Appendix no. 2 to the resolution no. 142 of the NCU Senate of 16 December 2014

Study programme

General description of studies	
Faculty offering the field of study:	**Faculty of Biology and Environmental Protection**
Field of study: *(title of the field must correspond to the content of the study programme, in particular to the expected learning outcomes)*	**environmental protection**
Level of study: *(first cycle, second cycle, long cycle)*	**second cycle**
Degree profile: *(general academic, practical)*	**general academic**
The field of study within the area (areas) of study:	**the area of life sciences**
Programme mode: *(full time programme, part-time programme)*	**full time programme**
Number of semesters:	**4**
Number of ECTS required for the award of qualifications corresponding to the level:	**120**
Number of teaching hours:	**1010**
Degree awarded to the graduate:	**Master of Science**
Specialisation:	-
Overall educational objectives, employment possibilities, and continuing education for graduates in this field:	The aim of the developed curriculum is to provide the national economy with highly qualified professionals in the field of environmental protection which will be achieved thanks to the realization of the following learning objectives: 1) acquainting the student with:

	a) interdisciplinary concepts regarding environmental protection, b) the significance of biodiversity, c) the evaluation of the quality of the environment, d) environmental impact assessment, e) environmental protection policy, f) the principles of land planning. 2) developing in the student the skills to: a) select proper methods for simple research tasks, b) solve real problems and deal with threats to the environment, c) create descriptive and mathematical models allowing a long-term prediction of environmental phenomena and the impacts of interference in the environment, d) prepare reports on their work and expertise, e) fluently communicate in both written and spoken language f) prepare simple scientific publications, 3) preparing the student for self-reliance, perseverance and resistance to pressure; 4) preparing the graduate to be creative in research and teamwork. In the course of the curriculum development, special attention was drawn to shaping in students the need of continuous update of knowledge and skills improvement demonstrated through the continuation of learning on postgraduate courses as well as postgraduate and doctoral studies, either at the graduate's home university, or at other universities of the region, country or abroad. The graduate is prepared to take up work in governmental and self-governmental administration institutions of various levels, control and supervisory units, industrial plants, companies and business entities as well as to set up their own company providing expert, monitoring, consulting, opinion-making and spatial planning services.
The relationship between curriculum and NCU mission and strategy:	The curriculum is aimed at transferring scientific knowledge to students and teaching them skills in analyzing the state of ecological systems and planning their further development. The curriculum provides future graduates with a solid foundation for the proper and efficient performance of duties in both national and international institutions, which is congruent with educational and cultural mission of NCU. During the curriculum development, the region's economic specificity and staffing needs were taken into account, in order to ensure its proper development. While developing the curriculum, the existing forms of nature conservation (Natura 2000 sites, biosphere reserves, specific aquatic ecosystems) and the dominant economic sectors (forestry, agriculture, municipal services, hydroenergetics) in the region were allowed for. Gearing the curriculum towards the needs of the region is included in the strategy of Nicolaus Copernicus University.
Indication of whether opinions of stakeholders, including in particular students, graduates, employers, were taken into account when formulating learning	The curriculum and the education system was developed with the participation of students. Student representatives - members of the Student Government - took active part in the works of the team responsible for the curriculum design and its consultations with the staff of the Faculty of Biology and Environmental Protection, NCU. They received the subsequent versions of the project for review and discussion of the learning outcomes and the whole project in a wider student community. Their conclusions and proposals will be included in the future versions of the

outcomes, developing, and refining study programme:	project. During the curriculum development, graduates opinions expressed during reunions and friendly meetings were also taken into consideration as well as the opinions of potential employers obtained during the meetings of the Faculty of Biology and Environmental Protection staff cooperating with business entities in the region.
Admission requirements (competences expected from the candidate) – in particular to second cycle studies:	1. These studies are intended for holders of diplomas certifying the successful completion of higher education (B.Sc., M.Sc. or Eng.) studies in the area of life sciences, science, agricultural, forestal, veterinary, medical and pharmaceutical education sciences. 2. The candidate should display knowledge of phenomena occurring in both abiotic and biotic environment. 3. The candidate has the ability to use basic mathematical and statistical methods to analyse data.

Programme modules along with expected learning outcomes

Programme modules	Course units	ECTS credits	Course type obligatory/ elective	Study area	Expected learning outcomes	Methods of assessing expected learning outcomes achieved by the student
Programme module I Statistical, mathematical and computer methods in predicting the course of natural phenomena and processes.	Statistics and modelling in environmental sciences	4	obligator.	P	(K_W11) – student has advanced knowledge of current multivariate statistical techniques (ANOVA, GLM, GAM, ordination); (K_U15) – student is able to apply multivariate techniques and to interpret the results ; (K_K01) – student understands the need for whole life learning; (K_K09) - The graduate is willing to use mathematical and IT tools in order to solve professional and research problems.	Lecture: written examina-tion; passing the assessment. Laboratory: colloquia and final Colloquium, develop a written, passing the assessment.
	Numerical methods in ecology and environmental sciences	2	obligator.	P	(K_W11) - -Describes the methods for the analysis of diversity, classification and analysis of gradientowej used in environmental sciences; (K_W12) - The graduate enumerates and characterises selected specialist computer programmes applied in the environment protection (PAST, CanoDraw, STELLA, MVSP, CANOCO, TWINSPAN, DECORANA, SYNTAX, TURBOVEG); (K_U16) - apply modern information techniques (pastes, CanoDraw, STELLA, MVSP, CANOCO, TWINSPAN, DECORANA, SYNTAX, TURBOVEG);	Lecture: written test passing the assessment. Laboratory: tests, development of written in the form of a stand-alone project, passing the assessment.

					(K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills;	
Programme module II Biotechnology and molecular methods in environmental sciences	Environmental biotechnology	4	obligator.	P	(K_W06) - The graduate describes examples of biotechnology application for the environment protection; (K_U01) - The graduate selects adequate methodology to solve research or practical problems; (K_U07) - selects an appropriate methodology to solve the problems and practical reasons connected with the protection of the environment, the graduate applies biotechnological methods to improve the quality of the environment; (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills; (K_K02) - The graduate is willing to cooperate and work in a team and assume various roles; (K_K06) - The graduate shows responsibility when determining hazards resulting from the application of various research techniques and creation of safe working conditions; (K_K11) - The graduate understands the need to search for new solutions in modern technologies.	Lecture: written examina-tion; passing the assessment. Laboratory: colloquia and final Colloquium, develop a written, passing the assessment.
Programme module III Ecological consequences of running waters regulation	Ecological consequences of running waters regulation	3	obligator.	P	(K_W04) - provides for the effects of the regulation of watercourses and discusses ways to counteract the unfavourable changes occurring in the environment as a result of the regulations; (K_U04) - evaluate the ecological effects of water regulation and propose appropriate solutions to prevent negative changes occurring in river ecosystems, or to eliminate them; (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills; (K_K04) - The graduate puts attention to details while identifying and solving professional problems; (K_K07) - The graduate is willing to update his/her knowledge of nature and recognises its practical applications; (K_K08) - The graduate is aware of problems connected with working in his/her profession and displays the ability to act in an entrepreneurial manner.	Lecture: written test, passing the assessment. Laboratory: colloquia and final Colloquium, develop a written, passing the assessment.
Programme module IV Spatial planning	Spatial planning	3	obligator.	P	(K_W07) - The graduate describes the rules of spatial planning and use; (K_U06) - The graduate assesses the environmental effects in spatial management planning; (K_U08) - The graduate prepares simple reports and formulates guidelines for expet opinions on the basis of the collected data; (K_K02) - The graduate is willing to cooperate and work in a team and assume various roles; (K_K04) - The graduate puts attention to details while identifying and solving professional problems; (K_K05) - The graduate is aware of the need to get systematically	Lecture: written examina-tion; passing the assessment. Laboratory: Colloquia, project preparation and presentation, passing the assessment.

					acquainted with scientific journals on environment protection; (K_K08) - The graduate is aware of problems connected with working in his/her profession and displays the ability to act in an entrepreneurial manner.	
Programme module V Evolution	Evolution	3	obligator.	P	(K_W02) – student has basic knowledge of the history of evolutionary thought; (K_W02) - student has basic knowledge of evolutionary mechanisms and the history of life on earth; (K_U03) - student is able to interpret biological phenomena in the light of evolutionary processes and constraints; (K_K01) – student understands the need for whole life learning; (K_K05) - The graduate is aware of the need to get systematically acquainted with scientific journals on environment protection;	Lecture: written examinat-ion; passing the assessment.
	Evolutionary ecology	3	obligator.	P	(K_W02) - lists the factors affecting ecological processes and evolutionary; (K_U03) - The graduate analyses evolutionary and physiological contexts of natural phenomena; (K_K02) - The graduate is willing to cooperate and work in a team and assume various roles; (K_K06) - The graduate shows responsibility when determining hazards resulting from the application of various research techniques and creation of safe working conditions.	Lecture: written test, passing the assessment. Laboratory: colloquia and final Colloquium, develop a written, passing the assessment.
Programme module VI Realisation of Master Thesis I	Specialisation laboratory	10	elective	P	(K_W08) - The graduate explains the rules of research planning and describes research methods within the area of study that is the focused of the Master's thesis; (K_W14) - The graduate describes the rules of preparing and writing research papers; (K_W15) - The graduate enumerates and discusses most important specialist literature in the field that is the focus of the Master's thesis; (K_U01) - The graduate selects adequate methodology to solve research or practical problems; (K_U13) - The graduate performs and describes simple research tasks individually as well as in a team; (K_U17) - The graduate plans his/her professional career and applies methods aimed at reaching assumed objectives; (K_U20) - The graduate provides research-based justification for the selection of his/her Master's thesis topic with a view to professional and research career; (K_K03) - The graduate is able to adequately specify his/her priorities in order to accomplish a task set by himself/herself or by other persons; (K_K04) - The graduate puts attention to details while identifying and solving professional problems;	Evaluation of the carried out research tasks, a written assessment of the development of the results of research, passing the assessment.

					(K_K08) - The graduate is aware of problems connected with working in his/her profession and displays the ability to act in an entrepreneurial manner;	
	Work safety regulations and ergonomics	1	elective	P	(K_W16) - The graduate enumerates and explains health and safety rules for laboratory or field work; (K_U18) - The graduate arranges his/her workstation in compliance with health and safety rules, and principles of ergonomics; (K_K06) - The graduate shows responsibility when determining hazards resulting from the application of various research techniques and creation of safe working conditions;	develop a written, passing the assessment
	Seminar	8	elective	P	(K_W13) - The graduate knows basic terms in a foreign language (English) in the field of environment protection; (K_W15) - The graduate enumerates and discusses most important specialist literature in the field that is the focus of the Master's thesis; (K_U10) - The graduate prepares simple research papers in Polish and short scientific reports in a foreign language following general standards of writing research papers; (K_U11) - The graduate presents in public the results of individual and team work; (K_U12) - The graduate is able to use specialist terminology in the field of environment protection in Polish and English; (K_U14) - The graduate combines information from various sources in order to verify the existing opinions and hypotheses; (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills; (K_K05) - The graduate is aware of the need to get systematically acquainted with scientific journals on environment protection; (K_K10) - The graduate expresses his/her critical attitude towards plagiarism.	the development of the selected problem in the form of a multimedia presentation completed discussion and drawing conclusions, passing the assessment
Programme module VII Environmental Policy	Environmental protection policy	3	obligator.	P	(K_W10) - The graduate defines premises of the environment protection policy in Poland and the EU; (K_U04) - uses knowledge of bioindykacji, skillfully uses the information on the economic and environmental effects source in the various sectors of the economy of the country and properly interpret the observations and the results of the measurements carried out by the services of the protection of the environment, leading a critical evaluation and correct inference concerning the activities of the different economic and social units, for the environment, properly interpret policy documents in the field of environmental protection and nature conservation, skillfully uses the legal instruments in reducing the book; (K_K04) - The graduate puts attention to details while identifying and solving professional problems; (K_K08) - The graduate is aware of problems connected with	Lecture: written examinat-ion; passing the assessment. Laboratory: the development of the selected problem and multimedia presentation, passing the assessment.

					working in his/her profession and displays the ability to act in an entrepreneurial manner.	
Programme module VIII Ecological technologies in agriculture and forestry	Ecological technologies in agriculture and forestry	2	obligator.	P	(K_W04) - provides for the effects of the use of environmentally unfriendly methods used in agriculture and forestry, as well as describes the ecological methods whose use in agriculture and forestry contributes to the prevention of the degradation of the enviro; (K_U04) - uses selected qualitative and quantitative methods for the evaluation of the individual ways of management and technology used in agriculture and forestry for the impact of these technologies on the natural environment; (K_U02) - interpret the observations, the results of the measurements and laboratory analysis and draws conclusions based on them on the rational use of natural space; recognises the environmental threats exist and puts the correct hypotheses regarding their causes; (K_K04) - is aware of the complexity of natural systems and their vulnerability to human impact; is ready for the permanent improvement of knowledge of environmental sciences; (K_K08) - is aware of the responsibility in the implementation of the learned profession due to severe natural consequences of decisions; It is characterized by enterprise and innovation in the application of new technologies in agriculture and forestry in so far as their implementation may have a positive impact on the environment.	Lecture: written test, passing the assessment. Laboratory: develop a written, passing the assessment.
Programme module IX Toxicology	Toxicology	3	obligator.	P	(K_W03) - The graduate explains selected ecological processes on the molecular level; (K_W05) - The graduate explains the meaning of knowledge of toxicology in the environment protection; (K_U05) - The graduate identifies toxicological hazards in natural and anthropogenic environment; (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills; (K_K06) - The graduate shows responsibility when determining hazards resulting from the application of various research techniques and creation of safe working conditions.	Lecture: written examina-tion; passing the assessment. Laboratory: colloquia and final Colloquium, passing the assessment.
	Toxicology of water environment	2	obligator.	P	(K_W05) - The graduate explains the meaning of knowledge of toxicology in the environment protection; (K_U04) - The graduate assesses the effects of human interference on the environment and suggests relevant solutions preventing negative effects or eliminating them; (K_K04) - The graduate puts attention to details while identifying and solving professional problems; (K_K06) - The graduate shows responsibility when determining hazards resulting from the application of various research techniques and creation of safe working conditions.	Lecture: written examina-tion; passing the assessment. Laboratory: colloquia and final Colloquium, passing the assessment.
Programme module X	Microbiology of water and	4	obligator.	P	(K_W04) - provides for the effects of human intervention in	Lecture:

Water and waste water microbiology	sludge				ecosystems and discusses ways to prevent water pollution; (K_U01) - selects the appropriate methodology to solve the problems associated with the health analysis and practical research of water and waste water; (K_U04) - evaluates the effects of human intervention in the aquatic environment and propose appropriate solutions in order to avoid negative effects or to eliminate them; (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills; (K_K04) - The graduate puts attention to details while identifying and solving professional problems; (K_K08) - The graduate is aware of problems connected with working in his/her profession and displays the ability to act in an entrepreneurial manner; (K_K011) - The graduate understands the need to search for new solutions in modern technologies.	written examina-tion; passing the assessment. Laboratory: colloquia and final Colloquium, develop a written, passing the assessment.
Programme module XI Basics of individual entrepreneurship	Basics of individual entrepreneurship	1	obligator.	P	(K_W17) - The graduate describes general rules of establishing and developing business activity in which knowledge of the environment protection is applied; (K_U19) - The graduate prepares documentation necessary for establishing a business providing expert, monitoring, consulting, opinion-making, or planning services; (K_K08) - The graduate is aware of problems connected with working in his/her profession and displays the ability to act in an entrepreneurial manner.	Lecture: written test, passing the assessment. Laboratory: develop a written, passing the assessment.
Programme module XII Scientific writing and scientific projects for environmental protection research	Scientific writing and publishing	2		P	(K_W14) – student has basic knowledge of preparing, writing, and submitting of scientific texts; (K_U10) – student is able to write simple scientific publications; (K_U12) – student is able to read and to understand specialised scientific publications; (K_K05) – student understands the importance of reading the scientific literature; (K_K10) - The graduate expresses his/her critical attitude towards plagiarism.	Lecture: written test, passing the assessment. Laboratory: prepared for publication and scientific report, passing the assessment.
	Raising and accounting of funds for environmental protection research projects	2	obligator.	P	(K_W09) – student has basic knowledge of funding institutions; (K_W09) – student has basic knowledge of application paths; (K_U09) – student is able to choose the appropriate funding institution; (K_K07) - The graduate is willing to update his/her knowledge of nature and recognises its practical applications;	Lecture: written test, passing the assessment. Laboratory: develop a written, passing the assessment.
Programme module XIII Realisation of Master Thesis II	Seminar	8	elective	P	(K_W13) - The graduate knows basic terms in a foreign language (English) in the field of environment protection; (K_U14) - The graduate combines information from various sources in order to verify the existing opinions and hypotheses;	the development of the selected problem in the form of a multimedia

					(K_U17) - The graduate plans his/her professional career and applies methods aimed at reaching assumed objectives; (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills; (K_K05) - The graduate is aware of the need to get systematically acquainted with scientific journals on environment protection; (K_K08) - The graduate is aware of problems connected with working in his/her profession and displays the ability to act in an entrepreneurial manner; (K_K10) - The graduate expresses his/her critical attitude towards plagiarism.	presentation completed discussion and drawing conclusions, passing the assessment
	Specialization laboratory	10	elective	P	(K_W08) - The graduate explains the rules of research planning and describes research methods within the area of study that is the focused of the Master's thesis; (K_U01) - The graduate selects adequate methodology to solve research or practical problems; (K_U13) - The graduate performs and describes simple research tasks individually as well as in a team; (K_U17) - The graduate plans his/her professional career and applies methods aimed at reaching assumed objectives; (K_U18) - The graduate arranges his/her workstation in compliance with health and safety rules, and principles of ergonomics; (K_K04) - The graduate puts attention to details while identifying and solving professional problems; (K_K06) - The graduate shows responsibility when determining hazards resulting from the application of various research techniques and creation of safe working conditions;	Evaluation of the carried out research tasks, a written assessment of the development of the results of research, passing the assessment.
	Preparation of MSc thesis	12	elective	P	(K_W14) - The graduate describes the rules of preparing and writing research papers; (K_W15) - The graduate enumerates and discusses most important specialist literature in the field that is the focus of the Master's thesis; (K_U10) - The graduate prepares simple research papers in Polish and short scientific reports in a foreign language following general standards of writing research papers; (K_U12) - The graduate is able to use specialist terminology in the field of environment protection in Polish and English; (K_U14) - The graduate combines information from various sources in order to verify the existing opinions and hypotheses;	assessment of the thesis
	MSc exam	3	elective	P	(K_W15) - The graduate enumerates and discusses most important specialist literature in the field that is the focus of the Master's thesis; (K_U11) - presents to the public the results of their own work; (K_U20) - The graduate provides research-based justification for the selection of his/her Master's thesis topic with a view to professional	evaluation of the oral exam

					and research career; (K_K03) - The graduate is able to adequately specify his/her priorities in order to accomplish a task set by himself/herself or by other persons;	
Programme module – university-wide courses or courses constituting part of another study programme		4	elective	P		passing the assessment.
Programme module – do wyboru 1A	Microorganisms of extreem environments	1	elective	P	(K_W02) - explains the functioning of ecological systems in which there is a extreme environmental parameters, indicates that the effects of the impact of extreme factors and human intervention on the part of the population of micro-organisms; (K_U02) - on the basis of the results of the study draws conclusions regarding the intensity and direction of the development of micro-organisms using a basic knowledge of physics, chemistry and biology; (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills; (K_K07) - The graduate is willing to update his/her knowledge of nature and recognises its practical applications.	Lecture: written test, passing the assessment.
	Environment of Baltic See. "Baltic University"	1	elective	P	(K_W01) - The graduate identifies and explains relations among elements of the environment; (K_W02) - provides for the effects of human intervention in the environment of the Baltic Sea and discusses ways to prevent environmental degradation; (K_U02) - The graduate takes advantage of fundamental knowledge to draw conclusions relying on the results of research carried out; (K_U04) - evaluate effects of human intervention in the environment of the Baltic Sea and proposing appropriate solutions in order to avoid negative effects or to eliminate them; (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills; (K_K07) - The graduate is willing to update his/her knowledge of nature and recognises its practical applications.	Lecture: develop a written, passing the assessment.
	Management of water resources	1	elective	P	(K_W04) - provides for the effects of human intervention in the aquatic environment and discusses ways to prevent environmental degradation; (K_U04)-assesses the impact of human intervention in the environment and propose appropriate solutions in order to avoid negative effects or eliminate them; (K_K04) - The graduate puts attention to details while identifying	Lecture: develop a written, passing the assessment.

					and solving professional problems; (K_K08) - The graduate is aware of problems connected with working in his/her profession and displays the ability to act in an entrepreneurial manner.	
Programme module – optional courses 1B	Metabolic theory of plant ecology	1	elective	P	(K_W02) explains the functioning of ecological systems in terms of metabolic basis of evolution and indicates the ecological and evolutionary consequences of interfering with human population; (K_U02) - The graduate takes advantage of fundamental knowledge to draw conclusions relying on the results of research carried out; (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills; (K_K07) - The graduate is willing to update his/her knowledge of nature and recognises its practical applications.	Lecture: written test, passing the assessment.
	Urban ecology	1	elective	P	(K_W01) - describes the specificity of physical phenomena, chemical and biological changes in ecosystems of the city; (K_W02)-natural and anthropogenic factors impact considerations of the translators and the cultural production and the operation of nature; (K_U02) - apply basic techniques of measurement and analytical and planning a range of measurements, place the data collection and processing for publication of the specifics of the structure and functioning of urban ecosystems; (K_U04) - assesses the impact of human intervention in the environment and propose appropriate solutions in order to avoid negative effects or to eliminate them; (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills; (K_K07) - The graduate is willing to update his/her knowledge of nature and recognises its practical applications.	Lecture: develop a written, passing the assessment.
	Management of protected areas	1	elective	P	(K_W04) - The graduate predicts the consequences of human interference for the natural environment and discusses ways of counteracting environment degradation; (K_U04) - evaluates the effects of human intervention in natural environment and propose appropriate solutions in order to avoid negative effects or to eliminate them; (K_K04) - The graduate puts attention to details while identifying and solving professional problems; (K_K08) - The graduate is aware of problems connected with working in his/her profession and displays the ability to act in an entrepreneurial manner.	Lecture: develop a written, passing the assessment.
Programme module – optional courses 2A	Selected problems of soil and aquatic systems	3	elective	P	(K_W04)- provides for the effects of human intervention in the environment soil and water , and discusses ways to prevent environmental degradation;	Lecture: develop a written, passing the

	restoration				(K_U04)-assesses the impact of human intervention in the environment soil and water and propose appropriate solutions in order to avoid negative effects or to eliminate them; (K_K03) - The graduate is able to adequately specify his/her priorities in order to accomplish a task set by himself/herself or by other persons; (K_K04) - The graduate puts attention to details while identifying and solving professional problems; (K_K08) - The graduate is aware of problems connected with working in his/her profession and displays the ability to act in an entrepreneurial manner.	assessment. Laboratory: develop a written, passing the assessment.
	Biocultural evolution of human	3	elective	P	(K_W02)-explains the relationship between changes in the natural environment and cultural development of human beings; (K_U04)-evaluates the effects of human intervention in natural environment; (K_K01)-the need to continually deepen their knowledge of the natural sciences, including anthropology and evolution.	Lecture: develop a written, passing the assessment. Laboratory: develop a written, passing the assessment.
	Methods of evaluation of biodiversity	3	elective	P	(K_W02) - The graduate explains the functioning of ecological systems and indicates the consequences of human interference; (K_U01) - The graduate selects adequate methodology to solve research or practical problems; (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills; (K_K03) - The graduate is able to adequately specify his/her priorities in order to accomplish a task set by himself/herself or by other persons; (K_K07) - The graduate is willing to update his/her knowledge of nature and recognises its practical applications; (K_K09) - The graduate is willing to use mathematical and IT tools in order to solve professional and research problems.	Lecture: develop a written, passing the assessment. Laboratory: develop a written, passing the assessment.
	Spatial analysis in landscape ecology	3	elective	P	(K_W12) - The graduate enumerates and characterises selected specialist computer programmes applied in the environment protection; (K_U01) - The graduate selects adequate methodology to solve research or practical problems; (K_U16) - The graduate applies modern information technologies (e.g. GIS) (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills; (K_K09) - The graduate is willing to use mathematical and IT tools in order to solve professional and research problems.	Lecture: written test, passing the assessment. Laboratory: final Colloquium, develop a written, passing the assessment.

Programme module – optional courses 2B	Land reclamation and renaturalisation of the environment	3	elective	P	(K_W04) - The graduate predicts the consequences of human interference for the natural environment and discusses ways of counteracting environment degradation; (K_U04) - assesses the impact of human intervention in natural environment and propose appropriate solutions in order to avoid negative effects or to eliminate them; (K_K03) - The graduate is able to adequately specify his/her priorities in order to accomplish a task set by himself/herself or by other persons; (K_K04) - The graduate puts attention to details while identifying and solving professional problems; (K_K08) - The graduate is aware of problems connected with working in his/her profession and displays the ability to act in an entrepreneurial manner.	Lecture: develop a written, passing the assessment. Laboratory: develop a written, passing the assessment.
	Ecology of the past antropocene	3	elective	P	(K_W02)-explains the mechanisms of changes in the environment of human life in terms of historical and depending on a variety of adaptation strategies and biomes, and describes the consequences of environmental changes the most important socio-economic changes over time; (K_U04)-uses the methods of statistical analysis, demographic and epidemiological status assessment and biological condition of human population of ancient and modern; (K_K01)-is aware of the need to continually deepen their knowledge of the natural sciences, including ecology and human biology.	Lecture: develop a written, passing the assessment. Laboratory: develop a written, final Colloquium, passing the assessment.
	Research methods of invertebrate fauna in land-water ecotones	3	elective	P	((K_W02)-explains the functioning of water-and land-based ekotonów indicates the role of the fauna of invertebrates; (K_U01)-selects the appropriate methodology to study the fauna of terrestrial invertebrate water-ecoton; (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills; (K_K03) - The graduate is able to adequately specify his/her priorities in order to accomplish a task set by himself/herself or by other persons; (K_K07) - The graduate is willing to update his/her knowledge of nature and recognises its practical applications; (K_K09) - The graduate is willing to use mathematical and IT tools in order to solve professional and research problems.	Lecture: final Colloquium, passing the assessment; Laboratory: written test, develop a written, passing the assessment.
	Spatial analysis in research of natural environment	3	elective	P	(K_W12)- name and characterize selected specialized software from the scope of the GIS and spatial data processing for analysis of environmental planning; (K_U01)-apply modern techniques of geoinformatics and the spatial analysis of selected research to solve problems; (K_U16)-visualizes the results obtained and an understanding of the spatial analysis of spatial analysis literature nature environment; (K_K01)-improving knowledge and raising their professional	Lecture: written test, passing the assessment.; Laboratory: development of written in the form of a stand-alone project, passing the

					competence of GEO and use tools and procedures geoinformatics for the analysis of the surrounding space; (K_K09)- is willing to use it tools to solve scientific problems and professional and understands the importance of GEO in a future career.	assessment..
Programme module – optional courses 3A	Ecology and conservation of marine ecosystems	3	elective	P	(K_W02) - see and comment on the links between environmental elements in the marine environment, The graduate offers the functioning of ecological systems and indicates the consequences of human interference; (K_U02) - The graduate selects adequate methodology to solve research or practical problems, The graduate combines information from various sources in order to verify the existing opinions and hypotheses; (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills; (K_K07) - The graduate is willing to update his/her knowledge of nature and recognises its practical applications.	Lecture: final Colloquium, passing the assessment; Laboratory: develop a written, passing the assessment.
	Ecological modelling	3	elective	P	(K_W11) - The graduate describes statistical methods and modelling principles applied in environmental studies; (K_U15) - The graduate applies environmental models to interpret changes occurring in animate and inanimate nature; (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills; (K_K09) - The graduate is willing to use mathematical and IT tools in order to solve professional and research problems.	Lecture: develop a written, passing the assessment. Laboratory: develop a written, passing the assessment.
	Plant production under stress condition	2	elective	P	(K_W02)-explains the functioning of the crop in terms of water deficit, food substances and excessive accumulation of salts in soils indicates the types and effects of deliberate human intervention; (K_U02)-uses knowledge of plant growth under conditions of stress pulling applications on the basis of the results of the study; (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills; (K_K05) - The graduate is aware of the need to get systematically acquainted with scientific journals on environment protection; (K_K07) - The graduate is willing to update his/her knowledge of nature and recognises its practical applications.	Lecture: written test, passing the assessment.
Programme module – optional courses 3B	Ecology of microorganisms	3	elective	P	(K_W02)-explains the role of micro-organisms in the functioning of the systems; (K_U02)- uses knowledge of ecology and microbiology to drawing conclusions on the basis of the results of the study; (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills;	Lecture: written test, passing the assessment.; Laboratory: colloquia and final Colloquium,

					(K_K07) - is eager to update knowledge of ecology and microbiology and recognises its applications.	develop a written, passing the assessment
	Contemporary methods of ecological groups analysis	3	elective	P	(K_W11) - has basic knowledge of contemporary methods in community ecology; (K_U15) - is able to perform own simple community analyses; (K_U15) - is able to interpret published community analyses; (K_K01) - The graduate understands the need for lifelong learning and improving professional competences and skills; (K_K09) - The graduate is willing to use mathematical and IT tools in order to solve professional and research problems.	Lecture: written test, passing the assessment. Laboratory: colloquia and final Colloquium, develop a written, passing the assessment.
	Basics in population ecology, viability analysis, and demography	2	elective	P	(K_W02) - Student has basic knowledge of populations and population dynamics; (K_W02) - Student has basic knowledge of demography and population models; (K_U02) - Student is able to perform own simple demographic analyses; (K_U02) - Student is able to assess the viability of natural populations; (K_K01) - Student understands the need for whole life learning; (K_K05) - The graduate is aware of the need to get systematically acquainted with scientific journals on environment protection; (K_K07) - The graduate is willing to update his/her knowledge of nature and recognises its practical applications.	Lecture: written test, passing the assessment.

Detailed allocation of ECTS credits*				
Programme modules	**Courses**	**ECTS credits** **forthe learning outcomes achieved in courses requiring direct participation of the teacher**	**ECTS credits** **for the learning outcomes achieved in practical courses, including laboratories and projects**	**ECTS credits** **for the learning outcomes achieved in courses fundamental for the area of study, which the programme of study, its level and profile are referred to**
Programme module I Statistical, mathematical and computer methods in predicting the course of natural phenomena and processes.	Statistics and modelling in environmental sciences	1,6	2	4
	Multivariate analysis of ecological data	1,2	1	2
Programme module II Biotechnology and molecular methods in environmental sciences	Environmental biotechnology	1,4	2	4
Programme module III Ecological consequences of running waters regulation	Ecological consequences of running waters regulation	1,2	2	3
Programme module IV Spatial planning	Spatial planning	1,2	2	3
Programme module V Evolution	Evolution	0,8	-	3
	Evolutionary ecology	1,4	2	3
Programme module VI Realisation of Master Thesis I	Specialisation laboratory	2	10	10
	Work safety regulations and ergonomics	0,4	1	1
	Seminar	2,4	8	8
Programme module VII Environmental Policy	Environmental protection policy	1,8	1	3
Programme module VIII Ecological technologies in agriculture and forestry	Ecological technologies in agriculture and forestry	1,2	1	2
Programme module IX Toxicology	Toxicology	1,2	1	3
	Toxicology of water environment	1,2	1	2
Programme module X	Microbiology of water and sludge	1,4	2	4

Water and waste water microbiology				
Programme module XI Basics of individual entrepreneurship	Basics of individual entrepreneurship	0,4	-	1
Programme module XII Scientific writing and scientific projects for environmental protection research	Scientific writing and publishing	0,6	1,5	2
	Raising and accounting of funds for environmental protection research projects	1	1,5	2
Programme module XIII Realisation of Master Thesis II	Seminar	2,4	8	8
	Specialization laboratory	2	10	10
	Preparation of MSc thesis	-	12	12
	MSc exam	-	3	3
Programme module – university-wide courses or courses constituting part of another study programme		2,4	-	4
Programme module – optional courses 1A	Microorganisms of extreem environments	0,6	-	1
	Environment of Baltic See. "Baltic University"	0,6	-	1
	Management of water resources	0,6	-	1
Programme module – optional courses 1B	Metabolic theory of plant ecology	0,6	-	1
	Urban ecology	0,6	-	1
	Management of protected areas	0,6	-	1
Programme module – optional courses 2A	Selected problems of soil and aquatic systems restoration	1	2	3
	Biocultural evolution of human	1	2	3
	Methods of evaluation of biodiversity	1	2	3
	Spatial analysis in landscape ecology	1	2	3
Programme module – optional courses 2B	Land reclamation and renaturalisation of the environment	1	2	3
	Ecology of the past antropocene	1	2	3
	Research methods of invertebrate fauna in land-water ecotones	1	2	3
	Spatial analysis in research of natural	1	2	3

	environment			
Programme module – optional courses 3A	Ecology and conservation of marine ecosystems	1	2	3
	Ecological modelling	1	2	3
	Plant production under stress condition	0,6	-	2
Programme module – optional courses 3B	Ecology of microorganisms	1	2	3
	Contemporary methods of ecological groups analysis	1	2	3
	Basics in population ecology, viability analysis, and demography	0,6	-	2
Total:		**37,6**	**84**	**120**
% of ECTS credits the student has achieved for the courses in the areas of humanities and social sciences:		**4,2 %**		
% of ECTS credits the student has achieved as a result of choosing the module:		**62,5 %**		
The percentage share of ECTS credits for each area (where a field of study is assigned to more than one study area):		**-**		
The percentage share of ECTS credits the student has achieved for the course modules linked with scientific research in the area of science or art relating to this field of study; the course purpose is to equip the student with deepened knowledge and skills to conduct scientific research (applies to general academic profile)		**54,2 %**		
The percentage share of ECTS credits the student has achieved for the course modules linked with practical vocational training; the course purpose is to equip the student with practical skills and social competences (applies to practical profile)		**-**		

This study programme is effective from I semester of the academic year 2015/2016.

This study programme was adopted by the Board of Faculty of Biology and Environmental Protection on 5.12.2014 r.

(Dean’s signature)