

APPROVED BY
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of Education and Science of the
Republic of Lithuania
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DESCRIPTOR OF THE STUDY FIELD OF STATISTICS

CHAPTER I

GENERAL PROVISIONS

1. The Descriptor of the study field of Statistics (hereinafter referred to as the Descriptor) shall govern the special requirements applied to the study programmes of the study field of Statistics.

2. The Descriptor has been prepared in accordance with the Law on Higher Education and Research of the Republic of Lithuania, taking into account Resolution No 535 of the Government of the Republic of Lithuania of 4 May 2010 “On the Approval of the Descriptor of the Lithuanian Qualifications Framework”, Order No V-2212 of the Minister of Education and Science of the Republic of Lithuania of 21 November 2011 “On the Approval of the Descriptor of Study Cycles”, Order No V-501 of the Minister of Education and Science of the Republic of Lithuania of 9 April 2010 “On the Approval of the Descriptor of General Requirements for Degree-Awarding First Cycle and Integrated Study Programmes”, Order No V-826 of the Minister of Education and Science of the Republic of Lithuania of 3 June 2010 “On the Approval of the Descriptor of General Requirements for Master’s Study Programmes”, Order No V-2463 of the Minister of Education and Science of the Republic of Lithuania of 15 December 2011 “On the Approval of Recommendations for Developing the Descriptor of a Study Field or Study Fields”.

3. Study programmes of the study field of Statistics may be carried out only in universities. The Descriptor shall be applied to the first and second cycle university studies of the study field of Statistics.

4. This Descriptor aims to:

4.1. Assist higher education institutions in designing, implementing and assessing study programmes of the study field of Statistics;

4.2. Define statistician’s education and inform the academic community, employers and the public about knowledge and skills acquired in the studies of the study field of Statistics;

4.3. Give guidelines to experts who assess study programmes of the study field of Statistics;

4.4. Contribute to the development of training systems for statisticians.

5. The Descriptor shall be applied to the following branches of the study field of Statistics: Applied statistics; Probability theory; Random processes; Statistical modelling; Mathematical statistics.

6. Upon completion of studies of the study field of Statistics, the higher education qualification is acquired:

6.1. After completing the first cycle studies, a Bachelor's degree in Statistics or Applied statistics, Statistical modelling and Mathematical statistics is acquired by issuing a Bachelor's diploma by the university;

6.2. After completing the second cycle studies, a Master's degree in Statistics or Applied statistics, Statistical modelling and Mathematical statistics is acquired by issuing a Master's diploma by the university.

7. The issued Bachelor's or Master's degree diploma shall reflect the level of learning outcomes.

8. Studies of the study field of Statistics may be organised on a full-time and/or part-time basis.

9. Study programme of the study field of Statistics of the first cycle studies may be designed to:

9.1. Studies of the study field of Statistics, which lead to a Bachelor's degree in Statistics, and study subjects set by the higher education institution and elected by the student for deeper specialisation in the chosen branch of that study field or practical training;

9.2. Studies of the study field of Statistics, which lead to a Bachelor's degree in Statistics, and module (modules), subject (subjects) or practical training of other field (branch) set by the higher education institution and elected by the student;

9.3. Studies of the study field of Statistics, which lead to a Bachelor's degree in Statistics, and study subjects over the necessary scope of general university subjects (outlook and general erudition subjects that are not directly related to the main field of study content) set by the higher education institution and elected by the student;

9.4. Two-field studies (main study field of Statistics and minor studies set by the higher education institution and/or elected by the student), leading to a double degree (main study field of Statistics and a relevant minor study field). In this case, the minimum scope of studies is 240 credits.

10. Study field of Statistics may be a minor field in the first cycle study programmes.

11. General enrolment requirements shall be:

11.1. Persons with at least secondary education shall be enrolled to first cycle study programmes of the study field of Statistics in an enrolment contest, taking into account their learning outcomes, entrance examinations or other criteria established by the higher education institution. Higher education institutions shall establish a list of competitive subjects by field of

study and principles for the award of contest points, the lowest possible entrance grade and other criteria, having received the assessment of student representation, and publish them no later than 2 years preceding the start of the school year.

11.2. It is recommended to enrol the persons with higher education qualification and having completed study programme of the study field of Statistics or having achieved such learning outcomes during the first cycle studies that ensure their readiness to participate in the Master's study programmes of the study field of Statistics to the second cycle studies of the study field of Statistics, following the procedure established by the higher education institution. Their readiness for studies may be achieved by attending supplementary studies.

12. Study programmes of the first and second cycle studies of the study field of Statistics have the following main objectives:

12.1. To develop statistical thinking and broad erudition;

12.2. To provide knowledge and develop the skills needed to work in statistics-related fields;

12.3. To develop the ability to maintain and enhance professional competence through life-long learning.

13. The granted Bachelor's degree corresponds to the sixth level of the Lithuanian Qualifications Framework and the European Qualifications Framework for Lifelong Learning, as well as the first cycle of the Framework for Qualifications of the European Higher Education Area, whereas the Master's degree corresponds to the seventh level of the Lithuanian Qualifications Framework and the European Qualifications Framework for Lifelong Learning, as well as the second cycle of the Framework for Qualifications of the European Higher Education Area.

CHAPTER II

CONCEPT AND SCOPE OF THE STUDY FIELD

14. Statistics is a scientific direction which investigates quantitative aspects of the society and natural phenomena together with the qualitative content of those phenomena. Practical training of Statistics consists of data collection, aggregation and interpretation, planning of statistical experiments of uncertain and volatile nature, statistical surveys and generalisation of their results.

15. Branches of Statistics:

15.1. Applied statistics deals with the application of statistical methods in the investigated areas (such as medical, sports, agriculture, etc.);

15.2. Probability theory develops mathematical foundations for randomness and risk analysis;

15.3. Random processes investigate systems or phenomena with uncertainties;

15.4. Statistical modelling applies statistical tools for modelling and simulating real-world systems and processes;

15.5. Mathematical statistics justifies statistical methods mathematically.

16. Object of studies of Statistics is the theory and practical training in the field of data collection, processing and visualization, analysis and interpretation of results. Studies of Statistics cover a wide range of theoretical and practical knowledge, as well as Mastering statistical software.

17. Study process helps to acquire strong IT basics, emphasizing the skills to create and manage databases, to programme using at least one programming language suitable to Statistics and to work with statistical or mathematical software.

18. The subjects studied shall include Mathematical analysis, Linear algebra, Probability theory, Statistics (Mathematical and applied statistics and Statistical methods). Subjects of the selected branches of Statistics shall be clearly reflected in the study programmes (for example, planning of a statistical experiment – in the branch of Applied statistics, measurement theory – in the branch of Mathematical statistics). Among the subjects studied may be Mathematical modelling, Data visualization, Random processes, Multivariate statistical analysis, Planning of experiments, Sampling theory, Statistical modelling, and more. The first year of studies shall include IT subjects that are needed to Master statistical and mathematical software and to apply for statistical data in practice.

19. First cycle study programmes of the study field of Statistics shall also develop the skills of at least one of other study fields, such as Public policy, Economics, Psychology, Sociology, Agriculture, Engineering, Medicine, Genetics, and so on.

20. A deeper interdisciplinary specialisation in statistics may be achieved by a double qualification degree: the main study field (branch) of Statistics and a minor other study field (branch) or a combination of qualification degrees of the other main study field (branch) and a minor study field (branch) of Statistics.

21. Having completed study programmes of Statistics, the individuals can work in both the private and public sectors. Standard positions held by graduates of the study field of Statistics may include: a statistician, survey statistician, biometrics statistician, demographic statistician, economic statistician, financial statistician, natural sciences statistician, engineering statistician, mathematics statistician, public opinion polls statistician, education statistician, agricultural statistician, statistics lecturer at a higher education institution, researcher, insurance company statistician.

CHAPTER III

GENERAL AND SPECIAL LEARNING OUTCOMES

22. Learning outcomes of the study field of Statistics in specific study programmes are transformed into learning outcomes of study programmes by forming a study curriculum and process.

23. Learning outcomes of the study field of Statistics of the first cycle studies shall be:

23.1. Knowledge and its application:

23.1.1. Knowledge of Mathematics basics (mathematical calculations, linear algebra, probability theory) and ability to apply it for solving statistical tasks;

23.1.2. Knowledge of theoretical basics of Mathematical statistics and Statistical data analysis, and knowledge of the narrower field of Statistics (e.g., sampling methods, parametric and non-parametric methods, multivariate statistics, regression analysis, planning of statistical experiments, statistics of random processes; survival analysis, etc.) and ability to apply it for statistical work in practice;

23.1.3. Knowledge of IT basics and ability to use statistical or mathematical software in statistician's practice;

23.1.4. Knowledge of basics of at least one field of application of Statistics (economics, sociology, engineering or similar) and ability to apply it for statistical work in practice.

23.2. Research skills:

23.2.1. Ability to formulate research objectives and tasks;

23.2.2. Ability to identify and analyse literature, to collect data from the given sources, to process and analyse the information received;

23.2.3. Ability to develop statistical data analysis reports and interpret the results of statistical analysis, to formulate conclusions, to apply the known methods for presenting statistical information;

23.2.4. Ability to simulate phenomena, processes and situations by using statistical tools.

23.3. Special abilities:

23.3.1. Ability to use mathematical language and classical concepts of mathematics, to solve statistical problems using mathematical tools;

23.3.2. Ability to understand statistical texts, correctly use statistical terms, solve practical problems in statistics, based on acquired knowledge and practical skills;

23.3.3. Ability to plan statistical surveys, collect data, choose the appropriate statistical data analysis methods and to apply them in solving various practical problems;

23.3.4. Ability to carry out statistical projects, working independently and in a group.

23.4. Social abilities:

23.4.1. Ability to adequately understand the role of Statistics, interact constructively with colleagues and data providers, users of data analysis results and the general public in respect of fundamental questions of the application of Statistics;

23.4.2. Ability to convey knowledge and understanding acquired during studies and activity field knowledge and understanding to professionals and the general audience;

23.4.3. Ability to take responsibility for the quality of one's own activity and its assessment in accordance with professional ethics.

23.5. Personal abilities:

23.5.1. Ability to learn independently and improve skills in the selected branches of Statistics and its application scope, and to plan the learning process;

23.5.2. Ability to search for information using modern information technologies, assess its reliability, and to adequately deal with confidential data;

23.5.3. Ability to organise professional activities, plan time and resources, apply the acquired knowledge and skills, changing the activity and its nature; to be aware of the moral responsibility for the impact of activity and its results on social, economic and cultural development, welfare and the environment;

23.5.4. Ability to critically assess one's own profession, knowledge and values, to reflect one's own growth as a professional, being aware of the importance of lifelong learning.

24. Learning outcomes of the study field of Statistics of the second cycle studies shall be:

24.1. Knowledge and its application:

24.1.1. Deeper knowledge and skills of mathematical methods applied in statistics and ability to apply them in solving fundamental or applied research tasks;

24.1.2. Deeper knowledge and skills of Mathematical statistics and ability to apply them in solving theoretical and/or practical statistical tasks;

24.1.3. Deeper knowledge and skills of selected statistics branch or a broader statistical data analysis and ability to apply them creatively in a new and unfamiliar environment and/or interdisciplinary context.

24.2. Research skills:

24.2.1. Ability to plan and carry out statistical research in a new and unfamiliar environment and/or interdisciplinary context;

24.2.2. Ability to apply specialised data collection and management methods, by carrying out research in a new and unfamiliar environment and/or interdisciplinary context;

24.2.3. Ability to develop statistical research reports, to interpret the results of statistical analysis, to formulate and reason conclusions, and to apply them when taking decisions;

24.2.4. Ability to discuss fundamental issues of statistical research.

24.3. Special abilities:

24.3.1. Ability to analyse complex, not fully defined systems and processes, integrating knowledge from different fields, applying statistical models and using statistical or mathematical software;

24.3.2. Ability to compare and critically assess statistical modelling results, to search for the best solutions, to assess the adequacy of the model, its accuracy and reliability, and, where necessary, to improve models;

24.3.3. Ability to understand the scientific statistical literature and to use research knowledge in resolving theoretical and practical statistical problems;

24.3.4. Ability to adequately understand statistical problems, to creatively select the most appropriate combinations of statistical methods for sophisticated data analysis;

24.3.5. Ability to develop and carry out statistical projects.

24.4. Social abilities:

24.4.1. Ability to professionally discuss statistical issues with experts of one's own field and other fields;

24.4.2. Ability to take responsibility for one's own actions and follow professional ethics;

24.4.3. Ability to work in a team that is composed of different specialists of different areas.

24.5. Personal abilities:

24.5.1. Ability to critically assess one's own and others' professional experience, to select independently the direction of development and to continue to learn in order to constantly improve the skills as a professional;

24.5.2. Ability to search for and find the latest information and to assess its reliability;

24.5.3. Ability to be aware of the moral responsibility for the impact of statistical literacy, statistician's activity and its results on social, economic and cultural development.

CHAPTER IV

TEACHING, LEARNING AND ASSESSMENT

25. Teaching, learning and assessment activities shall be organised in such a way that students can effectively achieve the intended learning outcomes.

26. The following methods should (?) be applied in the study programmes of the study field of Statistics: lectures, practicals, seminars, computer-based learning, individual or small group counselling, problem-based learning and problem solving, case studies, project-based training

(individual and group projects), oral presentation of projects with peer assessments, modelling and simulation, research-based teaching, analysis of statistical ideas and statistical reports, use of public statistical information, real data analysis, cognitive and instructional practices, teaching under the individual plan and other innovative methods suitable for achieving the intended learning outcomes.

27. The same methods may be applied in different cycle studies, but the complexity of given tasks should vary, as well as the student's self-sufficiency rate:

27.1. First cycle students shall be given specific tasks and a detailed individual work plan;

27.2. Second cycle students can offer topics for project works themselves, generate ideas for their implementation, and self-search for information;

27.3. In the second cycle studies, teaching of subjects of Statistics is recommended to be based on the latest scientific achievements.

28. Strategy for the assessment of students' learning outcomes has to ensure that students reach the intended learning outcomes, and the Mastery of theory and the skills for its practical application should be considered together.

29. Assessment of learning outcomes should focus the learning process on the development of a student's ability to study, based on current knowledge of statistics and its minor scientific fields.

30. Assessment of learning outcomes is conducted following the procedure approved by a higher education institution, which sets the principles for the assessment of learning outcomes of the first and second cycle studies, the procedure of its organisation, responsibility of persons involved in the assessment of learning outcomes, their rights and obligations. The assessment procedure should establish that teachers provide information to students about their work performed, the justification of assessment and proposals to achieve a higher level of learning outcomes. Students shall timely receive information about their work with constructive comments based on clear assessment criteria.

31. A teacher, evaluating the student's learning outcomes, shall follow the principles of objectivity, impartiality, transparency, mutual respect and benevolence.

32. Scoring system shall allow observation of the movement towards the desired outcomes, to identify changes, to timely detect deviations, to maintain feedback and provide a possibility for adjustments. Knowledge and skills described in learning outcomes should be assessed in the most appropriate way to show that students have those abilities.

33. Assessment of students' learning outcomes may be:

33.1. Constant – by performing self-study tasks, laboratory work, seminars, training, etc. in the study process;

33.2. Intermediate – after completing a certain stage of studies (completion of a part of subject (module) studies). It is recommended to use a variety of learning outcomes assessment methods: colloquium, control work, laboratory work report and defence, oral report, and others;

33.3. Final – at the end of the subject (module) studies; time is established by the higher education institution. The most commonly practiced assessment methods are closed-book or open-book examinations; written examination, written and oral examination, examination in the form of a test, individual or group project report, internship report, computer-performed tasks, etc.

34. Assessment of learning outcomes shall be based on clear assessment criteria linked to the outcomes of study programme and study subject and the established threshold level of study results. Student assessments should reflect the level of achieved learning outcomes with regard to all intended learning outcomes.

35. Strategy for the assessment of learning outcomes shall be documented. At the beginning of the semester a teacher provides students with a detailed study subject programme, its objectives, the intended learning outcomes, assessment criteria of learning outcomes of the taught subject and their structure: components of the final assessment, assessment terms, impact of intermediate assessments on the final grade, the procedure of regular assessments, etc.

36. Students shall be able to provide feedback to the teacher in order to improve study efficiency and improve the quality of teaching, as well as discuss with teachers various aspects of studies.

CHAPTER V

REQUIREMENTS FOR THE IMPLEMENTATION OF STUDY PROGRAMMES

37. Teaching of all study programmes of the study field of Statistics is based on competent and qualified teachers. Teachers' competence is assessed according to their scientific, pedagogical and practical experience based on the criteria established by the higher education institution such as participation in research, ability to apply innovative teaching methods, recognition in professional, scientific communities, participation in qualification improvement programmes, conferences and others.

38. Qualification requirements for teachers are established by higher education institutions.

39. In the study programme of the study field of Statistics of the first cycle studies, at least half of study field subjects should be taught by scientists.

40. In the study programme of the study field of Statistics of the second cycle studies, at least 80 percent (or 60 percent, if the study programme is focused on practical training) of all subjects should be taught by scientists, among them at least 60 percent (or 40 percent, if the study programme of Statistics is focused on practical training) of field subject teachers' scientific activities shall comply with their taught subjects. If a study programme is focused on practical training, up to 40 percent of teachers of Statistics field subjects may be practitioners, who in the past 7 years had acquired at least 3 years of professional experience conforming to the taught subjects. At least 20 percent of the scope of study field subjects in the second cycle studies shall be taught by teachers holding professor's position.

41. The first cycle study programme of the study field of Statistics shall be completed by the assessment of graduate's competency during the defence of a final work (project), which receives at

least 12 credits. If a double Bachelor's degree is provided, final papers (projects) of the main study field (branch) of Statistics and a minor study field (branch) shall be provided, which can be integrated into one, by attributing them at least 15 study credits in total.

42. Bachelor's final thesis (project) shall be based on independent applied research, application of knowledge or prepared as a project revealing the abilities conforming to programme objectives. With the final thesis (project), Bachelor shall demonstrate the level of knowledge and understanding, the ability to discuss the chosen topic, to assess the works previously performed by other individuals in the study field of Statistics.

43. At least 30 credits are given to develop and defend the Master's thesis (project). Master's final thesis shall be based on independent theoretical or applied research, application of knowledge or prepared as a project revealing the abilities conforming to study programme objectives. With the final thesis (project), Master shall demonstrate the level of knowledge and understanding, the ability to discuss the chosen topic, to assess critically the works previously performed by other individuals in the study field of Statistics, to study independently and perform research in the study field of Statistics, to provide interpretations of research results, to clearly and reasonably formulate research findings and recommendations.

44. Final Thesis (project) Evaluation Commission shall be set up for a specific study cycle. It is recommended to include competent statistical experts – scientists, professional practitioners, and representatives of social partners. The Master's Thesis Defence Commission shall include at least one member of academic and research institutions other than the study programme implementing authority.

45. Requirements for the material and methodological base of studies shall be:

45.1. Number of used classrooms, computer classes, laboratories and other teaching facilities and places in them, their installation and arrangement shall meet the learning needs and hygiene requirements;

45.2. Work of technical and administrative services shall create adequate conditions for students to acquire practical skills;

45.3. Information technology infrastructure shall be sufficient and designed for study process participants; appropriate statistical or mathematical software shall be installed;

45.4. Teaching material and references shall be available in the library and/or the virtual environment and information databases; a sufficient number of textbooks, books, magazines and other literature copies of all taught subjects of statistics, mathematics and IT science fields shall be ensured, and their number shall meet the students' needs;

45.5. Statistical databases shall be developed for practical teaching purposes or an access to external databases shall be provided.

46. Statistics practical training shall be an integral and mandatory part of the first cycle studies of the study field of Statistics. Scope of professional practical training in this cycle shall be not less than 15 credits. In the second cycle study programmes, depending on the nature of the study programme, the scope of professional practical training is established by the higher education institution.

47. Statistics practical training shall be organised in accordance with the procedure for professional practical training organisation developed by the higher education institution, which shall define the requirements for practical training, practical training tasks, intended learning outcomes and the system for the assessment of learning outcomes, support for students during the practical training, as well as the criteria used to recognise and assess the level of skills acquired by a student during the practical training.

48. It is recommended to allocate no less than 15 percent of practical training time at all levels of study cycles to individual and/or group consultations given by a lecturer appointed by the university.

49. Nature of the recommended practical training is final practical training, when the tasks carried out are directly related to the final thesis (project).

50. Supervisors in the company, institution or organisation (hereinafter referred to as the Practical training institution) shall be included in the improvement of the content of practical training tasks and organisation of practical training. A higher education institution shall be responsible for the organisation of training for practical training supervisors (in practical training institutions). It shall offer the students a list of possible placements, in relation to which cooperation contracts are signed. A student may find its practical training location himself/herself, in agreement with the higher education institution. After selecting the practical training institution, a tripartite agreement shall be signed between the student, higher education institution and practical training institution.

CHAPTER VI

DESCRIPTION OF LEVELS OF ACHIEVED LEARNING OUTCOMES

51. Learning outcomes achieved by the students of the first cycle studies of the study field of Statistics are divided into three achievement levels: excellent, standard and threshold.

51.1. Excellent achievement level:

51.1.1. Understanding of Statistics and practical abilities related to Statistics are complete, higher than the standard level. Knowledge and practical skills are adapted to new situations and new knowledge is quickly acquired;

51.1.2. Actions related to the indicated concepts and methods are carried out smoothly and confidently, software designed for data analysis is successfully used in unfamiliar and original situations, complex and non-standard tasks are solved, the acquired theoretical knowledge is creatively used, selecting statistical methods and tools to solve the applied tasks. Problems and their solutions are assessed critically. Statistical task results are understood and properly interpreted and reasoned findings are made;

51.1.3. Project or project work is planned, carried out and described only with a small external assistance. By analysing and discussing the results of the work, original thinking is clearly

evidenced, as well as excellent knowledge of literature and relevant practical training. There is a clear plan for future activities;

51.1.4. Excellent general abilities are demonstrated. A graduate can work independently, if necessary, receiving advice of experienced professionals;

51.1.5. Graduates who completed the studies of this level are recommended to continue studies in the second cycle. A graduate with acquired professional experience becomes a great practitioner. Career prospects include research and significant managerial responsibility, therefore a person can take higher-level posts. A graduate is recommended to continue academic or begin a professional career.

51.2. Standard achievement level:

51.2.1. Understanding of Statistics and practical abilities related to Statistics are good and cover the entire study programme. A student understands what knowledge and skills can be adapted to new situations. He/she can clearly show how to apply problem-solving methods. New knowledge is easily acquired;

51.2.2. Understanding of statistical facts and applied research methods is good. Activity or problem-solving methods are smoothly and confidently applied in a number of field themes. Actions related to the indicated concepts and methods are carried out well, software designed for data analysis is used in not quite strictly defined situations, the acquired theoretical knowledge is used in solving tasks of moderate difficulty and selecting statistical methods and tools to solve applied problems, and the meaning of received results is properly interpreted;

51.2.3. Project or project work is planned, carried out and described with a certain external assistance. The results of work are analysed and discussed competently. Good understanding of scientific literature and the relevant activity practices with suggestions for future activities;

51.2.4. Students have good general abilities to manage the agenda. They are able to work independently with additional material. Students can work professionally, if necessary, support is granted;

51.2.5. It can be expected that a graduate, having acquired professional experience, will be a good practitioner, capable of showing good expert knowledge, taking significant managerial responsibility and being able to take higher-level posts.

51.3. Threshold achievement level:

51.3.1. Understanding of basic statistical concepts and methods included in the study programme is below the standard level. He/she can satisfactorily use the software designed for statistical data analysis, when situations are known and clearly defined. A graduate applies available knowledge to solve tasks and examine statistical data according to given examples and is able to act by analogy;

51.3.2. Project or practical work is planned and carried out quite successfully when a graduate is guided and, if necessary, is given support to explain and discuss the results;

51.3.3. A graduate has good general abilities. Having acquired professional experience, he/she can become a good practitioner, showing expert knowledge;

51.3.4. Having gained relevant professional experience, he/she could become a good practitioner of a specific field, where knowledge and understanding of the methods is critical, but there is no need to regularly apply fundamental knowledge. A graduate can work professionally, if he/she is guided and support is provided.

52. Learning outcomes achieved by the students of the second cycle studies of the study field of Statistics are divided into three achievement levels: excellent, standard and threshold.

52.1. Excellent achievement level:

52.1.1. Demonstrates exceptional knowledge of modern statistical methods and excellent understanding of the concepts of these methods, higher than the standard level. He/she has excellent knowledge of individual statistical fields;

52.1.2. Creatively solves theoretical and practical tasks in interdisciplinary fields of Statistics, using the methods mentioned above and appropriate software. He/she finds problems in interdisciplinary fields of Statistics, abstractly formulates tasks and looks for ways to resolve them;

52.1.3. A graduate logically interprets the results and makes reasoned conclusions. He/she pays particular attention to independent and supplementary studies;

52.1.4. He/she can work independently in a team of professionals and interdisciplinary team, organise professional activities, successfully develop statistical methods, carry out research and convey knowledge to others.

52.2. Standard achievement level:

52.2.1. A graduate has a good understanding of modern statistical methods and their concepts. He/she has deep knowledge of specific statistical fields and is able to select, adapt and compare statistical methods used to solve practical problems;

52.2.2. A graduate knows how to use modern statistical or mathematical software. He/she can independently find and assimilate options of the necessary statistical methods and computer software. He/she can logically interpret the obtained results. A graduate is able to compare several ways of the same problem-solving and find the best way according to the selected criteria;

52.2.3. He/she can abstractly formulate practical tasks in mathematical language and deal with them independently; also, where appropriate, cooperate with other professionals to perform tasks;

52.2.4. He/she can work independently in a team of professionals and interdisciplinary team and organise professional activities.

52.3. Threshold achievement level:

52.3.1. A graduate has the understanding of knowledge of modern statistical methods included in the study programme and its concepts, as well as a deeper knowledge of certain statistical fields that fall below the standard level;

52.3.2. He/she can adequately solve modern statistical data analysis tasks by analysing clearly defined problems of other science fields using the given methods. He/she applies suitable computer software;

52.3.3. A graduate can clearly and logically interpret the results and present conclusions resulting from the statistical data analysis;

52.3.4. He/she can work professionally, if necessary, receiving advice of experienced professionals.
