

## SAGRIS module content

Intended learning	Content		Types of	work (h	ours)			
outcomes:			ontact wo				1	
Competence code						ž		
and name					. 宜	Individual work	Teaching/Learning forms	Forms of
Code and name of	Name of topics	res	Lab works	Practical works	Other (e.g. consultation)	ual	rodoming/Loaming forms	assessment
the indicator of		Lectures	W	ıcti ork	er ( ulta	<u>vid</u>		
competence achievement		Le	-ab	Pra W	Oth ons	ndi		
acmevement			_		0 0	_		
	S	emester						
Competence 1 (K1)	Topic 1. Climate change impact on agricultural production systems							
Be able to conduct	1.1. Global climate change and its impact on crop and livestock	2						Survey in the form of
comprehensive research that	production systems (developers: Aliya Baitelenova, Dinara Seidazimova)						Lecture-discussion	open tests
includes	1.2. Ways of adaptation of crop and livestock production systems			2				colloquium
transdisciplinarity and	in conditions of climate change			2			Round table	Colloquium
use modern methods	(developers: Vasyona Ustinova, Marat Ongayev)							
to study the	1.3. Development of new technologies in crop and livestock					4	Independent work review of	
qualitative and	production taking into account climate change in the world						innovative technologies in the world	
quantitative aspects of climate change in	1.4. Research of climate change impact on crop and livestock	2					Dualitaria la struis	Test tasks
order to promote	production systems (review of recent scientific achievements) (developers: Iglik Zhumagulov)						Problem lecture	
agricultural	1.5. Ecological consequences of modern methods when used in			2				discussion
sustainability.	the agricultural system			_			Seminar - conference	diocacción
	(developers: Aliya Nagiyeva, Dinara Seidazimova)							
Competence 2 (K2)	1.6. Strategies and tactical solutions of scientific research and					4	Independent work - presentation	
Capable of	practical tasks in the system of crop and livestock production under conditions of climate change						maspenasin nem presentanen	
developing and	1.7. Peculiarities and prospects of application of fertilizer systems	2						oral survey
implementing	in innovative resource-saving crop cultivation technologies under	2						oral survey
techniques and	climate change aridisation						Lecture-visualisation	
models for sustainable	(developers: Alexandr Esaulko, Olga Lobankova)							
development of crop	1.8. Study of a model for sustainable development of crop and			2				creative project
and livestock	livestock production systems (developers: Inga Riumkina, Gulnara Yunusova)						Practical-oriented lesson	(creation of sustainable
production systems	(developers. Inga Klumkina, Guinara Funusova)						Practical-oriented lesson	development models
to ensure food								for compliance with
security in the face of								parameters)
climate change.	1.9. Implementation of research results to ensure food security in			_		4	Independent work - development of	
	the context of climate change						scientific article	
Competence 1 (K1)	Topic 2. Climate change effects on food security		<u> </u>					
Competence i (KI)	10pto 2. Official Graninge effects off food security							

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	graduate Studies rure and Future Farming Systems 3-EPP-1-2019-1-DE-EPPKA2-CBHE-JP						SAGR S Erasmus	funded by the + Programme
Intended learning	5 ET 1 1 2010 1 5 E ET 11 0 E 65 1 E 61	Types of work (hours)					JAON Y S OT THE ED	Iopean Onion
outcomes: Competence code		Contact work						
and name						/or		
Code and name of the indicator of competence achievement	Name of topics	Lectures	Lab works	Practical works	Other (e.g. consultation)	Individual work	Teaching/Learning forms	Forms of assessment
Be able to conduct	2.1. Social and historical aspects of the global food problem.	2					Lecture - discussion	oral survey
comprehensive	Losses in agriculture due to climate change							
research that includes	(developers: Olga Altaeva, Bulat Tsydypov)  2.2. Definition of specialization and productive forces in the global			2			Block Seminar	Solving situational
transdisciplinarity	food system			2			Block Serilliai	problems
and use modern	(developersIglik Zhumagulov)							
methods to study	2.3. Economic, environmental, social, natural and climatic, and man-			2			Case study	Solving situational
the qualitative and quantitative aspects	made risks							problems
of climate change in	(developers: Damira Aitmuhanbetova, Marat Ongayev)  2.4. Contemporary trends in ensuring food security through national					6	Self-study training materials in the	colloquium
order to promote	management systems					U	form of a group work	Colloquium
agricultural							2 2 3 2 1	
sustainability.	2.5. Food supply for humanity at the present stage of development. Reducing losses in agriculture by applying "smart" technologies (developers: Saule Essengazieva, Inga Riumkina)	2					Lecture-visualization	recitation by lecture, with reports on the topic
Competence 2 (K2)	2.6. Advanced research related to climate change and food security			2			Tick-box	Test
Capable of developing and	(developers: Aliya Baitelenova, Gulnara Yunusova)							
implementing	2.7. Population income and economic availability of food (developers: Aigul Ismailova, Aliya Nagiyeva)			2			Brainstorm	Solving problems
techniques and	2.8. World policy and international activities in the field of food supply					6	Independent study of training	colloquium
models for	in the context of developed and developing countries						materials in the form of supporting	oonoquiani
sustainable development of							notes	
crop and livestock								
production systems								
to ensure food								
security in the face								
of climate change.  Competence 2 (K2)	Topic 3. Sustainable resources management (water, ecosystems, la	and man	agement	1				
Capable of	3.1. Using innovative measures in sustainable use and management	2	agement	1			Problem lecture	oral survey
developing and	of water resources in agriculture (taking into account regional	_						
implementing	specifics)							
techniques and	(developers: Marat Ongayev, Nyukkanov Ayan)							<u> </u>
models for	3.2. Principles of sustainability and evaluation of adaptive measures.			2			Seminar - debate	colloquium

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	graduate Studies ture and Future Farming Systems 3-EPP-1-2019-1-DE-EPPKA2-CBHE-JP						SAGR S Erasmus- of the Eur	funded by the + Programme
Intended learning outcomes: Competence code	Name of topics	Types of work (hours) Contact work					JAV V J of the Eu	ropean Union ***
and name  Code and name of the indicator of competence achievement		Lectures	Lab works	Practical works	Other (e.g. consultation)	Individual work	Teaching/Learning forms	Forms of assessment
sustainable development of crop and livestock production systems to ensure food security in the face of	Agroecological analysis and development of the plan of agrolandscape optimization (developers: Elena Shatalova)							
	3.3. Assessment of natural and economic risks in conditions of climate change (by examples of agro-industrial complex) (developers: Ainura Aldiyarova, Yuliya Borissova)			2			Practical lesson	oral survey
climate change.	3.4. Sustainable Water Resources Management Strategy					6	Independent work (preparation of a presentation)	
	3.5. Soil Resources. Integrated soil fertility management (developers: Aliya Nagiyeva)	2					Lecture-visualization	oral survey
	3.6. Analysis of innovative measures aimed at risk reduction based on the assessment of environmental hazards of land use (developers: Nyukkanov Ayan)			2			Seminar-discussion	oral survey
	3.7. Development of recommendations on agrolandscapes sustainability based on biota transformation assessment (developers: Svetlana Okrut, Gulnara Yunusova)			2			Case study	slide presentation of project results
	3.8. Problems of sustainable land use (on the example of a region)					6	Independent work (preparation of a scientific article)	
Competence 1 (K1)	Topic 4. Environmentally friendly crop production (healthy agricult	ural pro	ducts)	l		1	•	
Be able to conduct comprehensive	4.1. Biological protection of plants (developers: Larisa Korobova, Olga Altaeva)	2					Lecture-visualization	oral survey
research that includes	4.2. Features of obtaining environmentally friendly products (developers: Larisa Korobova)			2			Practice-oriented lesson	colloquium
transdisciplinarity and use modern methods to study the qualitative and quantitative aspects of climate change in	4.3. Production and introduction of microbiological preparations for plant production (developers: Dinara Seidazimova, Elena Drepa)			2			Practical lesson with the involvement of expert practitioners	oral survey
	4.4. Measures to ensure stabilization of agroecosystem productivity and biodiversity conservation in modern organic agriculture (developers: Agafya Platonova)					6	Independent study of training materials in the form of group work	Protection of projects
order to promote agricultural sustainability.	4.5. Breeding as a tool for maintaining sustainability and safety of crop production (developers: Aliya Kushenbekova, Asiya Ansabaeva)	2					Lecture - discussion	oral survey
	4.6. Development of ecological agrochemistry			2			Seminar-conference	Colloquium

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	graduate Studies ture and Future Farming Systems 3-EPP-1-2019-1-DE-EPPKA2-CBHE-JP						SAGR S Erasmust	unded by the - Programme oppean Union
Intended learning outcomes: Competence code	ning s:		Types of ntact wo	f work (h ork	ours)	<u> </u>	or the Eur	opean Onion
and name  Code and name of the indicator of competence achievement	Name of topics	Lectures	Lab works	Practical works	Other (e.g. consultation)	Individual work	Teaching/Learning forms	Forms of assessment
Competence 2 (K2) Capable of developing and	(developers: Aliya Nagiyeva, Platonova Agafya, Bulat Tsydypov) 4.7. Ecological risks of agro-technologies (developers: Aliya Nagiyeva Dinara Seidazimova)			2			Case study	Solving situational problems
implementing techniques and models for sustainable development of crop and livestock production systems to ensure food security in the face of	4.8. Sanitary and hygienic assessment of food raw materials and food products of plant growing. Substances that contaminate foodstuffs and forages (developers: Agafya Platonova)					6	Independent study of training materials in the form of supporting notes	oral survey
climate change.  Competence 2 (K2)	Topic 5. Sustainable livestock systems and animal welfare							
Capable of developing and	5.1. Principles of sustainable animal husbandry (developers: Indira Aitzhanova)	2					Lecture-discussion	oral survey
implementing techniques and models for	5.2. Risk Factors for reducing well-being in the context of climate change (developers: Beibit Kulatayev, Abzal Abdramanov)			2			Practical training with the involvement of expert practitioners	discussion with representatives of production
sustainable development of crop	5.3. Adaptation of the livestock system to climate change (developers: Konstantin Zhuchaev)			2			Round table	colloquium
and livestock production systems to ensure food	5.4. Improvement of innovative technologies in animal husbandry in connection with climate change					6	Independent work-development of a research project, preparation of a selection and breeding plan	
security in the face of climate change.	5.5. Animal Welfare and its components (developers: Abzal Abdramanov )	2					Problem lecture	oral survey
	5.6. Quality management model of management processes in animal husbandry (developers: Bostanova Saule)			2			Practice-oriented lesson (departure to the enterprise)	Misc: - the decision of situational problems; analysis of situations; - test control
	5.7. Ecological consequences of modern methods of animal husbandry (developers: Faruza Zakirova)			2			Seminar-conference	Discussion-dialogue with farmers and leading experts in the field of animal

SAGRIS Module content - 4 -

Enhancement of Post on Sustainable Agricu Project number 61038 Intended learning	SAGR S Co-funded by the Erasmus+ Programme of the European Union  Types of work (hours)							
outcomes: Competence code		Co	ntact we	ork		<u>×</u>		
and name					. (u	wor	Teaching/Learning forms	Forms of
Code and name of the indicator of competence achievement	Name of topics	Lectures	Lab works	Practical works	Other (e.g. consultation)	Individual	reaching/Learning forms	assessment
								husbandry and ecology
	5.8. Animal husbandry and the natural environment					6	Independent work-preparation of a scientific article (thesis)	

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