overview of the material characteristics of elements and compounds of the important main group elements, • understand the basic principles of organic chemistry (functional groups, reactivity, nomenclature), • have a consolidated knowledge of the most important chemical reactions in inorganic and organic chemistry.		
Module content	• Atomic and molecular structure, periodic table, elements in nature, introduction to selected s- and p-block elements, chemical bonds, reaction equations, stoichiometry • chemical properties, solutions, mixtures, osmosis • acid-base-reaction; buffer solutions; pH-value • redox reactions, redox potentials, electrochemistry • chemical equilibrium/thermodynamics/catalysis • basic terms of spectroscopy • organic molecules: chemistry of functional groups and their basic reaction mechanisms, alkanes, alkenes, alkynes, ethers, aldehydes and ketones, carboxylic acids and their derivatives, aromatics, structures of selected natural materials (sugars, peptides, alkaloides, prostaglandins, nucleotides, steroids, vitamins) • organic-chemical reaction mechanisms, basic terms of stereochemistry		
Form(s) of instruction	Lecture (80%), tutorial (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	156		
Aa Contact hours	75, consisting of: lecture: 60, tutorial: 15		
Ab Preparation/revision	81		
B Autonomous work in the module			
C Final module examination	24		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination Mark: written examination (100%) - Written examination		
Frequency, duration	Winter semester and summer semester, 1 Semester		
Intake capacity	500 (per semester)		
Language	German		

Homepage: http://www.uni-giessen.de/cms/resolveuid/85c3dfe911a5a7a456b2e0463708116d
Required literature: see Stud.IP or department website
[1)] May also be selected by students from other degree courses as a specialisation module

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09-BK 29 (E)	**Practical Course in Food Sciences**	**3rd/ 5th sem.**	**6 CP**
Module	Practical Course in Food Sciences		
Module code	BK 29		
Faculty/Chair/ Department	FB 09/Institute for Nutritional Sciences		
Associated degree course(s)/Semester taken	Bachelor Nutritional Sciences[1)]/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have basic theoretical knowledge of the deDateation of physiological parameters, • are familiar with chromatographic separation processes, • have basic knowledge of molecular and cytological techniques, • have the ability to apply fundamental methods of experimental analyses.		
Module content	• fundamentals of laboratory work (chemical and physical properties, dilution, concentrations, molarities, pH-value, buffering capacity, photometry and its practical application: measuring, weighing, pipetting, centrifuging • treatment of biological samples, working in a sterile environment • Detection of carbohydrates, lipids, proteins • Datection of vitamins, physiological parameters (urea, creatinine, haemoglobin) • intestinal transporting processes, glucose homeostasis (oral glucose tolerance test, deDateation of insulin and glucose in the blood) • evidence of enzyme genes and their mRNAs with PCR, enzyme kinetics		
Form(s) of instruction	Colloquium (20%), tutorial (80%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60, consisting of: colloquium: 12, tutorial: 48		
Ab Preparation/revision	90, consisting of: preparation: 45, revision: 45		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination Mark: written examination (100%) - Written Examination		
Frequency, duration	Winter semester, annually, block seminar		
Intake capacity	60		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb09/institute/ernaehrungswissenschaft/ag/wenzel
Required literature: see department website
[1)] May also be selected by students from other degree courses as a specialisation module

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09-BK 30 (E)	**Pathobiochemistry**	**4th sem.**	**6 CP**
Module	Pathobiochemistry		
Module code	BK 30		
Faculty/Chair/ Department	FB 09/Biochemistry of Human Nutrition/Institute for Nutritional Sciences		
Associated degree course(s)/Semester taken	Bachelor Nutritional Sciences[1)]/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	General Chemistry (BK 28), Biochemistry 1 (BK 06) (for Bachelor E: additionally Chemistry Laboratory (BK 43), Physics (BK 31), Anatomy/Physiology (BK 07)		
Learning outcomes	The students • have an overview of the intermediate metabolism • understand diseases relevant to nutritional sciences and their underlying pathomechanisms, • have an understanding of the therapeutic procedures derived from pathobiochemistry as well as their nutritional supplementation.		
Module content	• molecular fundamentals of digestion disorders and absorption of food components • hormonal regulation of the intermediate metabolism and its related disorders • disorders in the amino acid metabolism • disorders in the lipid metabolism (hyperlipoproteinaemia) and resulting illnesses (arteriosclerosis), significance of the adipose tissue as an endocrinal organ for the development of the metabolic syndrome • disorders in the carbohydrate metabolism (e.g. fructosaemia) • disorders in the nucleotide metabolism (Lesch-Nyhan Syndrome, hyperuricaemia) • neurodegenerative diseases (Alzheimer's, prion diseases) • basics of immunology (food allergies, autoimmune diseases) • blood, acid-base-balance (acidosis, alkalosis) • blood clotting and haemoglobinopathies, hereditary anaemia		
Form(s) of instruction	Lectures (50%), seminars (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	110		
Aa Contact hours	60, consisting of: lecture: 30, seminar: 30		
Ab Preparation/revision	50		
B Autonomous work in the module	40 (work in small groups)		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination Mark: written examination (100%) - Written Examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb09/institute/ernaehrungswissenschaft/ag/becker
Required literature: see department website
[1)] May also be selected by students from other degree courses as a specialisation module

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09-BK 31 (E/U)	**Physics**	**2nd sem.**	**6 CP**
Module	Physics		
Module code	BK 31		
Faculty/Chair/ Department	FB 07/Physics		
Associated degree course(s)/Semester taken	Bachelor Nutritional Sciences, Environmental Management[1)]/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge of the fundamental physical quantities, laws and methods, • can solve simple physical problems with mathematical methods • understand the physical fundamentals of biological measurement methods.		
Module content	• Fundamentals of mechanical science, acoustics, thermodynamics, optics, electricity and magnetism • structure of matter, of radiation and their interaction • aggregate states, dissolutions, osmotic pressure, hydrostatics of fluids and gases, gaseous mixtures, diffusion • energy and entropy		
Form(s) of instruction	Lecture (75%), tutorial (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 45, tutorial: 15		
Ab Preparation/revision	60		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 Semester		
Intake capacity	120		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb07/fachgebiete/physik
Required literature: see Stud.IP or department website
[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 32 (E)	**Evaluation of Nutritional Sciences**	**2nd sem.**	**6 CP**
Module	Evaluation of Nutritional Studies		
Module code	BK 32		
Faculty/Chair/ Department	FB 09/Nutritional Sciences/Institute for Nutritional Sciences/Human nutrition with emphasis on the nutritional evaluation of food		
Associated degree course(s)/Semester taken	Bachelor Nutritional Sciences[1)]/2nd or 3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • can classify and evaluate studies and experimental investigations, • have an overview of meaning of biomarkers and other properties, • can present their own results in a nutritional-medical context.		
Module content	• acquisition of the state of research concerning a selected topic with the help of current literature and other academic sources • criteria and strategies of a literature review • classification and evaluation of publications with a focus on nutritional studies • designing of human studies (*in*-vivo and *in*-vitro) • factors of influence on analysis and study results • assessment of biomarkers and investigation methods • procedure for creating manuscripts with the aid of concrete examples which are contributed by the participants • presentation of own results in the form of posters and short oral presentations		
Form(s) of instruction	Lecture (50%), seminar (50%) and, if applicable, demonstrations		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60		
Ab Preparation/revision	90		
B Autonomous work in the module			
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: oral examination and seminar work (poster presentation). Mark: seminar work (50%); oral examination (50%) - Oral examination		
Frequency, duration	Summer semester, winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb09/institute/ernaehrungswissenschaft/ag/kunz

Required literature: see Stud.IP or department website

[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 33 (U)	**General and Molecular Microbiology**	**3rd sem.**	**6 CP**
Module	General and Molecular Microbiology		
Module code	BK 33		
Faculty/Chair/ Department	FB 09/Microbiology/Institute for Applied Microbiology		
Associated degree course(s)/Semester taken	Bachelor Environmental Management[1)]/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • learn about the diversity of microorganisms and about their occurance in partially extreme habitats, • understand the taxonomic classification of microorganisms and can interpret phylogenetic trees, • deepen their knowledge of the metabolic diversity of microorganisms, • can reflect on the thermodynamic aspects of metabolic processes, • gain an insight into microbial interactions with plants, animals and humans, • gain knowledge of the basics of bacterial genetics and genetic engineering, • gain an insight into biotechnology and industrial microbiology, • learn work techniques and methods in microbiology in practical laboratory work, • are familiarised with various microorganisms through laboratory work.		
Module content	• diversity and distribution of microorganisms • microbial evolution, classification and taxonomy • metabolic variety and ecology of microorganisms: respiration processes, fermentation, photosynthesis, chemolithotrophy, N2 fixation, secundary products • energy calculation and microbial bioenergetics • symbiotic relations with microorganisms • human pathogenic microorganisms • bacterial genetics and genetic engineering • molecular techniques for detecting microorganisms • applied examples of microbial biotechnology • demonstration and exercise of various microbiological techniques and knowledge about different microorganisms		
Form(s) of instruction	Lecture (50%), practical laboratory course (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	130		
Aa Contact hours	60, consisting of: Lecture: 30, practical laboratory course 30		
Ab Preparation/revision	70, consisting of: Lecture: 50, practical laborytory course: 20		
B Autonomous work in the module	20 (Lecture)		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Test on practical laborarory course as preparation for the examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	120		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/zentren/ifz/arbeitsgruppen/schnell/?searchterm=Sylvia%20Schnell
Required literature: see Stud.IP or department website
[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 34 (U)	**Applied and Environmental Microbiology**	**3rd sem.**	**6 CP**
Module	Applied and Environmental Microbiology		
Module code	BKU34		
Faculty/Chair/Department	FB 09/Waste and Resource Management/Institute for Landscape Ecology and Resource Management/Institute for Applied Microbiology		
Associated degree course(s)/Semester taken	Bachelor Environmental Management[1)] [1]/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge of the microbiological material cycles, • learn the microbiological and technical fundamentals of ecologically relevant processes of sewage clarification and drinking water production and purification; as well as air pollution control, • are familiar with basic microbiological working methods.		
Module content	• basic knowledge of applied and environmental microbiology, energy yield, C-, N-, P-cycle, environmental biotechnological applications in the field of material and energy recycling (sewage clarification, drinking water purification, air pollution control) • sterile working, fertile soil; cultivating microorganisms; use of a microscope, types of cells and colonies, microscopy of bacteria and differentiation according to colours, quantifying bacteria and phages; • essential differences and the role of bacterial and fungal groups (Lacto-bacteria, actinomycetes; spore-forming bacteria, yeasts, Fungi imperfecti) in environmental microbiology. • examination of drinking water		
Form(s) of instruction	Lecture (50%), tutorial (50%)		
Total workload in hours	180	Total workload in hours	
Module composition: A Courses	90		
Aa Contact hours	60, consisting of: Lecture: 30; tutorial: 30		
Ab Preparation/revision	30		
B Autonomous work in the module	60		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination (100%)		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	60		
Language	German		
Module	Applied and Environmental Microbiology		

Homepag http://www.uni-giessen.de/fbr09/mikrobiologie/inst_home.html
Required literature: see Stud.IP or department website
[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 35 (U)	**Soil and Landscape Ecology**	**2nd sem.**	**6 CP**
Module	Soil and Landscape Ecology		
Module code	BK 35		
Faculty/Chair/Department	FB 09/Landscape Ecology/Institute for Landscape Ecology and Resource Management, Institute for Soil Science and Soil Conservation		
Associated degree course(s)/Semester taken	Bachelor Environmental Management[1])/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Ecology and Soil Science (BK 39)		
Learning outcomes	The students • understand the relevance of climate, relief, waterbodies, soils, vegetation, fauna, human population and agriculture for the diversity of the major ecosystems on earth, • understand the genesis and the role of environmental and utilisation properties of soils properties as a basis of life in the different climate and vegetation zones of the earth, • are familiar with the ecological fundamentals for the sustainable use of landscapes.		
Module content	• hierarchic organization of ecological systems • ecological classification of the land on earth on the basis of the macroclimate in biomes • abiotic and biotic characterisation of the biomes on earth (climate, relief, waterbodies, soils, vegetation, fauna, resource pools, turnover of material and energy, population, land use, economy) • features of azonal and extrazonal ecosystems • soil-forming factors and processes and resulting soil characteristics in different climate and vegetation zones • relationships between soil characteristics, landscape structure, potential yield and land use • multifunctionality and environmental protection		
Form(s) of instruction	Lecture (100%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60 (Lecture)		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination (in two parts). Mark: written examination (100%) - Written examination, each part of the written examination (45 min)		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/ilr/
Required literature: see Stud.IP or department website
[1]) May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 36 (U)	**Recycling and Waste Management**	**3rd sem.**	**6 CP**
Module	Recycling and Waste Management		
Module code	BK 36		
Faculty/Chair/Department	FB 09/Waste and Resource Management/Institute for Landscape Ecology and Resource Management and Institute for Applied Microbiology		
Associated degree course(s)/Semester taken	Bachelor Environmental Management[1)]/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge of the legal background of recycling and waste management, • have knowledge of instruments and procedures for avoiding and recycling waste, • gain an insight into the methods and instruments of waste management concerning the collection and treatment of specific waste groups, • have knowledge of the handling of waste, of the environmentally compatible deposition of different kinds of waste and the aftercare of waste disposal sites, • are familiar with different techniques of treating waste and sewage (e.g. incinerators, mechanical-biological treatment facilities, composting facility, defecators, etc.), • gain a knowledge of microbiological fundamentals and methods of composting and fermenting organic waste; incl. producing biogas, • can transfer the microbiological basics to different procedures and can evaluate them, • can evaluate the different waste treating techniques economically and ecologically, • gain an insight into practical enterprises of waste management.		
Module content	• legal conditions (EC directives, laws, regulations, technical policies) • basics of waste management (definitions, waste produced, waste groups, development) • collection of and fee structuring in waste management • procedures of treating and disposing of liquid and solid waste (thermal processes, biological processes, chemical-physical processes) • deposition of residual and hazardous waste (planning, handling and aftercare) • avoiding and recycling waste • role of biology in waste management (basis: biodegradation of natural products; biochemistry and energy production) • composting and fermenting organic waste (basics, requirements, methods, evaluation) • cost-benefit analysis of different waste treatment techniques		
Form(s) of instruction	Lectures: 50% (Gäth), 25% (Kämpfer), Excursions (25%)		
Total workload in hours	180 hours	Credit points: 6 ECTS credits	
Module composition: A Courses	90		
Aa Contact hours	60, consisting of: Lectures: 45, excursions: 15		
Ab Preparation/revision	30		
B Autonomous work in the module	60		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) – Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/ilr/

Required literature: see Stud.IP or department website

[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BKU 37	**Landscape Water and Matter Balances**	**2nd sem.**	**6 CP**
Module	Landscape Water and Matter Balances		
Module code	BK 37		
Faculty/Chair/Department	FB 09/Resource Management/Institute for Landscape Ecology and Resource Management		
Associated degree course(s)/Semester taken	Bachelor Environmental Management[1)]/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Soil Science (BKA 39)		
Learning outcomes	The students • are familiar with the fundamental differences between a point-oriented and a landscape-oriented perspective, • have a fundamental knowledge of the water and matter balance, • have an insight into water and mass transportation on a landscape level, • are familiar with the significant controlling factors of transportation, • can estimate the importance of land use with regard to landscape pollution, • are familiar with the initial state of soils and soil diversity, • are familiar with the function of soils within the landscape balance.		
Module content	• consideration of and methods for the data acquisition of specific properties of the water and mass balance • fundamentals regarding the effect of changes of use on the water and material balance • deDateation of water quality		
Form(s) of instruction	Lectures (90%), excursions (10%)		
Total workload in hours	180 hours	Credit points: 6 ECTS credits	
Module composition: A Courses	120 (lectures and excursions)		
Aa Contact hours	60		
Ab Preparation/revision	60		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	100		
Language	German		

Date see stud.ip

Required literature see stud.ip

[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 38 (U)	**Agriculture and Environment**	**2nd sem.**	**6 CP**
Module	Agriculture and Environment		
Module code	BK 38		
Faculty/Chair/Department	FB 09/Crop farming/Institute for Crop Farming & Plant Cultivation, Institute for Animal Breeding and Domestic Animal Genetics		
Associated degree course(s)/Semester taken	Bachelor Environmental Management[1)]/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • are familiar with the methods of land use, • understand the cultivation methods for important crops, • recognise the interaction between cultivation systems and the environment, • know the most important types of animal husbandry, • are aware of the effects of animal husbandry on the environment.		
Module content	• use of agricultural areas • characterisation of crop plants and methods of cultivation • rotation farming as well as seeding and planting methods • aims, methods and effects of cultivation, of mineral and organic fertilisation and plant protection • keeping of cattle, pigs, sheep, goats, horses and poultry • basics of animal husbandry techniques • introduction to procedures for breeding livestock		
Form(s) of instruction	Lecture (50%), tutorial (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 30, tutorial: 30		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester; annually, 1 Semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/~gh1262/ipz/ipz.html
Required literature: see Stud.IP or department website
[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 39 (U)	**Ecology and Soil Science**	**1st sem.**	**6 CP**
Module	Ecology and Soil Science		
Module code	BK 39		
Faculty/Chair/Department	FB 09/Soil Science and Soil Conservation/Institute for Soil Science and Soil Conservation, Institute for Landscape Ecology and Resource Management		
Associated degree course(s)/Semester taken	Bachelor Environmental Management[1)]/1st semester, Degree in Geography/1st semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have a fundamental knowledge of soil science as a basis for the agricultural and environmental sciences and as a prerequisite for the understanding and applying of scientific working methods, • understand the functioning of ecosystems work and can recognize systemic connections between land use, biotic and abiotic potential in cultivated landscapes.		
Module content	• relevance of soil and functions in ecosystems, • soil structure and composition, • physical and chemical soil characteristics, main features of soil systematics, • development, distribution and use of important soil types in Germany, • soil maps and evaluation, • principles of the structure of ecological systems, • biogeochemical cycles, • concept of limiting factors, • population ecology and autecology, • applying the principles of ecologic systems in landscape (cultivated landscape development in central Europe, production and protective systems, concept of differentiated land use), • modelling in landscape ecology.		
Form(s) of instruction	Lecture (100%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60 (lecture)		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) Written examination, each part of the examination (45 min)		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/bodenkunde/

Required literature: see Stud.IP or department website

[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 40 (U)	**Project and Environmental Management**	**4th sem.**	**6 CP**
Module	Project and Environmental Management		
Module code	BK 40		
Faculty/Chair/ Department	FB 09/Project and Regional Planning / Institute for Farm and Agribusiness Management		
Associated degree course(s)/Semester taken	Bachelor Environmental Management[1)]/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • are familiar with the tasks, systematic strategies and methods of project management • are acquainted with the legal regulations of environmental management tools • have knowledge of the administrative and practical procedures of environmental planning • can analyse and evaluate planning documentation (practical examples) • are familiar with the impacts of practical environmental planning • have an overview of the repercussions environmental planning has on agriculture and rural areas • know the limits of and approaches for improving planning tools		
Module content	a) Project management • fundamentals of project management • methods of practical project management • practical examples in project management (case studies) b) Practical environmental planning (respectively: legal fundamentals, responsibilities, procedures, evaluations, relevance and repercussions on agriculture, practical experience with the use of case studies, criticism and improvements): • environmental impact assessment • Strategic Environmental Assessment (SEA) • impact regulation • operational environmental policy • environmental audit • environmental management standards ISO 14001 and 14004 • local agenda • environmental aspects in regional and landscape plans • selected planning areas (e.g. rural development, -structural development and environmental impact in agriculture, waste planning, traffic planning, land consumption planning, water planning) c) Interrelation of environmental planning and management systems with economic incentive systems		
Form(s) of instruction	Lecture (50%), tutorial (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60: Consisting of: lecture, 30 tutorial		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination (70%), tutorial reports (30%) Mark: written examination (70%), tutorial reports (30%) Oral examination Oral examination		
Frequency, duration	Summer semester; annually, 1 Semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/ilb/
Required literature: see Stud.IP or department website
[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 41 (U)	**Pollutants in the Environment**	**3rd sem.**	**6 CP**
Module	Pollutants in the Environment		
Module code	BK 41		
Faculty/Chair/Department	FB 09/Soil Science and Soil Conservation/Institute for Soil Science and Soil Conservation (Landscape Ecology and Resource Management)		
Associated degree course(s)/Semester taken	Bachelor Environmental Management[1)]/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have a basic knowledge of the occurrence and characteristics of natural and anthropogenic environmental toxins, • understand the methods for investigating environmental pollutants, • can draw conclusions for the organic and inorganic environment.		
Module content	• Fundamentals of toxicology, acute and chronic toxic effects • fundamentals of environmental analysis • origin and characteristics of inorganic pollutants in the environment • origin and characteristics of organic pollutants in the environment		
Form(s) of instruction	Lecture (100%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb09/institute/bkbe
Module guidance: PD. Dr Düring
Required literature: see Stud.IP
[1)] May also be selected by students from other degree courses as a specialisation module

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09-BK 42(U)	**Environmental Economics and Communication**	**4th sem.**	**6 CP**
Module	Environmental Economics and Communication		
Module code	BK 42		
Faculty/Chair/Department	FB 09/Agrarian and Environmental Policy/Institute for Agrarian Policy and Market Investigation and Institute for Rural Sociology and Counselling		
Associated degree course(s)/Semester taken	Bachelor Environmental Management[1)]/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • are familiar with the fundamental terms of environmental economics, • have an understanding of the environmental problems of agriculture and are familiar with the basics of landscape and environmental protection management, • have knowledge of the media of environmental communication, • can estimate and evaluate the potential effectiveness and mechanisms of media communication, • are familiar with the concepts of abiotic and biotic resource protection, • understand human actions regarding environment and resources, • are familiar with modern communication technologies and their application conditions, • understand the mechanisms of a public discourse.		
Module content	• fundamentals of environmental economics for environmental managers • scarcity as an economic problem • individual human actions and causes of environmental problems • individual aims and social aims in environmental economics • social relevance of resources and collective management: requirements, conflicts and potentials • the resource-efficient approach of environmental economics and policy • the ecological approach of environmental economics • examples of agri-environmental problems • economical evaluation of resources and pollution • multifunctionality and economics of cultivated landscapes • rules for sustainable economic activity and environmental ethics, environmental communication and media • development and importance of mass media • topics of environmental communication • environmental advice and education • impact models of mass communication • application examples, seminar regarding environmental-economic questions in the media • varying topics • reprocessing and presentation of social questions regarding the environment		
Form(s) of instruction	Lecture (100%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	90		
Aa Contact hours	60, consisting of: Lectures: 60		
Ab Preparation/revision	30		
B Autonomous work in the module	60		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) – Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	90		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-agrarpolitik.php
Required literature: see Stud.IP and department website
[1)] May also be selected by students from other degree courses as a specialisation module

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09-BK 43 (E)	**Chemistry Laboratory**	**1st sem.**	**6 CP**
Module	Chemistry Laboratory		
Module code	BK 43		
Faculty/Chair/Department	FB 08/Chemistry/Institute for Organic Chemistry and Institute for Inorganic Chemistry		
Associated degree course(s)/Semester taken	Medicine, Veterinary Medicine, Bachelor Nutritional Science and Home Economics, /2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	General Chemistry (BK28)		
Learning outcomes	The students • are familiar with the fundamentals of laboratory work and the principles of good laboratory practice, • are familiar with fundamental chemical properties, measurement of mass and concentration as well as the nomenclature, • have an overview over the principles and the carrying out of redox reactions and acid-base-reactions (including titrations), • have gained knowledge and abilities in the analysis of ions, inorganic and organic compounds, • can discuss reaction kinetics and catalysis, • understand the composition of organic compounds.		
Module content	• fundamental chemical properties, measurement and calculation of concentration • acids and bases, pH-value, chemical equilibrium • titrations, salts, buffers • redox reactions, galvanic cells, redox potentials • equilibrium constants, solubility products • complex formation • types of organic compounds, molecule models • stereochemistry of organic compounds • separation methods of organic compounds, chromatography • analysis of organic compounds • natural substances and macromolecules		
Form(s) of instruction	Seminar and tutorial in small groups (50%), laboratory work (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	160		
Aa contact hours	64, consisting of: laboratory: 32, seminar: 32,		
Ab preparation/revision	96, consisting of: laboratory: 32, seminar: 32, lecture: 7, homework: 32		
B Autonomous work in the module:	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, (required: journals, homework and exercises successfully completed), Mark: written examination (100%) - Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	600		
Language	German		

Homepage: http://www.uni-giessen.de/cms/resolveuid/85c3dfe911a5a7a456b2e0463708116d

[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 44 (Ö)	**Family and Society**	**1st sem.**	**6 CP**
Module	Family and Society		
Module code	BK 44		
Faculty/Chair/ Department	FB 09/Economics of the private household and Family Studies/Institute for Household Economics and Consumer Research		
Associated degree course(s)/Semester taken	Bachelor Home Economics[1)], Education (e.g. business and employment studies), Gender Studies/1st semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have the ability to differentiate the social functions of family households and apply them to specific areas as e.g. nutrition, education or media, • have knowledge of the different approaches of genealogy, • are familiar with the most important approaches for family and consumer policy in Germany and the EU.		
Module content	• the functions of the family household in society serve as a basis for this module (economic, ecologic, generative, regenerative function, educative and socialising function) • fundamentals and methods of family, household and consumption research, • analysis and interpretation of data concerning the development of population, families and households, • political and legal framework conditions for family households in Germany and in the EU		
Form(s) of instruction	Lecture (100%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	90		
Aa Contact hours	60		
Ab Preparation/revision	30		
B Autonomous work in the module	60		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination Mark: written examination (100%) Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://wi.uni-giessen.de/wps/fb09/home/wdh/
Required literature: see department website
[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 46 (A)	**Animal Breeding**	**2nd sem.**	**6 CP**
Module	Animal Breeding		
Module code	BK 46		
Faculty/Chair/ Department	FB 09/Animal Breeding and Domestic Animal Genetics/Institute for Animal Breeding and Domestic Animal Genetics		
Associated degree course(s)/Semester taken	Bachelor Agricultural Sciences[1)]/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • are familiar with the spectrum of characteristics of livestock (cattle, pig, sheep, goat, horse, poultry), • have knowledge about the organisation and implementation of performance tests, • are aware of the use of breeding methods and breeding plans, • can participate in estimations of breeding valuations and breeding plans.		
Module content	• history of animal breeding, domestication, natural selection, • genetic fundamentals of animal breeding • requirements for characteristics, origin, distribution as well as special characteristics of livestock species and breeds • breeding procedures, breeding plans including the estimation of breeding values • legal regulations of animal breeding		
Form(s) of instruction	Lecture (75%), tutorial (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 45, tutorial: 15		
Ab Preparation/revision	90		
B Autonomous work in the module:	-		
C Final module examination	30		
Form(s) of assessment and components and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/tierzucht/
Required literature: see Stud.IP or department website
[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BK 47 (A)	**Genetics and Plant Breeding**	**2nd sem.**	**6 CP**
Module	Genetics and Plant Breeding		
Module code	BK 47		
Faculty/Chair/Department	FB 09/Plant Breeding/Institute for Plant Cultivation and Plant Breeding I		
Associated degree course(s)/Semester taken	Bachelor Agricultural Sciences[1)]/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • understand the fundamentals of plant genetics including cell and molecular biology as well as the practical application of cell and tissue culture techniques and molecular genetic methods in plant breeding, • have knowledge of the genetics and molecular biology of prokaryotes as well as biotechnological applications, • have specialised biotechnological knowledge in the area of biotechnology as a prerequisite for understanding and applying academic and practical working methods in modern plant production, • have knowledge about animal genetics and molecular biology and biotechnological methods in animal breeding.		
Module content	• principles of molecular biology of micro-organisms (prokaryotes) and common methods; fundamentals of microbial biotechnology • fundamentals of genetics, biotechnology and molecular biology of animals • fundamentals of genetics and cell and molecular biology of plants; experimental biotechnology in plant breeding • quantitative-genetic basics of plant breeding and breeding methods		
Form(s) of instruction	Lecture (75%) and tutorial (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 45, tutorial: 15		
Ab Preparation/revision	60, consisting of: lecture: 40, tutorial: 20		
B Autonomous work in the module:	30, consisting of: lecture: 20, tutorial: 10		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/~gh1262/ipz/ipz.html
Required literature: see Stud.IP or department website
[1)]May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

Specialisation Modules

09-BP 01	**Biochemistry II**	**3rd/4th sem.**	**6 CP**
Module	Biochemistry II		
Module code	BP 01		
Faculty/Chair/Department	FB 09/ Plant Nutrition/Institute for Plant Nutrition		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/3rd or 4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Biochemistry 1 (BKÖ/ BKE 06)		
Learning outcomes	The students • have practical knowledge of the analysis of inorganic ions, carbohydrates, amino acids, organic acids, proteins and nucleic acids, • are familiar with quantitative analysis techniques, • have knowledge of the most important analytical methods, • are familiar with the principles of enzymatic analyses.		
Module content	• pH-value • titration • photometry • flame photometry • atomic absorption spectroscopy • ion exchange chromatography • enzymatic methods • thin-layer chromatography • gel electrophoresis • extraction, quantification and segregation of proteins • western blot • isolation and quantification of DNA and RNA		
Form(s) of instruction	Seminar (25%), tutorial (75%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: tutorial: 45, seminar: 15		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, tutorial work, reports Mark: written examination (25%), tutorial work (50%), reports (25%) Oral examination Oral examination		
Frequency, duration	Winter semester and summer semester, 1 semester		
Intake capacity	64 (per semester)		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-pflanzenernaehrung.php
Required literature: Zörb, C. et al.: Biochemische Praktikumsversuche, Beuren, Stuttgart: Verlag Grauer (2004)

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 02	**Methods in Nutritional Physiology**	**5t^{h} sem.**	**6 CP**
Module	Methods in Nutritional Physiology		
Module code	BP 02		
Faculty/Chair/Department	FB 09/Animal Nutrition/Institute for Animal Nutrition and Nutritional Physiology		
Associated degree course(s)/Semester taken	all FB 09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • can apply methods for a qualitative proof of nutrients and of digestive and metabolic constituents, • can analyse nutrients and the components of chyme, blood and urine quantitatively in stages and can evaluate the results in relation to nutrition, • can apply methods for evaluating food in terms of energy (metabolic experiments, bomb caloritmetry), • can analyse and interpret nutritional characteristics concerning the quality of proteins and lipids as well as minerals, vitamins and noxae in biologic matrices.		
Module content	• carbohydrates • lipids • proteins • energy • physiology of digestion • components of urine • components of blood • minerals and vitamins • special ingredients of food		
Form(s) of instruction	Practical tutorial work in small groups (90%), introductory seminar (10%)		
Total workload in hours	180	Credit Points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: tutorial: 54, seminar: 6		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	105		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/animal-nutrition/

Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 03	**Age-specific Nutrition**	**5th sem.**	**6 CP**
Module	Age-specific Nutrition		
Module code	BP 03		
Faculty/Chair/Department	FB 09/Human Nutrition/Institute for Nutritional Studies		
Associated degree course(s)/Semester taken	All FB 09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Human Nutrition (BKÖ/ BKE 13)		
Learning outcomes	The students • have fundamental knowledge of the nutritionally relevant particularities in infancy and childhood as well as concerning ageing and old persons, • have knowledge of the specific nutritional requirements in these life stages and are able to transfer this knowledge to an applied, suitable diet; • have knowledge of the interrelationship between diet and the ageing process as well as their relevance concerning the demographic change.		
Module content	• specific nutritional requirements of newborn and premature babies • physiology of breast milk nourishment • diet of a healthy baby and toddler • diet of an ill baby and toddler • principles of nutrition in pre-school and school age • age structure, life expectancy, morbidity and mortality • ageing theories • physiological changes in old age • nutritional requirements and supply in old age • practical implementation of theoretical concepts in an adequate diet for ageing and old persons		
Form(s) of instruction	Lecture (50%), seminar (50%)		
Total workload in hours	180	Credit Points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60		
Ab Preparation/revision	90		
Final module examination	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: regular and successful participation and active cooperation in the seminar, presentation and examination. Mark: written examination (75%), performance in the seminar (25%) e Written examination (75%), performance in the seminar (25%) Written examination (75%), performance in the seminar (25%)		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	30 participants per seminar unit		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb09/institute/ernaehrungswissenschaft/ag/neuhaeuser-berthold
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 04	**Functional Food**	**5th sem.**	**6 CP**
Module	Functional Food		
Module code	BP 04		
Faculty/Chair/Department	FB 09/Human Nutrition with a Focus on Nutritional Evaluation of Food/Institute for Nutritional Studies		
Associated degree course(s)/Semester taken	All FB 09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Human Nutrition (BKÖ/ BKE 13)		
Learning outcomes	The students • have basic knowledge of the nutritional value of food, • understand the relevance of functional food from the point of view of the customer, science and industry.		
Module content	• Specific nutritional aspects of selected foods • distinction of conventional, functional, dietetic and new kinds of food, nutritional supplements and medicines • evaluation of the relevance of new foods (and food ingredients) for disease prevention • legal assessment of health claims etc. • critical evaluation of developments in the food industry		
Form(s) of instruction	Lecture with discussion (100%)		
Total workload in hours	180	Credit Points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60		
Ab Preparation/revision	90, consisting of: preparation: 30, revision: 60		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb09/institute/ernaehrungswissenschaft/ag/kunz
Required literature: see Stud.IP or department website

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09-BP 05	**Applied Dietetics**	**5th/6th sem.**	**6 CP**
Module	Applied Dietetics		
Module code	BP 05		
Faculty/Chair/Department	FB 09/Bromatology and Applied Dietetics/Institute of Nutritional Sciences		
Associated degree course(s)/Semester taken	All FB 09 bachelor degree courses/5th or 6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Human Nutrition (BKÖ/ BKE 13)		
Learning outcomes	The students will • gain a basic understanding of the pathophysiology of important metabolic diseases and the basic knowledge of dietary therapy, • be able to transfer dietetic concepts into practice and to work up dietary recommendations in a patient-appropriate manner		
Module content	• diet and primary prevention • basics of the dietetics of selected diseases, e.g. obesity, hyperuricemia, dyslipoproteinemia, hypertension, diabetes, liver and kidney diseases, pancreatic insufficiency, chronic inflammatory bowel diseases, celiac disease, food allergy and intolerance, rheumatoid arthritis • application and evaluation of nutritional assessment • transferring of dietary prescriptions into practice (preparing meals, calculating meal plans suitable for the diet) • applying of food composition database for nutrient calculation • evaluation of alternative dietary concepts		
Form(s) of instruction	Lecture (50%), lab/exercise (50%)		
Total workload in hours	180	Credit Points: 6 ECTS credits	
Consisting of: A Courses	110		
Aa Contact hours	60, consisting of: lecture: 30, lab/exercise: 30		
Ab Preparation/revision	50		
B Autonomous work in the module	40		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination (100%) (admission to the examination depends on: successfully completed exercises, acceptance of seminar paper and nutritional assessment) - Written examination		
Frequency, duration	Winter semester and summer semester, 1 semester		
Intake capacity	64 per module, 128 per year		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb09/institute/ernaehrungswissenschaft/ag/schulz
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 07	**Counselling in the Service Sector of Nutrition, Health and Consumption**	**6th sem.**	**6 CP**
Module	Counselling in the Service Sector of Nutrition, Health and Consumption		
Module code	BP 07		
Faculty/Chair/Department	09/Nutrition Education and Consumer Behaviour/Institute for Nutritional Science		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	BK 10 Nutrition Physiology, BK 13 Human Nutrition		
Learning outcomes	The students • have didactic and methodical knowledge and skills as a basis for professional counselling and consultancy, • understand counselling and consultancy as a personal service, • have the ability to conduct individual and group counselling as well as consultancy for public/private institutions (e. g. care and educational institutions), concerning questions of nutrition, health and consumption and to reflect distinguish audiences .		
Module content	• requirements of high quality professional counselling and consultancy • distinguishing of different methods for information, education, clarification, instruction and counselling as well as their applications • consideration of the individual and the setting-approach as an access method to clients • concepts of counselling (C. Rogers, R. Cohn) • moderation, distinct from counselling and consultancy • methods of monitoring success in counselling and consultancy • counselling and consultancy as a tool for consumer, health, and social policy on a national and international level		
Form(s) of instruction	Lecture (77%), seminar (23%)		
Total workload in hours	180	Credit Points: 6 ECTS credits	
Consisting of: A Courses	110		
Aa Contact hours	52, consisting of: lecture: 40, seminar: 12		
Ab Preparation/revision	58		
B Autonomous work in the module	40		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination (75%) and written paper (25%) Mark: written examination (75%) and written paper (25%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

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09-BP 08	**International Nutrition Security**	**5th sem.**	**6 CP**
Module	International Nutrition Security		
Module code	BP 08		
Faculty/Chair/Department	09/Human Nutrition, Nutrition in Developing Countries/Institute for Nutritional Studies		
Associated degree course(s)/Semester taken	All FB 09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Human Nutrition (BKÖ/ BKE 13)		
Learning outcomes	The students • have a coherent knowledge of occurrence, diagnostics and management of protein-energy-malnutrition and micronutrient malnutrition, • are familiar with anthropometric methods for diagnosing malnutrition, • have knowledge of the requirements for food security, • can evaluate food aid.		
Module content	• diagnostics and management of protein-energy-malnutrition and micronutrient malnutrition • UNICEF model of food security • guidelines and problems of food aid • anthropometric measurement methods • methods of measuring nutrition in countries with low income • bi- and multilateral development cooperation		
Form(s) of instruction	Lecture (75%), seminar (25%)		
Total workload in hours	180	Credit Points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 45, seminar: 15		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written or oral examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb09/institute/ernaehrungswissenschaft/ag/krawinkel
Required literature: see Stud.IP or department website

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09-BP 10	**Food Chemistry Laboratory**	**3rd/4th sem.**	**CP 6**
Module	Food Chemistry Laboratory		
Module code	BP 10		
Faculty/Chair/Department	FB 09/Food Science/Institute for Nutritional Studies		
Associated degree course(s)/Semester taken	All FB 09 bachelor degree courses/3rd or 4th semester		
Module coordinator	Institute for Nutritional Studies		
Instructors	Cf. German version		
Prerequisites	Introductory Chemistry Laboratory (BKA/Ö/U 01 or BKE 43)		
Learning outcomes	The students • are familiar with the structures of German and European food law, • have knowledge of the certification and prohibition standards for foods and additives, • have basic knowledge of food production and processing, • are familiar with the theoretical fundamentals of all important methods used in food chemistry, • have applied the important methods used in food chemistry in at least one practical example, • can evaluate examined substances with regard to legal regulations and determine their merchantability.		
Module content	• titrimetry and redox reactions • production and analysis of milk, butter, drinking water, fruit juices, beer and wine • analysis of deep-frying fats, production and analysis of tomato products and vinegar • food additive regulations using the example of food colorants and their analysis • production and analysis of flour and starch • application of HPLC • application of t high-resolution gas-chromatography • methods under § 64 LFBG (German Foodstuffs and Consumer Goods Law) • food regulatory evaluation of the merchantability of examined food		
Form(s) of instruction	Laboratory (67%), seminar (33%)		
Total workload in hours	180	Credit Points: 6 ECTS credits	
Consisting of: A Courses	148		
Aa Contact hours	68, consisting of: laboratory: 46, seminar: 22		
Ab Preparation/revision	80		
B Autonomous work in the module	12		
C Final module examination	20		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, laboratory reports, seminar. Mark: written examination: (40%), laboratory reports: (40%), seminar: (20%) Written examination Written examination		
Frequency, duration	Summer semester and winter semester, 1 semester		
Intake capacity	40		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/food/
Required literature: see department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 11	**Food Toxicology and Law**	**4th sem.**	**CP 6**
Module	Food Toxicology and Law		
Module code	BP 11		
Faculty/Chair/Department	FB 09/Food Science/Institute for Nutritional Studies		
Associated degree course(s)/Semester taken	All FB 09 bachelor degree courses/4th semester		
Module coordinator	Institute for Nutritional Studies		
Instructors	Cf. German version		
Prerequisites	Biochemistry 2 (BP 01)		
Learning outcomes	The students • have knowledge of food chemistry with regard to food and environmental toxicology as well as national and international food law.		
Module content	• fundamentals of food chemistry • relevant substance families • natural and anthropogenic noxae (mycotoxins, dioxins) in food • environmental contaminants and transmission of contaminations into foodstuffs • vertical and horizontal guidelines of food law		
Form(s) of instruction	Lecture (100%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	150		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/food/
Required literature: see department website

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09-BP 15	**Economics of Food Service Management**	**4th sem.**	**6 CP**
Module	Economics of Food Service Management		
Module code	BP 15		
Faculty/Chair/Department	Faculty 09 / Management of Services for Persons / Institute for Household Economy and Consumer Research		
Associated degree course(s)/Semester taken	All FB 09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have an overview of catering management, • have an overview of the methodical and theoretical fundamentals of managing food service institutions, • have knowledge of the performance-related and financial functions and characteristics of food service institutions, • can deduce and solve management problems of food service institutions analytically, • can apply the methodical and theoretical knowledge to food service institutions.		
Module content	• Aims and systems of food service institutions • Performance-related and financial functions of food service institutions • Quality management and controlling of food service institutions • Optimisation of operational decisions using the example of food service institutions • Economic parameters and potentials of catering management		
Form(s) of instruction	Lecture (75%), tutorial (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 45, tutorial: 15		
Ab Preparation/revision	60		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://wi.uni-giessen.de/wps/fb09/home/wdh/
Required literature: see department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 18	**Concepts, Methods and Results of Inequality and Poverty Research**	**4t^{h} sem.**	**6 CP**
Module	Concepts, Methods and Results of Inequality and Poverty Research		
Module code	BP 18		
Faculty/Chair/Department	FB 09/ Economy of the Private Household and Family Science/Institute for Household Economy and Consumer Research		
Associated degree course(s)/Semester taken	All FB 09 bachelor degree courses, teacher training courses, BSc. Professional and Operational Education 4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • are familiar with the theoretical fundamentals of inequality and poverty research, • can apply different approaches and indicators for detecting social inequality and determine their distribution, • can determine a nourishment shortage situation for different demographic groups and types of households.		
Module content	• theoretical concepts and methods of inequality and poverty research • practical poverty and social media reporting on a national and local level • evidence of economic and social burdens in different social circumstances (demography, financial situation, living situation, employment situation, education, health) • analysis of the social environment in theory and practice • strategies and major players in the field of poverty reduction and prevention		
Form(s) of instruction	Seminar (75%), tutorial (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: seminar: 45, tutorial: 15		
Ab Preparation/revision	60, consisting of: seminar: 40, tutorial: 20		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Presentation/assignment and written examination. Both parts of the examination must be passed min. with the mark “ausreichend” (equivalent: D). Mark: Presentation/assignment (50%), written examination (50%) – Respective part of the examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	60		
Language	German		

Homepage: http://wi.uni-giessen.de/wps/fb09/home/wdh/
Required literature: see department website

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09-BP 19	**Everyday Management of Private Households**	**3rd sem.**	**6 CP**
Module	Everyday Management of Private Households		
Module code	BP 19		
Faculty/Chair/Department	FB 09/Economy of the Private Household and Family Science/Institute for Household Economy and Consumer Research		
Associated degree course(s)/Semester taken	All FB 09 bachelor degree courses, teacher training courses, BSc. Professional and Operational Education/3rd sem.		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • are familiar with the theoretical fundamentals of the management of private households, • understand the internal structure of everyday life and its correlation with the environment from a microeconomic perspective, • have knowledge of the methods of household analysis and the tools for gathering and analysing data of private households, • can evaluate situations of private households with the help of indicators for different types of households and families.		
Module content	• Theoretical concepts and analysis methods for the subject areas of life events and household decisions and their short-, medium- and long-term impacts on the socio-economic situation of households (work-life-balance) • time management under consideration of the division of labour in the household and the combining of family and career • financial management from the perspective of budgeting, precaution and asset protection as well as debts management • relevance of the household conditions in the organisation of daily routines • dimensions and evidence of sustainable housekeeping		
Form(s) of instruction	Lecture (75%), tutorial (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 45, tutorial: 15		
Ab Preparation/revision	60, consisting of: lecture: 45, tutorial: 15		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://wi.uni-giessen.de/wps/fb09/home/wdh/
Required literature: see department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 20	**Consumption Patterns of Private Household**	**4th sem.**	**6 CP**
Module	Consumption Patterns of Private Household		
Module code	BP 20		
Faculty/Chair/Department	FB 09/Economy of the Private Household and Family Science/Institute for Household Economy and Consumer Research		
Associated degree course(s)/Semester taken	all FB 09 bachelor degree courses, teacher training courses,, BSc. Professional and Operational Education, Business and Employment Studies/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • understand the different explanatory models concerning consumer behaviour in economics, sociology, psychology and ecology, • have fundamental knowledge of private ways of life(households/families/different target groups) and their demographic, economic and social characteristics, • can analyse empirical studies regarding consumer behaviour in respect of the methodology of the data sources and validity concerning consumption patterns.		
Module content	• basics and principles of explanatory models concerning consumer behaviour: socio-economic behaviour research, lifestyle research, ecologically sustainable behaviour research • analysis and interpretation of data: official and unofficial statistics, empirical studies regarding consumer behaviour and private ways of life, structure and creation of tables • political and legal framework conditions of consumer behaviour: consumer policy in Germany and the EU		
Form(s) of instruction	Seminar (75%), tutorial (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: Seminar: 45, tutorial: 15		
Ab Preparation/revision	60, consisting of: Seminar: 40, tutorial: 20		
B Autonomous work in the module	40		
C Final module examination	20		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Presentation/assignment and written examination. Both parts must be passed with a min. mark of “ausreichend” (equivalent: D). Mark: Presentation/assignment (50%), written examination (50%) – Respective part of the examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	60		
Language	German		

Homepage: http://wi.uni-giessen.de/wps/fb09/home/wdh/
Required literature: see department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 21	**Social and Health Policy**	**5th sem.**	**6 CP**
Module	Social and Health Policy		
Module code	BP 21		
Faculty/Chair/Department	FB 09/Comparative Health and Social Policy/Institute for Household Economy and Consumer Research		
Associated degree course(s)/Semester taken	All FB 09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have extensive knowledge of social-scientific theories, regulatory concepts and of forms of institutionalisation of security systems, services and establishments in the German health and welfare system, • can solve problems autonomously and present response strategies, • are sensitised for questions of social structure, problem-oriented working and efficiency in the area of social and health-related services and establishments.		
Module content	• Development and current institutional form of the German welfare state and its health system in comparison to other countries and systems • fundamental information and data concerning the socio-economic (social policy) and epidemiological (health policy) problem structure to which social and health politics are related • typical orientation of values and argumentative patterns of social and health politics relevant for the respective practice areas of the graduates		
Form(s) of instruction	Lecture (50%), seminar (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60		
Ab Preparation/revision	60		
B Autonomous work in the module	40		
C Final module examination	20		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, written assignment Mark: written examination (50%), written assignment (50%) - --		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://wi.uni-giessen.de/wps/fb09/home/wdh/
Required literature: see department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 22	**Cooperation and Participation in Health and Social Services**	**6th sem.**	**6 CP**
Module	Cooperation and Participation in Health and Social Services		
Module code	BP 22		
Faculty/Chair/Department	FB 09/Comparative Health and Social Policy/Institute for Household Economy and Consumer Research		
Associated degree course(s)/Semester taken	All FB 09 bachelor degree courses/6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • are familiar with the most important theoretical approaches in the research area of the third sector and the mixed economy of welfare, • have knowledge of the basic forms of institutionalisation of services and establishments in the third sector and their interrelationship with governmental, economic and informal actors, • have knowledge of the empiricism of essential qualitative and quantitative characteristics and developments in the respective areas, • can solve problems autonomously and present appropriate response strategies.		
Module content	• Different forms of operating social and health-related services and establishments (state, economy, third sector) as well as different forms of combining these (public private partnerships; purchase-provider splits etc.) and socio-scientific analysis concepts (institutional choice, mixed welfare production etc.) • selected concepts focusing specifically on the areas of the third sector/civil society • case studies regarding key areas and cross-sector issues (employment, health, education, social service, civil commitment, local democracy)		
Form(s) of instruction	Seminar (100%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60		
Ab Preparation/revision	60		
B Autonomous work in the module	40		
C Final module examination	20		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Presentation, written assignment Mark: Presentation (50%), written assignment (50%) - -		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://wi.uni-giessen.de/wps/fb09/home/wdh/
Required literature: see department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 25	**Marketing Management in the Agro-Food Industry**	**5th sem.**	**6 CP**
Module	Marketing Management in the Agro-Food Industry		
Module code	BP 25		
Faculty/Chair/Department	FB 09/Business Operations of Food Industry/Institute for Business Operations of the Farm and Food Industry		
Associated degree course(s)/Semester taken	All FB 09 bachelor degree courses/5th sem.		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge of marketing tools, • are familiar with the conceptual basics and further development of marketing management, • can support a suitable behavioural scientific and economical methodical foundation of decision making in marketing, • have the ability to and are motivated to prepare and implement concrete marketing decisions.		
Module content	• conceptual fundamentals of marketing • behavioural and information fundamentals of marketing • strategic marketing planning, decisions regarding products and programmes, prices, distribution (logistics) and decisions in advertising policy • presentation and discussion of marketing conceptions on a company by company basis, marketing decisions of non-profit organisations, social and eco-marketing, agricultural marketing, service marketing • research and development of product concepts, budgetary planning for new product introductions • multivariate analysis methods and quantitative decision-making processes		
Form(s) of instruction	Lecture (80%), tutorial (20%)		
Total workload in hours	180 hours	Credit points: 6 ECTS credits	
Consisting of: A Courses	 160		
Aa Contact hours	60, consisting of: lecture: 48, tutorial: 12		
Ab Preparation/revision	100, consisting of: lecture: 80, seminar: 20		
B Autonomous work in the module	 -		
C Final module examination	20		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language of instruction	German		

Homepage: http://www.uni-giessen.de/fbr09/foodeconomics/
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 26	**The Agricultural and Food Economy of the European Union**	**6th sem.**	**6 CP**
Module	The Agricultural and Food Economy in the European Union		
Module code	BP 26		
Faculty/Chair/Department	FB 09/Market Theory/Institute for Agricultural Policy and Market Research		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/6th sem.		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Politics and Markets in the Agricultural and Food Economy (BKÖ 13)		
Learning outcomes	The students • have developed an understanding of the development of the animal and vegetable agricultural markets in the EU; • have an overview of the effect of different instruments of the European farm policy and altered consumer preferences on the development of the agricultural markets; • deepen their knowledge of the development of the food industry in the EU and the deDateants of competitiveness; • can demonstrate how governmental framework conditions influence the markets of processed foods and their effects.		
Module content	European agricultural markets: • development of the European agricultural markets under the influence of politics and altered consumer preferences; • economic analysis of the meat industry; • economic analyses of the milk market in the EU; • health consciousness and markets of animal products; • animal husbandry, global food situation and environment; • the grain market in the EU; • European sugar industry; • wine market and wine policy; • economics of the European fruit and vegetable market. Food industry: • structure, development and deDateants of food demand, of food trade and of the food industry; • competitiveness within the food industry; • price formation, market structure and competition in the food industry; • innovation and product differentiation; • competition and consumer protection policy and the markets of the food industry; • economics of generic food advertising; case studies.		
Form(s) of instruction	Lecture (80%), tutorial (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 48, tutorial: 12		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination (100%)		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language of instruction	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-agrarpolitik.php
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 27	**Process Engineering and Thermodynamics**	**6th sem.**	**6 CP**
Module	Process Engineering and Thermodynamics		
Module code	BP 27		
Faculty/Chair/Department	FB 09/Process Engineering in Food and Service Companies/Institute for Agricultural Engineering		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge of the fundamentals of thermodynamics and the corresponding values and units in the *Système international d´unités* (SI System), • have basic knowledge of energy and material transmission • understand the basics of human nutrition from a thermodynamic point of view (energy turnover, generation of heat and labour, performance), • can apply basic system theory approaches to examples from the area of food technology and power engineering, • can assess processes using system balances.		
Module content	• thermodynamic values and units in the statutory SI System • modelling, system theory, accounting equations • fundamentals of thermodynamics (fundamental theorems, energy, exergy, anergy, internal energy, volumetric change, enthalpy, entropy) • thermodynamics of human nutrition in SI units (energy turnover, body mass, BMI, heat and labour, quiescent labour, quiescent and sports performance) • energy transmission (across different systems through heat and labour, heat flow and performance) and • fundamentals of quality management according to ISO 9000 ff., of hygienic management according to HACCP and of eco-management according to ISO 14000 ff. from a technical point of view		
Form(s) of instruction	Lecture (70%), tutorial (30%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 42, tutorial: 18		
Ab Preparation/revision	60, consisting of: lecture: 30, tutorial: 30		
B Autonomous work in the module	30, written assignment and presentation		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written or oral examination (depending on number of participants), written assignment and presentation. Mark: written or oral examination (50%), written assignment and presentation (50%) Written or oral examination (depending on number of participants) Written or oral examination (depending on number of participants)		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: www.uni-giessen.de/fbr09/pt
Required litetature: see Stud.IP

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 28	**Grassland Management**	**4th sem.**	**6 CP**
Module	Grassland Management		
Module code	BP 28		
Faculty/Chair/Department	FB 09/Institute of Agronomy and Plant Breeding II / Professorship of Organic Farming		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge and skills in grassland management and can analyse production ecology, • can classify foliage plants.		
Module content	• production ecology: biomass production, growth patterns, frequency and date of use • meadows and pastures: ecology of grazing and cutting, vegetation patterns, grassland management • forage quality; • dual use; grassland fallows and environment protection; • renewable energy from grassland • fertilisation and vegetation • sustainable management • botanic classification practices: addressing grasses and herbs with and without keys		
Form(s) of instruction	Lecture (50%), tutorial (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 30, tutorial: 30		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (80%). assessment test following laboratories (20%) – Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-pflanzenbau2.php
Required literature: see department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 29	**Forage Crop Systems**	**5th sem.**	**6 CP**
Module	Forage Crop Systems		
Module code	BP 29		
Faculty/Chair/Department	FB 09/Crop Farming/Institute for Crop Farming and Breeding 1		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • gain knowledge and skills in producing forage crop and conserves as well as evaluating their quality, • have knowledge of vegetable substrates for biogas production, • are familiar with the most important crops and their cultivation properties, • gain an insight into field and laboratory techniques of quality analysis, • can apply and interpret analysis methods and present the results in a report.		
Module content	• field forage production: fundamentals and cropping systems of field forage production • main perennial and annual fruits • catch crops: preceding/succeeding crop combinations; cultivation methods of different species • cover crops: Winter cover crops, summer cover crops • under sown crops, catch crops • forage conservation: forage production and preparation • biological basics of forage conservation, suitability for conservation and evaluation of conserves, methods of forage evaluation • quality analysis: laboratory techniques: chemical, physical, enzymatic • sensory evaluation; fermentability; field methods: value and grading factors		
Form(s) of instruction	Lecture (75%), tutorial (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 45, tutorial: 15		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, presentation in seminar, tutorial reports. Mark: written examination (60%), presentation in seminar (20%), report (20%) Written examination Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	40		
Language	German		

Homepage: http://www.uni-giessen.de/~gh1262/ipz/ipz.html
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 30	**Arable Farming Systems**	**3rd sem.**	**6 CP**
Module	Arable Farming Systems		
Module code	BP 30		
Faculty/Chair/Department	FB 09/Institute of Agronomy and Plant Breeding II / Professorship of Organic Farming		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • understand arable farming systems, • have knowledge of the principles and methods of different agricultural systems (systems of land use), in particular regarding tillage, crop rotations, and weed control, • are familiar with the specific conditions in conventional, integrated and organic farming and their implications for arable farmings		
Module content	• principles and implementation of arable farming • systematics and history of agricultural systems • crop rotation (principles, limits of crop concentrations, impact on yields, sustainability) • tillage (agricultural fundamentals, tillage practices, tillage intensity, effects on soil, plants and the environment) • herbology (relevance and classification of field weeds, effects of tillage on weeds) and weed regulation in crop stands with indirect or direct measures		
Form(s) of instruction	Lecture (80%), tutorial (15%), excursion (5%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	130		
Aa Contact hours	60		
Ab Preparation/revision	70		
B Autonomous work in the module	20		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: oral examination. Mark: oral examination (100%) Oral examination Oral examination		
Frequency, duration	Winter semester, annually, 1 semester, excursion in the summer semester		
Intake capacity	40		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-pflanzenbau2.php
Required literature: see department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 31	**Ecology of Agronomy**	**6th sem.**	**6 CP**
Module	Ecology of Agronomy		
Module code	BP 31		
Faculty/Chair/Department	FB 09/Crop Farming/Institute for Crop Farming and Breeding 1		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • understand the interrelationship between the conditions and methods of cultivation of agricultural crops and their effects on the environment, • can assess and optimise cultivation schemes for the purpose of environmentally compatible cultivation methods.		
Module content	• crop cultivation and its impact on the environment • influence of land use on groundwater recharge and quality as well as on nutrient and energy balances • heavy metal absorption of crops • residues of pesticides in the ground and in plants • danger of soil erosion • formation of noxious gases • measures to ensure environmentally compliant cultivation methods, interaction between fruit rotation, habitat and agronomic measures • seeding and planting methods, maintenance strategies • placement and Dateation of fertiliser • effects, principles and procedures of pesticides		
Form(s) of instruction	Lecture (80%), tutorial (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 48, tutorial:12		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: oral examination. Mark: oral examination (100%) - Oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	40		
Language	German		

Homepage: http://www.uni-giessen.de/~gh1262/ipz/ipz.html
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 32	**Plant Production in Tropical and Subtropical Systems**	**5th sem.**	**6 CP**
Module	Plant Production in Tropical and Subtropical Systems		
Module code	BP 32		
Faculty/Chair/Department	FB 09/Crop Farming/Institute for Crop Farming and Breeding 1		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Previous knowledge in botany, plant genetics and crop farming		
Learning outcomes	The students • have fundamental knowledge of plant production in tropical and subtropical systems including crop science and crop farming, • understand the possibilities and limits of plant production in tropical and subtropical systems, • have knowledge of crop production systems including agrarian and grassland cultivation in different tropical and subtropical regions.		
Module content	• fundamentals of genetics as well as aims and methods of breeding tropical/subtropical crops including grain (barley, millet, maize, rice, wheat) as well as oil and protein crops • ley farming, range management • pests, storage and stored product protection in tropical and subtropical regions • abiotic stress (heat, salt, water shortage) • special cropping systems (intercropping, irrigation farming)		
Form(s) of instruction	Lecture (67%), seminar and excursions (33%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 40, seminar and excursions: 20		
Ab Preparation/revision	60, consisting of: lecture: 40, seminar and excursions: 20		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written examination, homework. Mark: Examination (80%), homework (20%) Respective part of the examination Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German, English		

Homepage: http://www.uni-giessen.de/~gh1262/ipz/ipz.html
Required literature: see Stud.IP or department website

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09-BP 33	**Plant Breeding**	**5t^{h} sem.**	**6 CP**
Module	Plant Breeding		
Module code	BP 33		
Faculty/Chair/Department	FB 09/Crop Farming/Institute for Crop Farming and Breeding I		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Genetics and Plant Breeding (BKA 47)		
Learning outcomes	The students • have knowledge of the fundamentals of botanic, specifically in relation to breeding (evolution, classification, development, reproduction, cell and tissue culture, etc.), • have knowledge of the fundamentals of genetics, specifically in relation to breeding (quantitative and Mendelian genetics, heritability, molecular genetics), • are familiar with the general and particular breeding aims of important agrarian crops, • know the essential classical methods of plant breeding, • know the breeding-methodical possibilities of optimising the selection yield, • have knowledge of biotechnological and molecular biological methods in plant breeding, • have experience using biotechnological and molecular procedures in plant breeding.		
Module content	• biological fundamentals of plant breeding: cell division, propagation, reproduction, meiosis, formation of gametes, fertilisation, development, evolution, classification, crop science (types of grains, oil and protein crops, fibre plants, forage plants, tuber and root crops) • general and particular breeding aims (characteristics, heritability, successful selection) • genetic fundamentals: Mendelian genetics, phenotype and genotype, environment and heredity, heritability and successful selection, variation • breeding methods: induction and use of genetic variation, selection methods, cell and tissue culture techniques (biotechnology), molecular methods (molecular markers, gene mapping, marker-based selection, gene isolation, gene cloning, genetic transformation)		
Form(s) of instruction	Lecture (75%) and seminar (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 45, seminar: 15		
Ab Preparation/revision	60, consisting of: lecture: 40, seminar: 20		
B Autonomous work in the module	30, consisting of: lecture: 20, seminar: 10		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Oral examination. Mark: Oral examination (75%), participation in the seminar (25%) Respective part of the oral examination Oral examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/~gh1262/ipz/ipz.html
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 34	**Basic Principles of Organic Farming**	**3rd sem.**	**6 CP**
Module	Basic Principles of Organic Farming		
Module code	BP 34		
Faculty/Chair/Department	FB 09/Institute of Agronomy and Plant Breeding II / Professorship of Organic Farming		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • understand the fundamentals and principles of organic farming, • know about the specific basic conditions and characteristics of organic crop production • can assess sustainability, environmental impacts and product quality in organic farming • gain an insight into the support of eco-cultivation, the work of farmers' associations and into the EC bio legislation.		
Module content	• history, current situation and future aspects of organic farming • soil fertility in organic farming (biological activity, soil organic matter and nutrient supply, soil structure) • production methods (crop rotation, tillage, intercropping, organic fertilisers) • biologic plant protection and weed regulation • laws and guidelines		
Form(s) of instruction	Lecture (80%), tutorial (15%), excursion (5%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	140		
Aa Contact hours	60		
Ab Preparation/revision	80		
B Autonomous work in the module	20		
C Final module examination	20		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: oral examination. Mark: oral examination (100%) Oral examination Oral examination		
Frequency, duration	Winter semester, annually, 1 semester; excursion in the summer semester		
Intake capacity	40		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-pflanzenbau2.php
Required literature: see department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 35	**Fertilizers and Nutrient Dynamics in Soil**	**6th sem.**	**6 CP**
Module	Fertilisers and Nutrient Dynamics in Soil		
Module code	BP 35		
Faculty/Chair/ Department	FB 09/Plant Nutrition/Institute for Plant Nutrition		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Plant Nutrition		
Learning outcomes	The students • have detailed knowledge of mineral and organic fertilizers • are familiar with important processes of mobilization and immobilization of plant nutrients in soil • are acquainted with the impacts of fertilizer application on the environment and the legal regulations regarding fertilisation		
Module content	• organic and mineral fertilizers • presence and mobility of plant nutrients in soil • nitrogen fixation of free-living microorganisms • rhizosphere processes • legal regulations regarding fertilizer application		
Form(s) of instruction	Lecture (50%), tutorial (25%), seminar (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 30, tutorial: 15, seminar: 15		
Ab Preparation/revision	60		
B Autonomous work in the module	30 (Presentation)		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Oral examination and participation in seminar. Mark: Oral examination (50%), participation in the seminar (50%). Passing the module requires passing the examination. Seminar mark will be accredited for one year. Oral examination Oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	60		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-pflanzenernaehrung.php

Required literature: Schubert, S.: Pflanzenernährung, Grundwissen Bachelor, Verlag Eugen Ulmer, Stuttgart 2006

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 36	**Soil Fertility**	**6th sem.**	**6 CP**
Module	Soil Fertility		
Module code	BP 36		
Faculty/Chair/Department	FB 09/Plant Nutrition/Institute for Plant Nutrition		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Plant Nutrition		
Learning outcomes	The students • have knowledge of the essential factors of soil fertility, • understand the relevance of different soil fertility indicators for surface productivity considering the sustainability and environmental compatibility, • have the ability to and are motivated to conceive approaches for optimizing soil fertility at different cultivation intensities, • have skills in using different methods for achieving a humus and nutrient balance.		
Module content	• terms of soil fertility: possibilities and limitations from the point of view of agronomy crop science, economics and plant nutrition • analysis options for evaluating and optimising soil fertility characteristics which can change in the short, medium or long term • impact of crop rotation, cultivation and fertilizer application on soil fertility parameters • use of farm and “sero” fertilizers		
Form(s) of instruction	Lecture (60%), tutorial (20%), seminar (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 36, tutorial: 12, seminar: 12		
Ab Preparation/revision	60		
B Autonomous work in the module	30 (Presentation)		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written examination, participation in seminar. Mark: Examination (50%), participation in seminar (50%). Passing the module requires passing the examination. Seminar mark will be accredited for one year. Written examination Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	60		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-pflanzenernaehrung.php
Required literature: Schubert, S.: Pflanzenernährung, Grundwissen Bachelor, Verlag Eugen Ulmer, Stuttgart 2006

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09-BP 37	**Agricultural Chemistry**	**5th sem.**	**6 CP**
Module	Agricultural Chemistry		
Module code	BP 37		
Faculty/Chair/Department	FB 09/Plant Nutrition/Institute for Plant Nutrition		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Introductory Chemistry Laboratory (BKA 01/BKE 43)		
Learning outcomes	The students • are experienced in working in a chemical laboratory, • have knowledge of quantitative analytical methods for identifying agronomically relevant compounds in liquids, plants and fertilizers.		
Module content	• chemical units and stoichiometric calculating • sample preparation • titrimetry • enzymatic analysis • potentiometry • chromatographic procedures • photometry • flame photometry • atomic absorption spectroscopy		
Form(s) of instruction	Tutorial (100%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60		
Ab Preparation/revision	60		
B Autonomous work in the module	30 (Tutorial work)		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Oral examination and participation. Mark: Oral examination (50%), participation (50%). Passing the module requires passing the oral examination. Written examination Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	64		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-pflanzenernaehrung.php
Required literature: Steffens, D. et al.: Agrikulturchemisches Praktikum. Beuren, Stuttgart: Verlag Grauer (2004)

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 38	**Agricultural Ecology an Integrated Crop Protection**	**4th sem.**	**6 CP**
Module	Agricultural Ecology an Integrated Crop Protection		
Module code	BP 38		
Faculty/Chair/Department	FB 09/Applied Entomology/Institute of Phytopathology and Applied Zoology		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge of the large spectrum of interactions in the agricultural landscape between herbivores, saprophages and carnivores as well as plants, landscape structure and soil, • have knowledge of important naturally occurring antagonists of pests and know how to use, foster and protect them, • have knowledge of important individual components of integrated plant protection, can assess them and merge the individual components together in order to create holistic overall concepts.		
Module content	• strategies of integrated plant protection • agricultural interconnections, i.e. interactions between animals, plants, landscape structure and soil • composition and relevance of the natural antagonist potential in the agrarian landscape • procedures for preserving and maximising the potential of natural predators in agricultural ecosystems („habitat management“)		
Form(s) of instruction	Lecture (20%), seminar (20%), excursion (60%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting: A Courses	150		
Aa Contact hours	120, consisting of: lecture: 30, seminar: 20, excursion: 70		
Ab Preparation/revision	30		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written examination, presentation (each part must be sufficient) Mark: Examination (50%), presentation (30 min.) (50%) Written or oral examination Written or oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	25		
Language	German		

Homepage: http://www.uni-giessen.de/ipaz
Required literature: see Stud.IP

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 39	**Plant Diseases and Pests**	**2nd sem.**	**6 CP**
Module	Plant Diseases and Pests		
Module code	BP 39		
Faculty/Chair/Department	FB 09/Applied Entomology/Institute of Phytopathology and Applied Zoology		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have fundamental knowledge of the systematics of pests and diseases relevant to agriculture and the symptoms and damage they cause, • have knowledge of the symptoms of diseases and pests and can correlate them with their respective pathogens, • can discuss the evolutionary development of important pests with the help of taxonomic characteristics, • can use the light and stereo microscope, • can apply diagnostic analyses practically in fields.		
Module content	• systematics and taxonomy of pests • viruses, bacteria, fungi, insects, nematodes, mites • diagnostic analyses of plant diseases and pests • principles of damage level • computer-operated prognosis systems • microscopy techniques		
Form(s) of instruction	Lecture (25%), exercise (50%), excursion (25%		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 15, exercise: 30, excursion: 15		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written Examination (100%) Written or oral examination Written or oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	25		
Language	German		

Homepage: http://www.uni-giessen.de/ipaz
Required literature: see Stud.IP

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 40	**Project study in Crop Production**	**6th sem.**	**6 CP**
Module	Project study in Crop Production		
Module code	BP 40		
Faculty/Chair/Department	FB 09/Crop Farming/Institute for Crop Farming and Cultivation I		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge of the connections and correlations between location, choice of seeds and agronomic measures (including fertilisation and application of pesticides), • can evaluate crop stocks and control and use plant cultivation measures.		
Module content	• features of different locations • features and characteristics of crop species and sorts (or sort types) with regard to breeding, cultivation and quality • principles of stock establishment and control regarding grain, rapeseed, potatoes, sugar beets and forage crops • recognition and assessment of accompanying field flora in different developmental stages • evaluation of pest regulation methods • pest diagnosis and supervision in a field environment • principles of organic and mineral fertilisation, methods of diagnosing N-alimentation in a field environment • analysis of the yield structure		
Form(s) of instruction	Seminar (40%) and practice classes (60%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: seminar: 24, tutorial: 36		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Oral examination, written assignment. Mark: Oral examination (50%), written assignment (50%) - Oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	40		
Language	German		

Homepage: http://www.uni-giessen.de/~gh1262/ipz/ipz.html
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 41	**Biostatistics and Bioinformatics**	**4th sem.**	**6 CP**
Module	Biostatistics and Bioinformatics		
Module code	BP 41		
Faculty/Chair/Department	FB 09/Biometry and Population Genetics/Institute for Crop Farming and Cultivation 2		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Applied Mathematics and Statistics (BK 05 (A/E/Ö/U)		
Learning outcomes	The students • can plan laboratory and field experiments and studies statistically, • can process experimental data graphically and numerically, • have knowledge of the reduction of experimental data, • can interpret experimental data using inferential statistics.		
Module content	• descriptive statistics and explorative analysis of data • fundamentals of concluding statistics • models of variance and regression analysis • multiple testing • non-parametric test procedures • principles of designing experiments • analysis of molecular genetic data • application of appropriate statistic programmes		
Form(s) of instruction	Lecture (50%), tutorial with practical computer work (50%)		
Total workload in hours	180 hours	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 30, tutorial: 30		
Ab Preparation/revision	60		
B Autonomous work in the module	40: Exercises		
C Final module examination	20		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written examination, weekly exercises. Mark: written examination (70%), tutorial (30%) Written examination Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	90, with parallel courses		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-pflanzenbau2.php
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 42	**Horticulture and Viticulture**	**4th sem.**	**6 CP**
Module	Horticulture and Viticulture		
Module code	BP 42		
Faculty/Chair/Department	FB 09/Crop Farming/Institute for Crop Farming and Cultivation 1, Research Institute Geisenheim		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have fundamental knowledge of horticulture and viticulture, • are familiar with the connections and particularities of cultivating spice plants, vegetables, fruits and vine, • have knowledge of the specific cultivation methods and product characteristics of spices, vegetables, fruits and wine		
Module content	• overview of horticulture and viticulture in Germany and worldwide • fundamentals of horticulture and viticulture • quality standards of the products and method of influencing the quality during cultivation • specific aspects of the cultivation of spices, vegetables, fruits and grapevines		
Form(s) of instruction	Lectures (60%), tutorial (40%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 36, tutorial: 24		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written examination. Mark: Examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	70		
Language	German		

Homepage: http://www.uni-giessen.de/~gh1262/ipz/ipz.html
Required literature: see Stud.IP or department website

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09-BP 43	**Research Project in Animal Husbandry**	**4th sem.**	**6 CP**
Module	Research Project in Animal Husbandry		
Module code	BP 43		
Faculty/Chair/Department	FB 09/Animal Breeding and Genetics/Institute for Animal Breeding and Genetics		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Animal Breeding		
Learning outcomes	The students • have knowledge and skills for deDateing the identity, race, age and size of an animal, • can apply methods for conformation assessment, • are familiar with conducting and interpreting performance tests and with deDateing the benefit and breed values, • have the ability to make an informed decision regarding the use of an animal		
Module content	• fundamentals of conformation • deDateation of the identity, the race or line, the age and size of an animal • adspective and palpative identification and description of conformation characteristics • investigation and written documentation of findings in organs, tissues and the entire body • application of technical methods for conformation assessment • interpretation of performance tests • deDateation benefit and breed values • decision-making regarding the use of an animal		
Form(s) of instruction	Lecture (33%), tutorial (33%), excursion (33%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	90, consisting of: Lecture: 30, tutorial: 30, excursion: 30		
Ab Preparation/revision	30		
B Autonomous work in the module	30: Project work		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Oral examination, practical examination with animals. Mark: Project work (50%), practical examination (conformation assessment): (25%), Oral examination (25%) Oral examination Oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/tierzucht/
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 44	**Quality of Animal-Derived Food Products**	**5th sem.**	**6 CP**
Module	Quality of Animal-Derived Food Products		
Module code	BP 44		
Faculty/Chair/Department	FB 09/Animal Breeding and Genetics/Institute for Animal Breeding and Genetics		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Animal Breeding		
Learning outcomes	The students • are familiar with the chemical-physical, biochemical and hygienic fundamentals of product quality, • have knowledge and skills in applying methods for deDateing the product quality, • can analyse the factors which define the product quality and evaluate their importance for production, processing, consumption and marketing.		
Module content	• relevance of animal-derived food products • chemical, physical, biochemical and nutritional basics of product quality • factors of chemical-physical, nutritional, hygienic-toxicological, technologic and sensory product quality • methods of deDateing product properties • animal health, genetic, ecologic, biologic, feed-related, biotic and abiotic factors which influence product quality • consumer and processor demands on product quality • breeding and production		
Form(s) of instruction	Lecture (75%), tutorial (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 45, tutorial: 15		
Ab Preparation/revision	60		
B Autonomous work in the module	30: Presentation on tutorial work		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written examination, tutorial. Mark: Examination (80%), tutorial (20%) Written examination Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/tierzucht/
Required literature: see Stud.IP or department website

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09-BP 45	**Biological and Genetic Principles of Animal Breeding**	**2nd sem.**	**6 CP**
Module	Biological and Genetic Principles of Animal Breeding		
Module code	BP 45		
Faculty/Chair/Department	FB 09/Animal Breeding and Genetics/Institute for Animal Breeding and Genetics		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have profound anatomic and physiologic knowledge of important organ systems of livestock species.		
Module content	• anatomy: epithelial tissue, fascia and stroma, skeletal system and joints; skeletal muscle system; cardiovascular system; respiratory organs; digestive organs; urinary organs and genitals; nervous system; endocrine organs, skin and skin derivates. • physiology: cells, nerves and muscles; blood and immune system; heart and circulation; digestion; hormones and lactation.		
Form(s) of instruction	Lecture (100%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, Lecture		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written examination. Mark: Examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/tierzucht/
Required literature: see Stud.IP or department website

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09-BP 46	**Molecular Biological Principles and Reproduction Methods in Animal Breeding**	**3rd sem.**	**6 CP**
Module	Molecular Biological Principles and Reproduction Methods in Animal Breeding		
Module code	BP 46		
Faculty/Chair/Department	FB 09/Animal Breeding and Genetics/Institute for Animal Breeding and Genetics		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Animal Breeding (BKA 46)		
Learning outcomes	The students • have knowledge of important methods of molecular biology and reproduction technology which are applied in animal breeding and genetics, • can estimate the suitability of methods and techniques for practical animal breeding.		
Module content	• molecular genetics, cytogenetic and biochemical principles, • fundamentals of molecular and reproduction biological techniques, • application of reproduction techniques and molecular biologic methods in livestock breeding.		
Form(s) of instruction	Lecture (100%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written examination. Mark: Examination (100%) - Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/tierzucht/
Required literature: see Stud.IP or department website

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09-BP 47	**Statistical and Population Genetic Principles for Animal Breeding**	**6th sem.**	**6 CP**
Module	Statistical and Population Genetic Principles for Animal Breeding		
Module code	BP 47		
Faculty/Chair/Department	FB 09/Animal Breeding and Genetics/Institute for Animal Breeding and Genetics		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Animal Breeding (BKA 46)		
Learning outcomes	The students • have fundamental knowledge of multifactorial statistics and the implementation and assessment of linear models and variance components in animal breeding and their causes, • are qualified for the calculation of simple variance/covariance components with the help of simple linear models.		
Module content	• applying biostatistics methods (linear models) • definition of fixed and random effects • modelling fixed, random and mixed models • comparing models • estimating effects and variance components from parental descendant regression as well as full- and half-sibling analyses • requirements of herd registration • information logistics in animal breeding		
Form(s) of instruction	Lecture (80%), exercises on computer (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 50, exercises: 10		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written examination. Mark: Examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/tierzucht/
Required literature: see Stud.IP or department website

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09-BP 48	**Prophylaxis and Health Programs**	**4th sem.**	**6 CP**
Module	Prophylaxis and Health Programs		
Module code	BP 48		
Faculty/Chair/Department	FB 09/Animal Husbandry and Biology of Husbandry/Institute for Animal Breeding and Genetics		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Animal Breeding (BKA 46), Ecology of Farm Animals (BKA 26)		
Learning outcomes	The students have knowledge and skills in • animal health management, • monitoring animal diseases and • single and herd disease prophylaxis with an animal-friendly environmental design.		
Module content	• pestilential prophylaxis, • biotic and abiotic factors when transporting animals, including the legal regulations • systems of herd health monitoring, feedback of slaughterhouse findings • health and management methods with a single animal or a herd (e.g. ferric application, claw trimming, neonate sustenance) • technopathies and infectious multifactorial diseases • prophylaxis of gastro-intestinal, respiratory and claw diseases		
Form(s) of instruction	Lecture (75%), seminar (15%), tutorial (10%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 45, seminar: 9, tutorial: 6		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Oral examination. Mark: Oral examination (100%) – Oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/tierzucht/ag_hoy/index.htm
Required literature: see Stud.IP or department website

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09-BP 49	**Environmental Effects of Farm Animal Housing**	**4th sem.**	**6 CP**
Module	Environmental Effects of Farm Animal Housing		
Module code	BP 49		
Faculty/Chair/Department	FB 09/Animal Husbandry and Biology of Husbandry/Institute for Animal Breeding and Genetics		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Core Modules B.Sc. Agricultural Studies, or B.Sc. Environmental Management		
Learning outcomes	The students • are familiar with the methods for measuring the effects of animal husbandry on the environment; • can generate approaches for reducing the emissions of gases, dusts and smells from animal husbandry, • can evaluate the impacts animal husbandry has on the environment.		
Module content	• concentrations, emissions and immissions of gases, dusts and germs • tenacity of bacteria, viruses and parasites in the environment • vectors of microorganisms in the environment • water and sewage in or from animal husbandry • treatment and exploitation of farmyard manure, liquid manure, swill and sludge • carcass disposal		
Form(s) of instruction	Lecture (75%), seminar (15%), tutorial (10%)		
Total workload in hours	180	Credit-points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 45, seminar: 9, tutorial: 6		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Oral examination. Mark: Oral examination (100%) – Oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/tierzucht/ag_hoy/index.htm
Required literature: see Stud.IP or department website

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09-BP 50	**Feeding Strategies for Livestock**	**5th sem.**	**6 CP**
Module	Feeding Strategies for Livestock		
Module code	BP 50		
Faculty/Chair/Department	FB 09/Animal Nutrition/Institute for Animal Nutrition and Nutrition Physiology		
/Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Animal Nutrition (BKA 22)		
Learning outcomes	The students • have knowledge of practical feeding of various farm animal species • have knowledge of the relationship between nutrition, animal health, product quality and ecological aspects in livestock feeding, • have knowledge of opportunities to prevent metabolic diseases in farm animals by nutritional intervention.		
Module content	• specific demand and supply of livestock (ruminants, pigs, poultry) with energy and nutrients for breeding, reproduction and fattening • fundamentals of sustainability in animal nutrition • feeding strategies in livestock • relationship between nutrition, animal health, product quality and ecological aspects		
Form(s) of instruction	Lecture (50%), tutorial (50%)		
Workload in total	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 30, tutorial: 30		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written examination. Mark: Written examination (100%) - Oral examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/animal-nutrition/
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 51	**Specific Animal Feed Science**	**5th sem.**	**6 CP**
Module	Specific Animal Feed Science		
Module code	BP 51		
Faculty/Chair/Department	FB 09/Animal Nutrition/Institute for Animal Nutrition and Nutrition Physiology		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Animal Nutrition (BKA 22)		
Learning outcomes	Knowledge about general aspects of feed science a. Definition of feedstuff b. Classification of feedstuff c. Regulatory framework of feedstuff in Germany and EU d. Analytical determination of crude nutrients in feedstuff e. Nutritional evaluation of feedstuff: Determination of nutrient digestibility Knowledge about specific aspects of feed science a. Feed value of grains and seeds b. Feed value of tuber crops c. Feed value of forage, hay and silages d. Feed value of straw and husk e. Feed value of by-products of processing of forage crops f. Feed value of microbial products g. Feed value of products of animal origin h. Feed value of oils and fats i. Feed additives		
Module content	General aspects of feed science a. Definition of feedstuff b. Classification of feedstuff c. Regulatory framework of feedstuff in Germany and EU d. Analytical determination of crude nutrients in feedstuff e. Nutritional evaluation of feedstuff: Determination of nutrient digestibility Specific aspects of feed science a. Feed value of grains and seeds b. Feed value of tuber crops c. Feed value of forage, hay and silages d. Feed value of straw and husk e. Feed value of by-products of processing of forage crops f. Feed value of microbial products g. Feed value of products of animal origin h. Feed value of oils and fats i. Feed additives		
Form(s) of instruction	Lecture (50%), seminar and project work (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 30, seminar and project work: 30		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Oral examination, seminar/project work. Mark: Oral examination (75%), seminar/project work (25%) Oral examination Oral examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/animal-nutrition/
Required literature: see Stud.IP or department website

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09-BP 52	**Introduction to Feed Analysis**	**4th sem.**	**6 CP**
Module	Introduction to Feed Analysis		
Module code	BP 52		
Faculty/Chair/Department	FB 09/Animal Nutrition/Institute for Animal Nutrition and Nutrition Physiology		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • gain the insight and practical skills for implementing analysis procedures in stages, • learn to analyse feed using practice-oriented methods and to evaluate the results, • can assess the quality of feed in a sensory manner.		
Module content	• analysing feed composed of selected ingredients, energy, additives, undesirable substances, pollutants, pest infestation and mycosis • sensory assessment of stalk feed (greenstuffs, ensilage, roughage), cereals and compound feeding stuffs		
Form(s) of instruction	Laboratory (indoor and outdoor (90%)), preparatory seminar (10%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: laboratory: 54, preparatory seminar: 6		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	50		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/animal-nutrition/
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 55	**Investment Decisions, Corporate Financing and Controlling in the Agro-industry**	**6th sem.**	**6 CP**
Module	Investment Decisions, Corporate Financing and Controlling in the Agro-industry		
Module code	BP 55		
Faculty/Chair/Department	FB 09/Business Operations of the Food Industry/Institute for Business Operations of Agricultural and Nutritional Economy		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Acquirement of basic knowledge with learning material supplied in advance		
Learning outcomes	The students • have knowledge of the wide range of methods of investment, financial theories and operational controlling, • are familiar with decision-related methods of funding and investment research procedures and balancing, • can choose and apply the appropriate investment, cost and performance assessment method for a given operational decision to be made.		
Module content	• sources (external and internal) and financial instruments, • financial mathematic principles, managerial budgeting concerning fiscal decisions (budgetary accounting: capital demand/optimisation), • asset and capital structure organisation, rules of financing, optimal debt ratio, • investment decisions in the agricultural and nutritional economy, • evaluation of financial and real investments, • consideration of risks, portfolio selection theory, leverage risk, • fiscal balance sheet analysis (assets and liabilities structure, liquidity situation, solidity of financing), • setup and accomplishment of the actual-cost and plan-cost-performance-calculation • fundamentals of accounting and external book-keeping.		
Form(s) of instruction	Lecture (50%), tutorial (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 30, tutorial: 30		
Ab Preparation/revision	90, consisting of: lecture: 45, revision: 45		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Module guidance: see notice board

Required literature: see notice board and Vorlesungsunterlagen

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09-BP 56	**Agricultural Production Planning**	**5th sem.**	**6 CP**
Module	Agricultural Production Planning		
Module code	BP 56		
Faculty/Chair/Department	FB 09/Business Operations of Agrarian Economy/Institute for Business Operations of Agricultural and Nutritional Economy		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge and skills in the organisation and guidance of the essential branches of production in agricultural enterprises, • are familiar with the techniques for solving decision problems in production management when deciding on the production programme in accordance with the natural and economic framework conditions and in designing the production methods and branches.		
Module content	• techniques for solving decision problems in production management using cost-performance analyses • deDateing the relative preference of action alternatives within and between the branches of production • deDateants for planning fruit rotation and the conditions of cultivation • decision problems for cereal cropping, grain maize cultivation, oil seed and legume cultivation, potato and sugar beet cultivation • designing the production programme for operational plant production • operational principles for keeping farm animals • decision problems in the branches of keeping cattle, sheep, pigs and poultry • deDateants for deciding on the operational production programme in accordance with the operational and economic framework conditions		
Form(s) of instruction	Lecture (80%), tutorial (20%)		
Workload in total	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	130		
Aa Contact hours	60, consisting of: lecture: 48, tutorial: 12		
Ab Preparation/revision	70: tutorial		
B Autonomous work in the module	20		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written or oral examination. Mark: written examination (100%) or oral examination – Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/foodeconomics/

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

Required literature: see Stud.IP or department website**09-BP 58**	**World Food Economy**	**4th/6th sem.**	**6 CP**
Module	World Food Economy		
Module code	BP 58		
Faculty/Chair/Department	FB 09/Agricultural and Development Policy/Institute for Agricultural Policy and Market Investigation		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th or 6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Policy and Markets in the Agricultural and Food Economy (BKA 14/BKÖ 14) and Economy and Business Management 1 (BKA/E/Ö/U 03)		
Learning outcomes	The students • can explain the real and monetary external relations in the area of agriculture and nutrition and their development; can estimate the consequences of foreign economic interventions, • understand the concept of the integration of industrial and developing countries in the global economy and regional economic policy for nutrition and employment security.		
Module content	• theories of int. trade with agricultural and nutritional products • agrarian trade policies – impact analysis and welfare economic assessment • new political economics of the agrarian trade policy • factor mobility, globalisation and regional competition • balance of payments and exchange rates • exchange rate policy and monetary unions • international marketing • development of the global food markets • world food situation, development and analysis of causes • strategies in development policy for nutrition security • globalisation and its implications from the point of view of developing countries • situation and problem analyses in transition countries • eastward expansion of the European Union • new farming and agrarian policy • resource utilisation • new technologies for nutrition security		
Form(s) of instruction	Lecture (50%), Block seminar (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	90		
Aa Contact hours	60, consisting of: lecture: 30, block seminar during semester break: 30		
Ab Preparation/follow-up LN	30		
B Autonomous work in the module	60: Seminar paper		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written examination, seminar paper. Mark: Written examination (50%), seminar paper (50%) Written examination Written examination, mark of seminar paper remains valid		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	25		
Language	German		

Homepage: http://www.uni-giessen.de/~gh1283/apopr2.html
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 59	**Resource Utilisation, Environmental Protection and Policy**	**5th sem.**	**6 CP**
Module	Resource Utilisation, Environmental Protection and Policy		
Module code	BP 59		
Faculty/Chair/Department	FB 09/Agricultural and Environmental Policy/Institute for Agricultural Policy and Market Investigation		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • gain fundamental knowledge regarding the interrelation of agriculture, resources and environment from an economic and ecologic point of view, • gain the skill to understand how human action causes environmental problems and which solution approaches exist from an eco-environmental and eco-political point of view, • understand the social dilemmas in environmental policy and can discuss eco-political solution approaches, • gain knowledge of the correlation of agriculture and environment on the basis of economic calculations.		
Module content	• eco-environmental fundamentals for agronomists • nature and environment as a scarce economic resource • circulatory economics, irreversibility, sustainability and economy • economic optimisation; balance of markets • general welfare-theoretic analysis of the nature protection problem • welfare analysis of the markets for private goods; external effects • external effects and internalisation of external effects • market failures in the case of environmental resource allocation • introduction to the theory of games • external effects and the Coase theorem • public goods and social dilemmas • social discounting and justice; environmental ethics • environmental politic analyses for agronomists • principles of environmental politics • deDateing economically and politically optimal external effects • restrictions as non-fiscal instruments • pigovian taxes as fiscal instruments • emission allowance trading; subsidies • balancing payments for environmentally compatible farming • structure of cost-benefit-analysis • welfare-theoretic principles of assessment • contingent assessment (WTP analysis) • travel costs method; hedonic price approach; • application examples		
Form(s) of instruction	Lecture (100%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60: Lecture		
Ab Preparation/revision	60		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: oral examination. Mark: oral examination (100%) - Oral examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-agrarpolitik.php
Required literature: see Stud.IP and department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 60	**Technology of Livestock Production**	**3rd sem.**	**6 CP**
Module	Technology of Livestock Production		
Module code	BP 60		
Faculty/Chair/Department	FB 09/Agricultural Engineering/Institute for Agricultural Engineering		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Knowledge about livestock breeding		
Learning outcomes	The students • can plan and coordinate facilities for keeping and plying animals procedurally, • have knowledge of the legal regulations of animal husbandry.		
Module content	• aims and tasks of technology in animal production • location and legal issues • process control in animal production • technological measures for quality management and HACCP • application and objectives of Precision Livestock Farming • animal maintenance (feeding techniques and procedures) • physical structures for animals and workplaces • technology of milk production and storage • disposal (techniques and procedures of manure removal), biological and technical methods of decomposition • specific structural-technical measures in accordance with IVU/BAT • facilities for ventilation and air conditioning		
Form(s) of instruction	Lecture (80%), tutorial (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 48, tutorial: 12		
Ab Preparation/revision	60, consisting of: lecture: 48, tutorial: 12		
B Autonomous work in the module	30: tutorial		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written or oral examination. Mark: Written or oral examination (100%) - Oral exercises		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	75		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/pt/
Required literature: see Stud.IP and department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 61	**Technology of Plant Production**	**4th sem.**	**6 CP**
Module	Technology of Plant Production		
Module code	BP 61		
Faculty/Chair/Department	FB 09/Agricultural Engineering/Institute for Agricultural Engineering		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Knowledge about Crop Production (BKA 21)		
Learning outcomes	The students • have basic knowledge of handling the media ground, water and air, • can present objectives and optimisations of processes, • are familiar with the legal regulations of plant production, • have knowledge of the appliances and processes.		
Module content	• aims and tasks of technology in plant production • location and legal issues • process control in plant production • technological measures for quality management • application and objectives of precision farming • soil cultivation • portfolio management (fertilisation, plant protection) • technologies for grassland farming • technologies for root crops • technologies for grain • devices, technical methods and physical structures for conservation		
Form(s) of instruction	Lecture (48%), tutorial (12%), excursions (40%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	130		
Aa Contact hours	100, consisting of: lecture: 48, tutorial: 12, excursion: 40		
Ab Preparation/revision	30, consisting of: lecture: 20, tutorial: 10		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written or oral examination. Mark: Written or oral examination (100%) Oral examination Oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	75		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/pt/
Required literature: see Stud.IP and department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 62	**Communication and Presentation**	**1st/3rd sem.**	**6 CP**
Module	Communication and Presentation		
Module code	BP 62		
Faculty/Chair/Department	FB 09/Extension and Communications/Institute for Rural Sociology and Extension		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/1st/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students: • can typecast, classify and analyse communication processes, • are familiar with concepts for a successful mediation of communication contents and for building relationships, • can present scientific topics target-group-specifically, • can apply modern presentation techniques appropriately, • can apply argumentation techniques, • are experienced in speaking freely in front of a professional audience.		
Module content	• principles of social sciences • principles and models of communication, comprehensibility of scientific statements • presentation of communication contents • fundamentals of rhetoric		
Form(s) of instruction	Lecture (80%), Tutorial and training (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: Lecture: 48, tutorial and training: 12		
Ab Preparation/revision	90, consisting of: Lecture: 40, tutorial and training: 50		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written examination, presentation, free speech. Mark: Written examination (70%), presentation (20%), free speech (10%) - Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	1441		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb09/institute/iab
Required literature: see Stud.IP and department website

[1] The laboratories will be repeated six times with 24 participants in each tutorial (corresponds to a capacity of 144 participants)

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09-BP 63	**Agricultural Extension and Management Consulting**	**4th sem.**	**6 CP**
Module	Agricultural and Management Consulting		
Module code	BP 63		
Faculty/Chair/Department	FB 09/ Extension and Communications/Institute for Rural Sociology and Extension		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students: • can define extension processes precisely and delineate them, • are familiar with the organisational structures of extension and can classify and evaluate them, • have a command of concepts for leading a extension meeting methodically, • have practised extension meetings in realistic role-plays.		
Module content	• organisational principles of extension • organisational forms of extension in Germany and the EU, • conceptualisation and process understanding in extension, • working methods of extension, • conversational models face to face, • extension and adult education, • training: Conversation techniques face to face		
Form(s) of instruction	Lecture (80%), tutorial and training (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: Lecture: 48, training: 12		
Ab Preparation/revision	90, consisting of: Lecture: 50, training: 40		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written examination, training report. Mark: Examination (60%), training report (40%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	80		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb09/institute/iab

Required literature: see Stud.IP and department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 64	**Ecological Soil Functions**	**3rd sem.**	**6 CP**
Module	Ecological Soil Functions		
Module code	BP 64		
Faculty/Chair/Department	FB 09/Soil Science and Soil Conservation/Institute for Soil Science and Soil Conservation		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/3rd semester, degree in Geography/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	BKA 04, part: Soil Science		
Learning outcomes	The students • have profound physical and chemical knowledge as a basis for recognising and evaluating ecological soil functions as well as conducting soil analyses autonomously, • are experienced in the planning of studies, sampling as well as the physical and chemical investigation of soils and their components.		
Module content	Lecture: • detailed fundamentals of soil physics and soil chemistry • characteristics and dynamics of the water, air, nutrient and pollutant balance • development of and interaction between anorganic and organic soil components • transformation and translocation processes as well as their relevance for location and utilisation characteristics. Instructed laboratory tutorials: • pedologic laboratory tutorials regarding taking of samples, physical and chemical investigation methods of soil and the interpretation of analysis results		
Form(s) of instruction	Lecture (50%), tutorial (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: Lecture: 30, tutorial: 30		
Ab Preparation/revision	90: Lecture		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written examination. Mark: Examination (100%) - Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/bodenkunde/
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 65	**Landscape Stress and Management**	**4th sem.**	**6 CP**
Module	Landscape Stress and Management		
Module code	BP 65		
Faculty/Chair/Department	FB 09/Resource Management/Institute for Landscape Ecology and Resource Management		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Landscape Water and Matter Balances (BKU 37)		
Learning outcomes	The students • are familiar with the problems related to the strain on the landscape (soil, water, air) caused by actions of land use (agricultural, forestal and other kinds of use, but also harm caused by other ways of use in the context of litter and dangerous waste accumulation) and can assess them, • can evaluate the damage factors, courses of damage and adverse effects which are relevant in this respect, • have knowledge of the most important methods of investigation (including result processing) for evaluating harm and actions to be taken, • are familiar with the fundamentals of renewable energy, • have knowledge of the pertinent legal regulations.		
Module content	• assessment of intervention on landscape in relation to the water, mass and air balance • adverse effects of agricultural, water and cultural-technical activities • physical and physicochemical process variables and their correlations, which underlie the landscape strain and management measures • principles and techniques of renewable energy production • principles of environmental law and the environmental management of the state • water protection commissioner (in cooperation with the TÜV)		
Form(s) of instruction	Lecture (50%), seminar, tutorial, excursion (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: Lecture: 30, seminar, tutorial and excursion: 30		
Ab Preparation/revision	60		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written examination. Mark: Examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Date s. Stud.IP

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 66	**Soilscapes of Middle Europe**	**2nd sem.**	**6 CP**
Module	Soilscapes of Middle Europe		
Module code	BP 66		
Faculty/Chair/Department	FB 09/Soil Science/Institute for Soil Science and Soil Conservation		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/2nd semester, Degree in Geography/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	BKA 04, Part: Soil Science		
Learning outcomes	The students • have knowledge about the diversity of landscapes in Central Europe caused by their landscape genesis, • gain an insight in the relevance of quaternary (geologically young) sediments for soil formation and the location quality in Central Europe, • have knowledge of the soil groups of the most important landscape types in Central Europe, • can estimate the importance of landscape-specific use and stress potentials for environmentally compatible land use, • are experienced in investigating, describing and evaluating soils with simple methods.		
Module content	Lecture: • principles of the German soil systematics • factors of soil formation, processes, soil groups and local characteristics in the most important natural regions of Germany and Central Europe. Field trip seminars: • pedalogical practice in fields concerning mapping, investigation, description and assessment of typical soils and soil groups in the most important natural regions of the federal states of Hessen and Schleswig-Holstein		
Form(s) of instruction	Lecture (70%), seminar (30%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	 150		
Aa Contact hours	60, consisting of: Lecture: 42, seminar: 18		
Ab Preparation/revision	90, consisting of: Lecture: 70, seminar: 20		
B Autonomous work in the module	 -		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Written examination. Mark: Examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/bodenkunde/
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 67	**Regional and Landscape Planning**	**6th sem.**	**6 CP**
Module	Regional and Landscape Planning		
Module code	BP 67		
Faculty/Chair/Department	FB 09/Project and Regional Planning / Institute for Farm and Agribusiness Management, Landscape Ecology and Planning/IInstitute for Landscape Ecology and Resource Management		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses / 6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge of the legal regulations of regional and landscape planning and the laws which must be considered, • are familiar with the procedure of planning processes, • have knowledge of the aims and principles of regional planning and nature protection, • can compile a contract documents in accordance with HOAI, • are aware of the difficulty of sustainability, • are aware of the spatial possibilities for sustainable area development, • can explain the possibilities and limitations of influencing structural changes in regional planning.		
Module content	• legal regulations of landscape and regional planning • laws on nature conservation in the Federation and the Federal States of Germany • construction and structure of spatial planning • connecting of urban land use planning and landscape planning • methods and contents of landscape and spatial planning • contents of other departmental planning works in landscape conservation • contents of the German “Eingriffs-Ausgleichs-Regelung“ • official fee scale for architects and engineers (HAOI) • system of spatial and regional planning • decision-making competences and hierarchies • spatial planning and environment • sustainable area development • concepts and instruments of rural area development, such as land reallocation, village renewal, tourism, economic promotion, infrastructure promotion, regional marketing • possibilities and limitations of controlling regional planning		
Form(s) of instruction	Lecture (70%), tutorial (30%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 48, tutorial: 12		
Ab Preparation/revision	60		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, exercises. Mark: written examination (50%), exercises (50%) – Oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/ilb/
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 68	**Regional Economics and Regional Policy**	**4th sem.**	**6 CP**
Module	Regional Economics and Regional Policy		
Module code	BP 68		
Faculty/Chair/Department	FB 09/Project and Regional Planning / Institute for Farm and Agribusiness Management		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge of methods for characterising demographic, economic, environmental and agricultural structures, • understand the reasons and Determinants of spatial usage, • understand the direction of influence of the location factors and the development of regional structures, • understand the reasons and impacts of agrarian-structural changes and their effects on the environment, • have an overview of the regional political aims and can give reasons for them, • understand the competences and tasks of the decision-makers in regional policies, • can gauge the most important instruments of regional political influence and their effective direction.		
Module content	• Determinants for spatial differences • simple indicators for describing regional structures • relevance of agriculture in the rural area • theories for explaining differences in spatial use • interaction of various location factors • integral and sophisticated forces of spatial use • environmental impacts caused by agriculture and • correlations between agriculture and environment • functions of rural areas • deriving the objectives of regional policy • aims of regional and environmental policy • measures and decision-makers of regional policy • spatial planning and regional policy • regional economic policy • integral rural area development		
Form(s) of instruction	Lecture (50%), tutorial (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60		
Ab Preparation/revision	60		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, tutorial. Mark: written examination (50%), seminar paper and presentation (50%) – Oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/ilb/
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 72	**Agricultural Utilisation of Wastes**	**4th sem.**	**6 CP**
Module	Agricultural Utilisation of Wastes		
Module code	BP 72		
Faculty/Chair/Department	FB 09/Waste and Resource Management/Institute for Landscape Ecology and Resource Management		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have fundamental, practice-oriented knowledge regarding the material exploitation of mineral and organic waste in plant and animal production and its preparation, • are familiar with the legal background, policies and procedures of quality assurance, • can evaluate the contents of wastes and their utility, • can measure the potential burden of value-reducing contents (organic and anorganic pollutants), • have knowledge of procedures for analysing different kinds of waste and rating their quality, • gain insight into the characteristics of carryover, • have knowledge of the economic and ecologic assessment of waste utilisation in the food chain.		
Module content	• legal framework conditions • occurrence of various mineral and organic types of waste (forage, compost, sewage sludge, farm fertilizer) • segmentation into enriching and value-reducing contents • origin and preparation processes of the different waste types • creating balances and evaluating them ecologically and economically • verification procedures and quality assurance, quality management		
Form(s) of instruction	Lecture (50%), seminar (25%), tutorial and excursions (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 30, seminar: 15, tutorial and excursion: 15		
Ab Preparation/revision	60		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: oral examination. Mark: oral examination (100%) – Oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/ilr/

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

Required literature: see Stud.IP or department website**09-BP 73**	**Vegetation Ecology**	**4th sem.**	**6 CP**
Module	Vegetation Ecology		
Module code	BP 73		
Faculty/Chair/Department	FB 09/Landscape Ecology and Planning/Institute for Landscape Ecology and Resource Management		
Associated degree course(s)/Semester taken	All FB 09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Soil and Landscape Ecology (BKU 35)		
Learning outcomes	The students • have fundamental knowledge of vegetation ecology and the features of plant communities, • understand the fundamental terms of site ecology, • have knowledge of ecological stress factors and can analyse the causes of competition and coexistence, • understand the impact of geological processes on the vegetation, • understand the causes and effects of land use on vegetation, • are familiar with the characteristics of important plant families of Central Europe and can identify a selection of the most common vascular plants, • can document and interpret vegetation relevés and do vegetation analyses.		
Module content	• features of plant communities, • fundamentals of vegetation ecology, • fundamentals of site ecology, • ecological stress factors, • competition and coexistence, • chorology, • development of the vegetation in Central Europe, • overview of the vegetation of various habitats in Central European , • laboratory tutorials for the identification the most important plant families of Central Europe, • field exercises for vegetation documentation of typical biotopes of cultural landscapes in Central Europe.		
Form(s) of instruction	Lecture (50%), tutorial (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	 150		
Aa Contact hours	60, consisting of: lecture: 30, tutorial: 30		
Ab Preparation/revision	90, consisting of: lecture: 60, tutorial: 30		
B Autonomous work in the module	 -		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination (45 Min.), tutorial reports, herbarium. Mark: written examination (50%), tutorial reports (25%), herbarium (25%) Written examination (45 Min.), tutorial reports, herbarium, Written examination (45 Min.), tutorial reports, herbarium		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	Unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/ilr/
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 75	**Project in Environmental Management**	**5th sem.**	**6 CP**
Module	Project in Environmental Management		
Module code	BP 75		
Faculty/Chair/Department	FB 09/Landscape Ecology and Planning, Resource Management, Soil Science and Soil Conservation/Institute for Landscape Ecology and Resource Management		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Regional and Landscape Planning (BP 67), Geographic Information Systems (BP 76)		
Learning outcomes	The students • can work autonomously on applied and interdisciplinary objects and solve problems in practical case-studies in rural areas • can conduct studies and apply planning methods in an appropriate manner and evaluate the results correctly, • can work in groups and cooperate in interdisciplinary and complementary working groups, • can present work results in an appropriate manner in written form and present these.		
Module content	The students undertake an interdisciplinary project in the field of regional environmental problems. Using the example of a region, a landscape, a landscape section, issues and questions will be solved in discussed in small groups. Depending on the task, the students will be required to conduct inquiries, outdoor investigations, mapping, laboratory analyses, design work (also using GIS), surveys among stake holders etc. Results will be discussed in an interdisciplinary manner and presented as proposed solutions.		
Form(s) of instruction	Project (100%)		
Total workload in hours	180		
Consisting of: A Courses	 120		
Aa Contact hours	60		
Ab Preparation/revision	60		
B Autonomous work in the module	 30		
C Final module examination	30 (presentation: 10, written report incl. plans: 20)		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Presentation of the project results and written report (incl. plans). Mark: Presentation (50%), written report (50%) Written examination, written report Written examination, written report		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	60		
Language	German		

Homepage: http://www.uni-giessen.de/ilr/
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 76	**Geographic Information Systems**	**5th sem.**	**6 CP**
Module	Geographic Information Systems		
Module code	BP 76		
Faculty/Chair/Department	FB 09/Resource Management/Institute for Landscape Ecology and Resource Management		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • are familiar with the structure, the functions and the possible applications of geographic information systems, • have fundamental knowledge of the application and use of GIS features gained through laboratory work with ArcGIS, • can arrange an ArcGIS project autonomously, • broaden and deepen their knowledge with the help of practical project examples from the relevant subject areas.		
Module content	• introduction to the fundamentals of GIS • data types, data acquisition and data administration, coordinate systems, analysis options • GIS features: setting up digital maps, editing, digitalising, creating keys, data base operations, analysing grid maps • practical work on computer with a GIS based on examples of topics covered in the degree course (e.g. soil mapping, landscape development, water contamination)		
Form(s) of instruction	Lecture (40%), tutorial (60%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 30, tutorial: 30		
Ab Preparation/follow-up LN	60		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Examination (practical test at computer). Mark: Examination (100%) Examination (practical test at computer) Examination (practical test at computer)		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	40		
Language	German		

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 77	**Principles of Nutrition Ecology**	**5th sem.**	**6 CP**
Module	Principles of Nutrition Ecology		
Module code	BP 77		
Faculty/Chair/Department	FB 09/Nutritional Ecology/Institute for Nutritional Studies		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Core modules of the bachelor degree course, Quality Parameters for the Evaluation of Nutritional Studies (BKE 32), last stage of studies		
Learning outcomes	The students • have fundamental knowledge of different dimensions of nutrition, • can demonstrate the impact of food habits on health, environment, society and economy along the food supply chain, • are aware of the influencing factors of the different dimensions of nutrition on the links of the food supply chain and can identify interactions, • can transfer nutritional knowledge into a nutritional ecologic correlation, • can explain the role of nutrition in the sustainability discussion, • have knowledge of sustainable approaches for solving local and global nutrition problems, • are familiar with the fundamental aspects of complex systems, • are familiar with the concept of the Nutritional Ecology Platform for handling nutrition-related problems.		
Module content	• dimensions of nutrition and their backgrounds • interconnections, multidimensionality and dynamics of nutrition • consequences of different food habits on sanitary, ecological, social and economic aspects of nutrition • influencing factors and framework conditions of the food supply chain • principles of sustainability • interdisciplinary solution approaches • examples for the solving of complex nutrition-related problems in an interdisciplinary manner • characteristics of complex systems		
Form(s) of instruction	Seminar (70%), lecture (20%), excursion (10%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: Seminar: 42, lecture: 12, excursion: 6		
Ab Preparation/revision	60		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: oral examination, presentation and participation in the module. Mark: oral examination (60%), presentation and participation in module (40%) (all parts must be passed min. with the mark “ausreichend” (equivalent: D)) Oral examination Oral examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/nutr-ecol/
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 78	**Principles of Nutritional Medicine**	**5th sem.**	**6 CP**
Module	Fundamentals of Nutritional Medicine		
Module code	BP 78		
Faculty/Chair/Department	FB 09/Human Nutrition – Nutrition in Developing Countries/Institute for Nutritional Studies/FB 11		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Human Nutrition (BKÖ/BKE 13)		
Learning outcomes	The students • have knowledge of the pathophysiological fundamentals of nutritional medicine and the clinics for nutritional diseases, • can prepare and present on the topic of clinics and therapy of nutrition-related diseases.		
Module content	• artificial nourishment • diarrhoea in childhood • dancer and diet • metabolic disorder • gastro-intestinal diseases • liver-gall-pancreas-diseases • diabetes mellitus • kidney and autoimmune diseases • rachitis and osteoporosis • iodine deficiency/thyroid diseases • eating disorders		
Form(s) of instruction	Lecture (50%), seminar (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 30, seminar: 30		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination and presentation. Mark: written examination (66%), presentation (34%) Written examination Written or oral examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	200 participants		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb09/institute/ernaehrungswissenschaft/ag/krawinkel

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

Required literature: see Stud.IP or department website**09-BP 81**	**Special Botany I (Special Botany of Agricultural Crops)**	**2nd sem.**	**6 CP**
Module	Special Botany I (Special Botany of Agricultural Crops)		
Module code	BP 81		
Faculty/Chair/Department	FB 08/Biology and Chemistry/Institute for Plant Ecology		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge of the processes and manifestations of the life of plants in interaction with environmental factors, • understand the adaption mechanisms of plants to specific conditions regarding location, • can describe the flow of energy and substances, • are familiar with the most important crops, particularly food plants, their usable components and ingredients, • can prepare simple plant compounds autonomously and investigate them using a light microscope, • have knowledge regarding the composition and function of the different plant components.		
Module content	• the environment of plants • carbon, mineral and water balance of plants • plants under stress • use of plants for food and technology • utilisable ingredients (carbohydrates, lipids, proteins) • specific use as vegetables, fruits and luxury foods • preparation and light microscopy investigation of plants • plant cells and their compartments • composition and function of the leaf, the root and the sprout		
Form(s) of instruction	Lecture (50%), tutorial (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 30, tutorial: 30		
Ab Preparation/revision	90, consisting of: lecture: 60, tutorial: 30		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/~gf1178/
Required literature: see department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 82	**Special Botany II (Sprecial Botany and Plant Ecology)**	**2nd sem.**	**6 CP**
Module	Special Botany II (Special Botany and Plant Ecology)		
Module code	BP 82		
Faculty/Chair/ Department	FB 08/Biology and Chemistry/Institute for Plant Ecology/General Botany		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge of the processes and manifestations of the life of plants in interaction with environmental factors, • understand the adaption mechanisms of plants to specific conditions regarding location, • can describe the flow of energy and substances, • can classify plants using identification keys, • are familiar with a variety of the typical flora species of Central Europe, • have knowledge regarding the composition and function of the different plant components.		
Module content	• the environment of plants • carbon, mineral and water balance of plants • plants under stress • deDateation of plants with importance in agriculture • composition and function of the leaf, the root and the sprout		
Form(s) of instruction	Lecture (33%), tutorial (66%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 15, tutorial: 45		
Ab Preparation/revision	90, consisting of: lecture: 30, tutorial: 60		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination (1h), written examination/colloquium, classification tutorial (1h). Mark: written examination (70%), written examination/colloquium (30%) Written examination, written examination/colloquium, classification tutorial Written examination, written examination/colloquium, classification tutorial		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/~gf1178/
Module guidance: Dr Koyro

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09-BP 84	**Anatomy and Physiology II**	**4th sem.**	**6 CP**
Module	Anatomy and Physiology II		
Module code	BP 84		
Faculty/Chair/Department of	FB 11/Anatomy and Physiology 2/Physiological Institute		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Anatomy and Physiology 1 (BKÖ/ BKE 07)		
Learning outcomes	The students • have profound knowledge of cytology, histology and the microscopic human anatomy, • have knowledge about neurovegetative functions, • have knowledge of basic principles of sensory physiology, • have knowledge of the functions of different sensory modalities, • are familiar with physiological investigation methods, • can elaborate on essential anatomic and physiologic questions autonomously, • can perform microscopic studies.		
Module content	Anatomy • microscopical anatomy and histology/use of the microscope • epithelia • conjunctive and supporting tissue • muscle • blood vessels • nervous system Physiology • sensory physiology • chronobiology & nutrition • circadian rhythms • neuropeptides and neurohormones & nutrition • Optional visit of a physiological laboratory (MPI Frankfurt/Univ. Giessen)		
Form(s) of instruction	Anatomy: Microscope laboratory (50%), Physiology: Seminar (25%), excursion (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60		
Ab Preparation/revision	60		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Anatomy: written/oral examination; Physiology: presentation/written assignment. Mark: Anatomy (50%), Physiology (50%) Respective part of the examination Respective part of the examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	25		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb11/institute/physiologie/forschung/skrandies/?searchterm=Skrandies

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

Required literature: see department website**09-BP 87**	**Physiology and Biochemistry of the GIT**	**4th sem.**	**6 CP**
Module	Physiology and Biochemistry of the Gastrointestinal Tract (GIT)		
Module code	BP 87		
Faculty/Chair/Department	FB 09/Molecular Nutrition Research/Institute for Nutritional Studies		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Knowledge in Nutritional Physiology (BKE/ BKÖ 10)		
Learning outcomes	The students • have profound knowledge of the anatomy and morphology of the GIT • have profound knowledge of digestive processes • are familiar with the active principles of hormones		
Module content	• morphologic differences and specialties along the GIT • molecular mechanisms of secretion, digestion and resorption • gastrointestinal hormones and their effects • mediators of hunger and satiety • neuronal networks of the GIT • the intestine as an immune organ • effects of the intestinal flora on the organism		
Form(s) of instruction	Lecture (50%), seminar (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 30, seminar: 30		
Ab Preparation/revision	60		
B Autonomous work in the module	30, group work in small groups		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb09/institute/ernaehrungswissenschaft/ag/wenzel
Required literature: see department website

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09-BP 88	**Molecular Mechanisms underlying Degenerative Diseases**	**6th sem.**	**6 CP**
Module	Molecular Mechanisms underlying Degenerative Diseases		
Module code	BP 88		
Faculty/Chair/Department	FB09/ Molecular Nutrition Research/Institute for Nutritional Studies		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Nutritional Physiology (BKE/ BKÖ 10), Human Nutrition (BKE/ BKÖ 13)		
Learning outcomes	The students • have knowledge of the molecular effects of hormones and cytokines, • understand cellular signal transduction, • have knowledge of the intermediary metabolism, • have fundamental knowledge of immunology.		
Module content	• cancer and diet • ageing processes • nutrition and vascular diseases • inflammatory bowel diseases • food allergies, gluten-sensitive enteropathy		
Form(s) of instruction	Lecture (50%), seminar (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 30, seminar: 30		
Ab Preparation/revision	60, consisting of: preparation: 30, revision: 30		
B Autonomous work in the module	30: Work in small groups		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb09/institute/ernaehrungswissenschaft/ag/wenzel
Module guidance: Prof Dr Wenzel
Required literature: see department website

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09-BP 89	**Practical Placement in Different Occupational Areas**	**4th – 6th sem.**	**18 CP**
Module	Practical Placement in Different Occupational Areas		
Module code	BP 89		
Faculty	FB 09, Agricultural Sciences, Home Economics and Environmental Management		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses, 4th – 6th semester		
Module coordinator	Head of the Examination Board Information and Administration: Placement Office		
Instructors	FB09 Professors		
Prerequisites	The placement may only be undertaken after the 3rd semester (requirement of min. 15 passed modules)		
Learning outcomes	The students • gain practical knowledge and skills in their respective placement areas and understand the relationship between studies and practical experience • gain knowledge in particular regarding activities and forms of organisation • understand operational procedures and interconnections • have knowledge of the production of goods and services and their marketing as well as the management and administration of the respective companies in which the placements take place		
Module content	• assistance in companies within professional fields of agronomists, environmental scientists, ecotrophologists and nutritionists • active participation in the production, management and services as well as in the project management of the companies • preparation of a company overview and a report summarising the content and procedure of an operational activity within the company		
Form(s) of instruction	Placement		
Total workload in hours	540[2]	Credit points: 18 ECTS credits	
Consisting of: A Courses	-		
Aa Contact hours	-		
Ab Preparation/revision	30		
B Autonomous work in the module	480		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Evaluation of the placement report.[1] Mark: Placement report (100%) - -		
Frequency, duration	Semester break -		
Intake capacity	unlimited		
Language	German		
	[2] Details concerning the contents of the module, the workload and the report are specified by the Head of the Examination Board		

Homepage: http://www.uni-giessen.de/cms/fbz/fb09/studium-lehre/praktikum

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09-BP 91	**Business Environmental Management**	**4th sem.**	**6 CP**
Module	Business Environmental Management		
Module code	BP 91		
Faculty/Chair/Department	FB 09/Waste and Resource Management/Institute for Landscape Ecology and Resource Management		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • are familiar with the instruments of environmental management (environmental audit, EMAS, ISO 9.000, ISO 14.00X), • have knowledge about various instruments of the ecobalance and the material flow balance, • have an insight into the methods and means for product-integrated environment protection (PIUS), • have knowledge of the tasks and rights of individual environmental officers, • have an insight into laws concerning operational environment protection (Federal Emission Control Act, technical instructions, REACH,..), • are experienced in quality management.		
Module content	• legal framework conditions (EC Directives [e.g. REACH], laws [e.g. Water Management Act, Closed Substance Cycle Waste Management Act], regulations [e.g. Ordinance on Hazardous Substances], technical policies [e.g. Technical Instructions on Air Quality Control]) • quality management systems (environmental audit, EMAS, ISO 9.000, ISO 14.00X) • ecobalance and material flow balance models (e.g. GABI) • indicators for evaluating the mass and energy efficiency in economic cycles • excursions and exercises with a practical orientation on product-integrated environmental protection in companies in association with the IHK and the Environmental alliance of the federal state of Hessen		
Form(s) of instruction	Lectures (50%), tutorial and excursions (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 30, tutorial and excursions: 30		
Ab Preparation/revision	60		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Oral examination Mark: Oral examination (100%) - Oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/ilr/
Required literature: see Stud.IP or homepage of the Institute

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09-BP 92	**Introduction to Food Microbiology**	**4th sem.**	**6 CP**
Module	Introduction to Food Microbiology		
Module code	BP 92		
Faculty/Chair/Department	FB 09/Microbiology of Recycling Processes/Institute for Applied Microbiology		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have fundamental knowledge of food microbiology and food hygiene, of microbiologic methods for detecting bacteria, particularly pathogens, • have fundamental knowledge of the preservation and quality control of food.		
Module content	• the role of microorganisms in food, factors which influence the existence of microorganisms in food, preservability and spoilage • principles of food fermentation, food hygiene, arrangements for inspection, fundamentals of sterile working, quantifying and identifying bacteria and fungi; • essential differences between and roles of bacterial and fungal groups (Lactobacilli, actinomycetes; spore-forming bacteria, yeasts, fungi imperfecti) in food microbiology • disease agents, preservation of food, conservation • strategies for the biological security of food		
Form(s) of instruction	Lecture (100%), including practical demonstrations		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60: Lecture		
Ab Preparation/revision	60		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/mikrobiologie/inst_home.html
Required literature: see Stud.IP or department website

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09-BP 93	**Nutrition and Performance**	**4th/6th sem.**	**6 CP**
Module	Nutrition and Performance		
Module code	BP 93		
Faculty/Chair/Department	FB 09/Bromatology and Applied Dietetics/Institute of Nutritional Sciences and FB 06/Department of Sports Medicine/Institute of Sport Sciences		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th or 6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students will • gain fundamental knowledge in human exercise physiology, • know the relationship between healthy nutrition and performance, • be able to assess the opportunities and limitations of food supplements in sports and be able to differentiate between legal and illegal substances.		
Module content	• defining and measuring physical capacity (exercise testing) • fundamentals of exercise physiology • training adaptation on cell/organ level • endocrine and nerval regulatory mechanisms • criteria of basic aerobic and anaerobic performance • fatigue, recovery and overtraining • energy supply in sport • carbohydrate loading; fat burning; protein • fluid replacement in sport, nutritional strategies during exercise • oxidative stress and antioxidants; losses and replacement • weight management; eating disorders • distinguishing between functional foods for sports, dietary supplements, pharmaceuticals • ergogenic aids • doping		
Form(s) of instruction	Lecture (100%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written or oral examination. Mark: written or oral examination (100%) – Written or oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb09/institute/ernaehrungswissenschaft/ag/schulz

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

Required literature: see Stud.IP or department website**09-BP 94**	**Nutrition Counselling and Prevention**	**5th sem.**	**6 CP**
Module	Nutrition Counselling and Prevention		
Module code	BP 94		
Faculty/Chair/Department	FB 09/Nutrition Education and Consumer Behaviour/Institute for Nutritional Science		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	5th sem., final study period		
Learning outcomes	The students • comprehend the requirements of professional counselling and consulting with regard to the content and methodical point of view, • are familiar with the instruments and methods of prevention and health promotion, • can apply methods of individual and group counselling within a video taped role play, • can plan, implement, analyse, and assess a counselling and consulting process.		
Module content	• non-directive counselling according to Carl Rogers – Principles and possible applications of individual counselling • theme-centred interaction according to Ruth Cohn – Principles (TZI) and possible applications for group counselling • fundamentals of group work and conversational methods • instruments and methods for prevention and health promotion • practical examples of group and individual counselling as well as group work with target groups (e.g. obese and adipose persons, seniors, diabetics)		
Form(s) of instruction	Seminar (50%), tutorial (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: seminar: 30, tutorial: 30		
Ab Preparation/revision	60		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: oral examination. Mark: oral examination (100%) - Oral examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	20		
Language	German		

Homepage: http://www.uni-giessen.de/cms/fbz/fb09/institute/ernaehrungswissenschaft/ag/leonhaeuser
Required literature: Informationen in der Lehrveranstaltung

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 95	**Water as Basic Life Resource**	**2nd sem.**	**6 CP**
Module	Water as Basic Life Resource		
Module code	BP 95		
Faculty/Chair/Department	FB 09/Resource Management/Institute for Landscape Ecology and Resource Management		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • understand the importance of water as a fundamental life resource, • have fundamental knowledge of water chemistry and water physics, • have knowledge of the worldwide health problems which are caused by water shortage and bad water quality, • are familiar with the occurrence reasons of water-related diseases and are familiar with strategies to avoid them, • have knowledge of important pollutants in waters, • are familiar with important methods for producing clean drinking water, • have knowledge of basic methods for cleaning polluted waters.		
Module content	• physical and chemical properties of water • water as a food resource and human water requirement • water availability in Germany and the world • water production and purification (drinking water protection) • water-related diseases and their avoidance • pollutants in water		
Form(s) of instruction	Lectures (75%), tutorial (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 45, tutorial: 15		
Ab Preparation/revision	60		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination. Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	100		
Language	German		

Module guidance: see Stud.IP
Date see Stud.IP

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 96	**Food Safety and Stored Product Protection**	**3rd sem.**	**6 CP**
Module	Food Safety and Stored Product Protection		
Module code	BP 96		
Faculty/Chair/Department	FB 09/ Applied Entomology /Institute of Phytopathology and Applied Zoology		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have theoretical and practical fundamental knowledge of food safety, • have the ability to work in the context of food safety in the chemical industry, the food industry, in food investigations offices, in agricultural/environmental ministries ("Landeslabor") and other consulting institutions.		
Module content	• stored product protection (fungal, bacterial and animal pests) • biology, ecology and classification of pests • formation, detection and molecular modes of action of mycotoxins in food • examples of food poisoning • physical, chemical and biological methods of stored product protection • identification of animal pests and food-borne fungi		
Form(s) of instruction	Lecture (50%), mandatory practical course (50%		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	70, consisting of: lecture: 40, practical course: 30		
Ab Preparation/revision	80		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination Mark: written examination (100%) written examination written or oral examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	125		
Language	German		

Homepage: http://www.uni-giessen.de/ipaz
Required literature: see Stud.IP

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 97	**Methods of Knowledge Integration for Complex Nutrition-Associated Issues**	**6th sem.**	**6 CP**
Module	Methods of Knowledge Integration for Complex Nutrition-Associated Issues		
Module code	BP 97		
Faculty/Chair/Department	FB 09/Nutritional Ecology/Institute for Nutritional Studies		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Core modules of the BSc course of studies, Quality Parameters for the Evaluation of Nutritional Studies (BKE 32), last stage of studies		
Learning outcomes	The students • can understand and explain the complexity and interconnections of nutritional problems and are familiar with methods for presenting these, • understand how integrative problem-solving processes can be initiated based on the Nutritional Ecology Platform for complex nutritional problems, • can correlate and integrate knowledge from different disciplines and subjects related to the topic area of nutrition, • are familiar with methods/approaches of knowledge integration, • can apply the methods of knowledge integration in transdisciplinary and interdisciplinary collaborations to nutritional problems and their solutions.		
Module content	• analysis of problems related to complex nutritional topics • interaction of sub- and suprasystems in the field of nutrition • concept of the Nutritional Ecology Platform • presentation of complex relationships • methods of knowledge integration and application of these methods to complex nutritional topics • forms of cooperative work in problem solving processes • types of knowledge and levels of integration for long-term solution approaches in the field of nutrition • characteristic features of knowledge integration in transdisciplinary and interdisciplinary problem-solving processes		
Form(s) of instruction	Seminar (70%), lecture (10%), tutorial (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	140		
Aa Contact hours	60, consisting of: seminar: 42, lecture: 6, tutorial:12		
Ab Preparation/revision	80		
B Autonomous work in the module	20		
C Final module examination	20		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: 1. Regular and successful attendance to the module, 2. Written examination on the contents of the module, 3. Participation in the module (including the presentation of exercises). Mark: written examination: 60%, participation (including presentation): 40% (all parts must be passed min. with the mark “ausreichend” ()) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	40		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/nutr-ecol/
Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 98	**Renewable Resources**	**6th sem.**	**6 CP**
Module	Renewable Resources		
Module code	BP 98		
Faculty/Chair/Department	FB 09/Plant Nutrition/Institute for Plant Nutrition		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Plant Nutrition (BKA 24)		
Learning outcomes	The students • have knowledge of important energy and industrial crops, • are familiar with the material and energetic aspects of renewable resources, • have knowledge of the technological product lines of energy generation from renewable resources,		
Module content	• energy potentials • energy crops • industrial crops • energy product lines • environmental compatibility of renewable resources		
Form(s) of instruction	Lecture (50%), tutorial (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	60, consisting of: lecture: 30, tutorial: 30		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: oral examination, written assignment. Mark: oral examination (50%), written assignment (50%). Passing the module requires passing the oral examination. Oral examination Oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	20		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/profil/institutelink-pflanzenernaehrung.php
Required literature: Schubert, S.: Pflanzenernährung, Grundwissen Bachelor, Verlag Eugen Ulmer, Stuttgart 2006

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 99	**Monitoring in Nature Conservation**	**6th sem.**	**6 CP**
Module	Monitoring in Nature Conservation		
Module code	BP 99		
Faculty/Chair/Department	FB 09/Landscape Ecology and Planning/Institute for Landscape Ecology and Resource Management		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Geographic Information Systems (BP 76)		
Learning outcomes	The students • understand the importance of natural processes and sustainable use for nature conservation, • understand the relevance of land use history for current and future processes in nature reserves, • are familiar with the main objectives of modern nature conservation, • have knowledge of the methods of the habitat- and landscape-related monitoring in nature conservation, • can apply this knowledge to develop monitoring procedures for concrete near-natural and land use-related nature reserves.		
Module content	• ecosystem and process studies • procedures of historic and current land use • aims of modern nature conservation • relevant data sources and procedures for the collection of representative data including geostatistical procedures • multitemporal aerial photo interpretation • GIS applications • time series analyses • forecasting methods • elaboration of a monitoring system for a sample preservation area		
Form(s) of instruction	Lecture (50%), tutorial (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Courses	60, consisting of: lecture: 30, tutorial: 30		
Ab Preparation/revision	60, consisting of: lecture: 20, tutorial: 40		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written assignment with poster. Mark: written assignment (60%), poster (40%) Written assignment with poster Written assignment with poster		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	Unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/ilr/

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09 BP 101	**Project in Landscape Planning**	**4th sem.**	**6 CP**
Module	Project in Landscape Planning		
Module code	BP 101		
Faculty/Chair/Department	FB 09/Landscape Ecology and Planning/Professor in Landscape Ecology and Planning		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Vegetation Ecology (BP 73), Geographic Information Systems (BP 76)		
Learning outcomes	The students • gain profound skills in the application of acquired knowledge in landscape planning, • acquire skills in analysing problems and transferring solutions, • can collect data relevant for planning (from literature, in the field and with the help of geographic information systems), document them and interpret them in written form, • can autonomously create a poster demonstrating the results.		
Module content	The project module in Landscape Planning prepares students for the work on their bachelor thesis. One current, environmentally relevant subject area of landscape planning and development will be addressed intensively. Based on a documentation of existing and additionally collected data, the students will deduce questions concerning the subject area. Solutions for defined case studies will be prepared. For this, abiotic, biotic, economic and other planning-relevant data will be collected and processed with the help of geographic information systems. The collected data will be analysed, evaluated and presented in a poster.		
Form(s) of instruction	Project (100%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60		
Ab Preparation/revision	60		
B Autonomous work in the module	26		
C Final module examination	34, consisting of: Poster including written report: 30, presentation of poster: 4		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: Presentation of the written report to students, advisors, the public; and submission of written report itself. Mark: Presentation (50%) and written report (50%) Presentation (50%) and written report (50%) Presentation (50%) and written report (50%)		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	Unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/ilr/

Required literature: see Stud.IP or department website

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 102	**Chemical Reaction Mechanisms**	**3rd/5th sem.**	**6 CP**
Module	Chemical Reaction Mechanisms		
Module code	BP 102		
Faculty/Chair/Department	FB 08/Chemistry/Institute for Organic Chemistry and Institute for Anorganic Chemistry		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/3rd or 5th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	General Chemistry and Chemistry Laboratory		
Learning outcomes	The students • understand organic-chemical reaction mechanisms and methods for explaining them, • understand reaction profiles and can compile them, • have developed a profound knowledge of the principles of catalysis and of stereoselective reactions, • learn the basics of preparative-organic chemistry, using the example of food ingredients.		
Module content	• fundamental mechanistic investigations: methods, catalysis, kinetics, reaction profiles, balances, frontier orbitals • fundamental organic reaction mechanisms and reactive intermediate stages • reactivity and selectivity, kinetic and thermodynamic control of reactions • important organic reactions • concept of stereoselective reactions and enantioselective catalyses (sharpless epoxidation and bishydroxylation) • carbonyl chemistry • rearrangements • redox reactions • amino acids and proteins, synthesis methods • carbohydrates		
Form(s) of instruction	Lecture (60%), tutorial (40%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	155		
Aa Contact hours	75, consisting of: lecture: 45, tutorial: 30		
Ab Preparation/revision	80, consisting of: lecture: 20, tutorial: 60		
B Autonomous work in the module	-		
C Final module examination	25		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination (required: 50% of the credits from the tutorial) Mark: written examination (100%) – Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	50		
Language	German		

Homepage: http://www.uni-giessen.de/cms/resolveuid/85c3dfe911a5a7a456b2e0463708116d
Required literature: see Stud.IP or department website

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09-BP 103	**Regenerative Energy**	**4th sem.**	**6 CP**
Module	Regenerative Energy		
Module code	BP 103		
Faculty/Chair/Department	FB 09/Institutes: Applied Microbiology, Agronomy Plant Breeding 1 and 2, Landscape Ecology and Resource Management, Agricultural Policy and Market Research		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • are familiar with different renewable energy carriers and how to implement them, • have knowledge of the concept of biogas plants and the microbialprocesses which occur within these plants, • are familiar with different biotechnological procedures for producing hydrogen, single cell protein and ethanol, • gain an insight into modern methods of plant cultivation, • have knowledge of the effects of changes in land use on the ecosystem, • can contemplate globally on the cultivation of renewable resources, • can critically discuss the environmental compatibility of cultivating renewable resources, • can research sections of the topic with the help of international literature and summerize the major outcomes.		
Module content	• plant production for biogas plants • soil fertility for the cultivation of energy crops • use of animal excrements and municipal waste in biogas plants • functional principle, management and ecological considerations of biogas plants • microbiological processes in biogas plants • comparison of hydrogen production techniques: production from cyanobacteria and green algae vs. chemical methods from biomass • production of single cell protein • ethanol production with the help of microorganisms • generating electrical energy using microbial fuel cells • breeding of desired characteristics (using the example of rapeseed for the production of biodiesel) • renewable energy carriers and their impact on the water and material balance • environmental compatibility of the cultivation of energy crops using the example of rapeseed •world energy consumption, prices and the relevance of the cultivation of renewable energy carriers		
Form(s) of instruction	Lecture (50%), literature work (30%), excursion (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	120		
Aa Contact hours	60, consisting of: lecture: 30, seminar: 18, excursion: 12		
Ab Preparation/revision	60, consisting of: lecture: 30, seminar: 30		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination,		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	90		
Language	German		

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09-BP 104	**Cell Biology and Genetics**	**2nd sem.**	**6 CP**
Module	Cell Biology and Genetics		
Module code	BP 104		
Faculty/Chair/Department	FB 09/ Phytopathology/Institute of Phytopathology and Applied Zoology, Plant Cultivation/Institute for Plant Breeding and Plant Cultivation 1		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/2nd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have fundamental theoretical and practical knowledge in cell biology and genetics, • can apply and implement their knowledge of cell biology and genetics in the industry and in authorities and investigations offices, • have practical knowledge of modern microscopy techniques.		
Module content	• fundamental of cell biology and genetics • application of the theoretical principles of cell biology and genetics to science and technology • cytological fundamentals for biotechnological applications • genetic fundamentals for application in breeding and biotechnology • principles of molecular biology of animal and vegetal cells • use of cytological strategies in breeding research		
Form(s) of instruction	Lecture (57%), seminar (43%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Consisting of: A Courses	150		
Aa Contact hours	70, consisting of: lecture: 40, seminar: 30		
Ab Preparation/revision	80		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination, presentation in the seminar. Mark: written examination (50%), presentation (50%) each part must be sufficient Respective part of examination Written or oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	60		
Language	English		

Homepage: http://www.uni-giessen.de/ipaz
Required literature: see Stud.IP

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP 106	**Quality of Organic Foods along the Food Supply Chain**	**6th sem.**	**6 CP**
Module	Quality of Organic Foods along the Food Supply Chain		
Module code	BP 106		
Faculty/Chair/Department	FB 09/Institute of Agronomy and Plant Breeding II / Professorship of Organic Farming		
Associated degree course(s)/Semester taken	All FB09 bachelor degree courses/6th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	6th semester, last stage of studies		
Learning outcomes	The students • have profound knowledge of quality Dateology • are acquainted with the essential quality criteria, demands, concepts, principles and characteristics of single sections of selected food supply chains • have knowledge of methods for distinguishing products according to their production method (ecological or conventional) • can evaluate specific organic product qualities and are familiar with detailed methods for quality management		
Module content	• definition and description of quality Dateology • characteristics of organic food along the food supply chain • structural features of the organic food supply chain • regulations (laws, regulations, guidelines of the eco-organisations, trading standards, concepts, consumer attitudes) concerning the quality of organic products in different stages of the food supply chain • specific reference methods for dedateing food quality • sensory analysis of organic products • quality of specific product categories and realisation of the quality requirements at different production levels • methods for assuring organic quality in primary production • visiting of organic factories at the different stages of the food supply chain		
Form(s) of instruction	Lecture (30%), seminar (60%), excursions (10%)		
Total workload in hours	180		
Consisting of: A Courses	140		
Aa Contact hours	60, consisting of: lecture:18, seminar: 36, excursions: 6		
Ab Preparation/revision	80		
B Autonomous work in the module	15		
C Final module examination	25		
Form(s) of assessment and contribution to final mark Form of module component retake examination Form of module retake examination	Form: written examination and active participation in the module. Mark: written examination (75%), participation in the module (25%) – Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	Unlimited		
Language	German		

Homepage: http://www.uni-giessen.de/fbr09/nutr-ecol/, http://www.uni-giessen.de/orglandbau/
Required literature: see Stud IP and faculty webpage

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP B 03	**Cultivated Plants in Organic Farming**	**4th/6th sem.**	**6 CP**
Module	Cultivated Plants in Organic Farming		
Module code	BP B 03		
Faculty/Chair/ Department	FB 09/Institute of Agronomy and Plant Breeding II / Professorship of Organic Farming		
Associated degree course(s)/ Semester taken	All FB09 bachelor degree courses/3rd semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • gain an insight into organic agricultural production as well as into the methodology of converting to organic production, • are familiar with the particulars of the most relevant crops in organic farming, • can analyse and assess crop rotations and optimise them in accordance with the relevant production goals, • learn the autonomous preparation and presentation of scientific topics as well as the skills required to work within a team.		
Module content	• principles, development and goals of organic farming • methods for converting to organic farming • principles of planning and structuring organic crop rotation • specifics of organic cultivation practices for the most important crop types (planting, harvesting, storing): grains, oil-bearing fruits, fodder and grain legumes, root crops, mixed crops and catch crops • the particulars of cultivation practices will largely be compiled and presented autonomously by the students: handout, presentation and discussion; students' performance during the module component will take precedence in the assessment procedure		
Form(s) of instruction	Lecture (50%), tutorial (45%), excursion (5%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	120		
Aa Contact hours	60		
Ab Preparation/revision	60		
B Autonomous work in the module	40		
C Final module examination	20		
Form(s) of assessment and contribution to final mark Form of module-component retake examination Form of module retake examination	Form: written examination, presentation and written assignment Mark: presentation/discussion (50%), written examination (50%) Oral examination Oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	40		
Language	German		

Date: see course catalogue
Required literature: see semester notice board

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09-BP B 04	**Logistics and Supply Chain Management in the Agribusiness**	**5th sem.**	**6 CP**
Module	Logistics and Supply Chain Management in the Agribusiness		
Module code	BP B 04		
Faculty/Chair/ Department	FB 09/Business Operations of Agrarian Economy/Institute for Business Operations of Agrarian and Nutrition Economy		
Associated degree course(s)/ Semester taken	Bachelor of Agricultural Sciences[1)]		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge of and are capable of structuring and managing logistical procedures in the agricultural economy, • are familiar with the techniques for solving production and storage issues • have fundamental ecological and technical knowledge of supply chain management (SCM) • are familiar with measures used in logistical process technologies		
Module content	• Introduction into the terminology of logistics and SCM • Issues within operative production planning: o forecasting of quantity requirements o storage – planning of lot sizes o allowance for set-up time and costs o planning within complex production and delivery networks o fundamentals of transport logistics • strategic issues in logistics and SCM • methods, tools and systems for analysis and optimisation of problems in logistics and SCM		
Form(s) of instruction	Lecture (80%), tutorial (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	160		
Aa Contact hours	60, consisting of: lectures: 48, tutorials: 12		
Ab Preparation/revision	100, consisting of: lectures: 80, tutorials: 20		
B Autonomous work in the module	-		
C Final module examination	20		
Form(s) of assessment and contribution to final mark Form of module-component retake examination Form of module retake examination	Form: written examination Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

[1)] May also be selected by students from other degree courses as a specialisation module

Date: see course catalogue

Required literature: see semester notice board

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP B 05	**Agricultural and Trade Law in the Agribusiness**	**3rd sem.**	**6 CP**
Module	Fundamentals of Agricultural Law		
Module code	BP B 05		
Faculty/Chair/ Department			
Associated degree course(s)/ Semester taken	Bachelor of Agricultural Sciences[1)]		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • can autonomously work on and solve typical agricultural and commercial legal cases and evaluation processes, • have the ability to solve taxation and political balance of trade problems autonomously, • can undertake land, forest and ground valuations, • have an in-depth understanding of taxation and commercial evaluation in the agricultural economy		
Module content	• legal fundamentals (constitutional law, administration law, civil law, criminal law) • agricultural property and inheritance law • contracts for use • security for loans (agricultural loans), purchase and sale agreements, contract arrangement/standard contracts, UN purchase law • order processing: physically/documentation • company law (with cooperation law in agriculture) • employment, social and taxation law in agriculture • legal aspects of agricultural production • environmental legislation in agriculture, EU agricultural legislation		
Form(s) of instruction	Lecture (75%), tutorial (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	120		
Aa Contact hours	60, consisting of lectures: 45, tutorials: 15		
Ab Preparation/revision	40, consisting of: lectures: 30, tutorials: 30		
B Autonomous work in the module	50, written assignment		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module-component retake examination Form of module retake examination	Form: written examination, written assignment Mark: written examination (50%), written assignment (50%) Written examination Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	50		
Language	German		

[1)] May also be selected by students from other degree courses as a specialisation module

Date: see course catalogue

Required literature: see semester notice board

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09-BP B 06	**Human Resource Management in the Agribusiness**	**6th sem.**	**6 CP**
Module	Human Resource Management in the Agribusiness		
Module code	BP B 04		
Faculty/Chair/ Department	FB 09/Business Operations of Agrarian Economy/Institute for Business Operations of Agrarian and Nutrition Economy		
Associated degree course(s)/ Semester taken	Bachelor of Agricultural Sciences [1)]		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have an understanding of personnel development, • can recognise management weaknesses and personnel shortages, • gain in-depth knowledge of the development of management qualifications and the determinants within the management culture, • can show how government conditions influence personnel decisions.		
Module content	• motivation theories • management theories • micro-politics • personnel planning and recruitment • staff reduction • staff assessment • staff remuneration • controlling of personnel		
Form(s) of instruction	Lecture (80%), tutorial (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60, consisting of: lectures: 48, tutorials: 12		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module-component retake examination Form of module retake examination	Form: written examination Mark: written examination (100%) - Written examination (100%)		
Frequency, duration	Winter semester, annually,1 semester		
Intake capacity	unlimited		
Language	German		

[1)] May also be selected by students from other degree courses as a specialisation module

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP B 07	**Case Study Analysis in Marketing**	**5th sem.**	**6 CP**
Module	Case Study Analysis in Marketing		
Module code	BP B 07		
Faculty/Chair/ Department	FB 09/Business Operations of Agrarian Economy/Institute for Business Operations of Agrarian and Nutrition Economy		
Associated degree course(s)/ Semester taken	Bachelor of Agricultural Sciences [1)]		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Marketing 1		
Learning outcomes	• interpretation of market situations and market results and the implementation of these into goal-oriented decisions • recognition of corporate interrelationships • market and solution-oriented thinking and handling • efficient teamwork		
Module content	Specification of target group specific products • marketing budget planning (DB budget for marketing decisions) Introduction of new products • R & D planning • product placement – production planning • price strategy – sales planning Advertisement • customer research – media concept – analysis of competitors • risk analysis, risk types (political, economic), risks in agricultural marketing, risk-decision parameters, risk avoidance, trading forms, functions of trade, local – international trade, particularities of agricultural trade		
Form(s) of instruction	Seminar (practical exercises)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	160		
Aa Contact hours	80, consisting of: lectures: 40, tutorials: 40		
Ab Preparation/revision	80		
B Autonomous work in the module			
C Final module examination	20		
Form(s) of assessment and contribution to final mark Form of module-component retake examination Form of module retake examination	Form: assignment on seminar and presentation Mark: written examination (60%), assignment on seminar (40%) Written examination Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	30		
Language	German		

1) May also be selected by students from other degree courses as a specialisation module

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B-List

Bachelor of Science

BP B 03 Cultivated Plants in Organic Farming
BP B 04 Logistics and Supply Chain Management in the Agribusiness
BP B 05 Agricultural and Trade Law in the Agribusiness
BP B 06 Human Resource Management in the Agribusiness
BP B 07 Case Study Analysis in Marketing
BP B 08 Energy Economics and Energy Management

BP B 03	**Cultivated Plants in Organic Farming**	**4th/6th sem.**	**6 CP**
Module	Cultivated Plants in Organic Farming		
Module code	BP B 03		
Faculty/Chair/ Department	Agricultural Sciences, Nutritional Sciences and Environmental Management/Institute for Plant Breeding and Cultivation 2/Organic Farming		
Associated degree course(s)/ Semester taken	Specialisation, Bachelor (4th/6th)		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • gain an insight into organic agricultural production as well as into the methodology of converting to organic production, • are familiar with the particulars of the main organic farming cultures, • can analyse and assess crop rotations and optimise them in accordance with the relevant production goals, • learn the autonomous preparation and presentation of scientific topics as well as the skills required to work within a team.		
Module content	• principles, development and goals of organic farming • methods for converting to organic farming • principles of planning and structuring organic crop rotation • specifics of the organic cultivation practices for the most important crop types (planting, harvesting, storing): grains, oil-bearing fruits, fodder and grain legumes, root crops, mixed crops and catch crops • the particulars of the cultivation practices will largely be compiled and presented autonomously by the students: handout, presentation and discussion; students' performance during the module component will take precedence in the assessment procedure		
Form(s) of instruction	Lecture (50%), tutorial (45%), excursion (5%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	120		
Aa Contact hours	60		
Ab Preparation/revision	60		
B Autonomous work in the module	40		
C Final module examination	20		
Form(s) of assessment and contribution to final mark Form of module retake examination	Form: written examination, presentation and written assignment Mark: presentation/discussion (50%), written examination (50%) Oral examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	40		
Language	German		

Please note that only the German version of the modules is official and legally binding. The English version is for informative purposes only.

09-BP B 04	**Logistics and Supply Chain Management in the Agribusiness**	**5th sem.**	**6 CP**
Module	Logistics and Supply Chain Management in the Agribusiness		
Module code	BP B 04		
Faculty/Chair/ Department	FB 09/Business Operations of Agrarian Economy/Institute for Business Operations of Agrarian and Nutrition Economy		
Associated degree course(s)/ Semester taken	Bachelor of Agricultural Sciences[1)]		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have knowledge of and are capable of structuring and managing logistical procedures in the agricultural economy, • are familiar with the techniques for solving production and storage issues • have fundamental ecological and technical knowledge of supply chain management (SCM) • are familiar with measures used in logistical process technologies		
Module content	• introduction into the terminology of logistics and SCM • issues within operative production planning: o forecasting of quantity requirements o storage – planning of lot sizes o allowance for set-up time and costs o planning within complex production and delivery networks o fundamentals of transport logistics • strategic issues in logistics and SCM • methods, tools and systems for analysis and optimisation of problems in logistics and SCM		
Form(s) of instruction	Lecture (80%), tutorial (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	160		
Aa Contact hours	60, consisting of: lectures: 48, tutorials: 12		
Ab Preparation/revision	100, consisting of: lectures: 80, tutorials: 20		
B Autonomous work in the module	-		
C Final module examination	20		
Form(s) of assessment and contribution to final mark Form of module-component retake examination Form of module retake examination	Form: written examination Mark: written examination (100%) - Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		

1) May also be selected by students from other degree courses as a specialisation module

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09-BP B 05	**Agricultural and Trade Law in the Agribusiness**	**3rd sem.**	**6 CP**
Module	Fundamentals of Agricultural Law		
Module code	BP B 05		
Faculty/Chair/ Department			
Associated degree course(s)/ Semester taken	Bachelor of Agricultural Sciences[1)]		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • can autonomously work on and solve typical agricultural and commercial legal cases and evaluation processes, • have the ability to solve taxation and political balance of trade problems autonomously, • can undertake land, forest and ground valuations, • have an in-depth understanding of taxation and commercial evaluation in the agricultural economy		
Module content	• legal fundamentals (constitutional law, administration law, civil law, criminal law) • agricultural property and inheritance law • contracts for use • security for loans (agricultural loans), purchase and sale agreements, contract arrangement/standard contracts, UN purchase law • order processing: physically/documentation • company law (with cooperation law in agriculture) • employment, social and taxation law in agriculture • legal aspects of agricultural production • environmental legislation in agriculture, EU agricultural legislation		
Form(s) of instruction	Lecture (75%), tutorial (25%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	120		
Aa Contact hours	60, consisting of: lectures: 45, tutorials: 15		
Ab Preparation/revision	40, consisting of: lectures: 30, tutorials: 30		
B Autonomous work in the module	50, written assignment		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module-component retake examination Form of module retake examination	Form: written examination, written assignment Mark: written examination (50%), written assignment (50%) Written examination Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	50		
Language	German		

1) May also be selected by students from other degree courses as a specialisation module

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09-BP B 06	**Human Resource Management in the Agribusiness**	**6th sem.**	**6 CP**
Module	Human Resource Management in the Agribusiness		
Module code	BP B 04		
Faculty/Chair/ Department	FB 09/Business Operations of Agrarian Economy/Institute for Business Operations of Agrarian and Nutrition Economy		
Associated degree course(s)/ Semester taken	Bachelor of Agricultural Sciences[1)]		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students • have an understanding of personnel development, • can recognise management weaknesses and personnel shortages, • gain in-depth knowledge of the development of management qualifications and the determinants within the management culture, • can show how government conditions influence personnel decisions.		
Module content	• Motivation theories • management theories • micro-politics • personnel planning and recruitment • staff reduction • staff assessment • staff remuneration • controlling of personnel		
Form(s) of instruction	Lecture (80%), tutorial (20%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	150		
Aa Contact hours	60, consisting of: lectures: 48, tutorials: 12		
Ab Preparation/revision	90		
B Autonomous work in the module	-		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module-component retake examination Form of module retake examination	Form: written examination Mark: written examination (100%) - Written examination (100%)		
Frequency, duration	Winter semester, annually,1 semester		
Intake capacity	unlimited		
Language	German		

1) May also be selected by students from other degree courses as a specialisation module

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09-BP B 07	**Case Study Analysis in Marketing**	**5th sem.**	**6 CP**
Module	Case Study Analysis in Marketing		
Module code	BP B 07		
Faculty/Chair/ Department	FB 09/Business Operations of Agrarian Economy/Institute for Business Operations of Agrarian and Nutrition Economy		
Associated degree course(s)/ Semester taken	Bachelor of Agricultural Sciences[1)]		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	Marketing 1		
Learning outcomes	• Interpretation of market situations and market results and the implementation of these into goal-oriented decisions • recognition of corporate interrelationships • market and solution-oriented thinking and handling • efficient teamwork		
Module content	Specification of target group specific products • Marketing budget planning (DB budget for marketing decisions) Introduction of new products • R & D planning • product placement – production planning • price strategy – sales planning Advertisement • customer research – media concept – analysis of competitors • risk analysis, risk types (political, economic), risks in agricultural marketing, risk-decision parameters, risk avoidance, trading forms, functions of trade, local – international trade, particularities of agricultural trade		
Form(s) of instruction	Seminar (practical exercises)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	160		
Aa Contact hours	80, consisting of: lectures: 40, tutorials: 40		
Ab Preparation/revision	80		
B Autonomous work in the module			
C Final module examination	20		
Form(s) of assessment and contribution to final mark Form of module-component retake examination Form of module retake examination	Form: assignment on seminar and presentation Mark: written examination (60%), assignment on seminar (40%) Written examination Written examination		
Frequency, duration	Summer semester, annually, 1 semester		
Intake capacity	30		
Language	German		

1) May also be selected by students from other degree courses as a specialisation module

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09-BP B 08	**Energy Economics and Energy Management**	**4th sem.**	**6 CP**
Module	Energy Economics and Energy Management		
Module code	BP B 08		
Faculty/Chair/ Department	FB 09/Waste and Resource Management/Institute for Landscape Ecology and Resource Management		
Associated degree course(s)/ Semester taken	All FB09 bachelor degree courses/4th semester		
Module coordinator	Cf. German version		
Instructors	Cf. German version		
Prerequisites	none		
Learning outcomes	The students have knowledge of • physical fundamentals of energy generation and transformation (electricity/heat), • different processes for generating renewable energy (geothermal energy, wind energy, photo energy, hydro energy, biomass energy), • different processes for generating conventional energy (gas and steam, coal), • processes for energy storage, • goals of base load and peak demand controlling, • processes and problems of network controlling, • energy usage of different users, • processes/potential for increasing the energy efficiency.		
Module content	• physical fundamentals, units, measurement, regulation, control, electrical and thermal efficiency theory • process fundamentals and boundary conditions of the generation of renewable and conventional energy (geothermal energy, wind energy, photovoltaic energy, photo thermal energy, hydro energy, biomass energy, gas and steam, coal, nuclear power) • authorisation issues • energy management according to DIN EN 16001 • network management and load control • goals of national and international energy politics		
Form(s) of instruction	Lecture (50%), tutorial and excursions (50%)		
Total workload in hours	180	Credit points: 6 ECTS credits	
Module composition: A Courses	120		
Aa Contact hours	60, consisting of: lectures: 30, tutorials and excursions: 30		
Ab Preparation/revision	60		
B Autonomous work in the module	30		
C Final module examination	30		
Form(s) of assessment and contribution to final mark Form of module retake examination	Form: written examination Mark: written examination (100%) Written examination		
Frequency, duration	Winter semester, annually, 1 semester		
Intake capacity	unlimited		
Language	German		