

APPROVED

in the meeting of the of the Council of the
Faculty of Veterinary Medicine of the Lithuanian
University of Health Sciences of 02 September
2015
Minutes No. 02

AMENDMENTS APPROVED

in the meeting of the of the Council of the
Faculty of Veterinary Medicine of the Lithuanian
University of Health Sciences of 07 September
2021
Minutes No. VF10-12

PROCEDURE OF PREPARATION, DEFENCE AND EVALUATION OF MASTER THESES OF THE STUDY PROGRAMME OF VETERINARY MEDICINE

I. GENERAL PART

1. This procedure defines the preparation, defence and evaluation of Master Theses of the study programme of Veterinary Medicine at LSMU Veterinary Academy (hereinafter referred to as an Academy).
2. The procedure is based on the following legal acts:
 - 2.1. Law on Education and Science of the Republic of Lithuania (No. XI-242 of 29th June 2016, Amendment Act No. XII-2534).
 - 2.2. Order No. V-1168 of the ministry of Education and Science of the Republic of Lithuania “General Requirements for implementation of studies” of 30 December 2016 (TAR, 2016, No. 30192).
 - 2.3. Regulation of the Studies of the Lithuanian University of Health Sciences (approved by the Decree No. 148-03 of the LSMU Senate on 22 April 2021).
 - 2.4. Description of the Study Field of Veterinary Medicine approved by the Order No. V-1687 of the Ministry of Education and Science of 04 November 2020.
 - 2.5. Regulations of Preparation of E-Documents of LSMU Master Theses, Doctoral Dissertations or Summaries of Monographs, their Presentation for Downloading and Downloading to the Storage Media of Information System of E-Documents of the Lithuanian Science and Studies and their Usage Procedure (approved by the Senate’s Decree No. 5-02 of 21 January 2011).
 - 2.6. Manual of Standard Operating Procedure ((ESEVT SOP 2019 as amended in December 2020).

II. MAIN CONCEPTS, FUNCTIONS, DUTIES AND RESPONSIBILITY

3. **Master Thesis** (thesis) – the qualifying independent and original work under the topic relevant for the study programme and selected independently by the student, and based on the carried-out scientific researches.
 - 3.1. The Master thesis reveal the ability to carry out the scientific search, generalization, use the acquired knowledge, solve the particular scientific tasks, create and adapt the most frequent ideas formed by the scientific researches, and to improve the critical thinking. The thesis is characterized by the description of new researches or regularities and generalization of well-known research methodologies on the basis of other scientists’ findings in the particular study area.

- 3.2. The Master thesis should be of applicable nature and have elements of practical research work, i.e. it should consist of material of clinical research performed by the student, veterinary manipulations, processes analysis, inspections, expertises or experiments. Data should be systemized, analysed and conclusions concluded in the thesis. The Master thesis should reflect the intellectual maturity, theoretical scientific knowledge, practical skills, professional competence, and readiness for independent scientific and practical work of the student.
4. **Author of the Master Thesis** (student/graduate) – the person, who studies the study programme of Veterinary Medicine at University. The student shall prepare the thesis according to the syllabus and the present document, while s/he shall have a right to defend the thesis only upon completion of all the academic requirements of the study programme.
5. The student's duties in the course of preparation and defence of the thesis:
- 5.1. To select the thesis' topic and supervisor of Master Thesis (hereinafter – supervisor) in appropriate unit/clinic/institute (hereinafter – department) at the set time.
 - 5.2. To prepare individual work plan and schedule (annex 9) for the thesis, together with supervisor, and follow them.
 - 5.3. To cooperate with the supervisor in order to discuss the implementation course of the work and the arising problems.
 - 5.4. To comply with general research ethics requirements and obtain the approval of the University Bioethics Center for a (teaching) examination performed by a student, if persons (animal owners, veterinarians, etc.) participate in the examination-survey.
 - 5.5. To collect the research material and to carry out the researches provided in the work plan of the thesis.
 - 5.6. To submit timely report on the thesis.
 - 5.7. To submit the primary text of the thesis to the supervisor on time and to correct it with regard to the supervisor's remarks and recommendations.
 - 5.8. To submit the prepared thesis to the department on the set time and to present the work in the department's meeting.)
 - 5.9. To perform other functions specified in the resolutions of LSMU Senate.
6. **Supervisor of Master Thesis.** The following persons may act as a supervisor: lecturer of special subjects in the study field, scientists or veterinary surgeon of the Animal Clinics of Faculty of Veterinary Medicine of LSMU, who has work experience of at least 3 years at University. The candidacies to the supervisors are approved during the meeting of the department.
7. Functions of the supervisor:
- 7.1. To consult on the formulation of the topic, the objective and tasks of the thesis, and the formation of an individual work plan.
 - 7.2. To advise regarding relevance sources of literature.
 - 7.3. To discuss the methodology of the thesis.
 - 7.4. To consult the students and to recommend the consultants of borderlands (if needed).
 - 7.5. To observe systematically the preparation course of the thesis and to help to solve the arising problems.
 - 7.6. To submit remarks and suggestions to the student regarding preparation of the thesis.
 - 7.7. To discuss and interpret the research findings together with the student.

- 7.8. To discuss the presentation of the thesis prepared by the student.
- 7.9. To take part in the discussion of the theses during the meeting of the department.
- 7.10. The thesis' supervisor cannot act as a commission member of defence of the theses, when the work of the graduate, who was under his supervision, is presented.
8. Replacement and renouncement of the supervisor:
 - 8.1. If the supervisor has to be replaced due to important reasons in the same meeting, the meeting in the unit is organized, during which the necessity to replace the supervisor is reasoned. If the unit agrees with the supervisor's replacement, the extract from the minutes of the unit's meeting is submitted to the dean, following which the dean issues the decree permitting the supervisor's replacement. The supervisor might be replaced at least 3 months until the end of the studies, if the topic is not changes and at least 6 months until the end of the studies, if the topic changes.
 - 8.2. If the unit and supervisor have to be replaced due to important reasons, the replacement shall be coordinated with the faculty's dean, managers of departments, and the present and future supervisors at least 1 year before the end of the studies.
 - 8.3. The topic of the final work can be changed, but not later than 6 months before the end of studies. The final version of the title of the final work must be approved at the last meeting of the department, for the consideration of the final work. An extract from the minutes shall be submitted to the Dean's Office.
9. **Reviewer** – the person, who evaluates the Master Thesis in grades and writes a review (Annex 7). The lecturer of veterinary medicine study programme or the scientist, who has work experience of at least 3 years at University, may act as a reviewer.
10. The Master Thesis shall be reviewed by one reviewer.
11. Reviewer's functions:
 - 11.1. to assess the compliance of the thesis with the set requirements in ten-grade system,
12. The list of reviewers shall be submitted by the dean and approved by the orders of the Rector or Vice Rector for studies.
13. Not later than within 3 working days from the issuance of the Rector's order on permission for the student to defend the final work, but not later than 3 working days before the date of defense of the final work. By the decision of the Rector or the Vice-Rector for Studies, the date of the defense of the final thesis is set not later than 10 working days before the final thesis defense commission and the commission of appeals are formed.
14. **Defence commission of theses (hereinafter – Commission)** – the commission of at least 7 members from competent specialists in the field of veterinary medicine – lecturers, scientists, professional practitioners, representatives of social partners, and a secretary approved by the Rector following the suggestion of the dean of the Faculty of Veterinary Medicine. Master Thesis may be defended if during defence participate the chairman and at least 5 members of commission.
15. The veterinary surgeon with doctor's degree may act as a **Commission's chairman**.
16. **Commission's secretary** – a person, who completes the defence minutes of theses, statements and student's credit books. The employee of servicing staff, an administrator of studies or a laboratory assistant may be appointed as a secretary.
17. Functions of the commission:

- 17.1. Each member of the commission shall assess the theses and their presentation according to the evaluation form approved in the Council of the Faculty of Veterinary Medicine using 10 grade scale.
18. **Commission of appeals** – commission approved by the Rector following the suggestion of the dean of the Faculty of Veterinary Medicine. The commission of appeals shall consist of 3 representatives delegated by the Student Council and 6 representatives of the administration and/or lecturers. The commission of appeals shall act as provided in the LSMU Regulation of the Studies.

III. PREPARATION PROCEDURE OF THE THESES

19. Preliminary topics for the Master Theses are provided by the lecturers (leading the subjects of the study field) to the dean's office by January 15 of the current year. The topics in departments can be offered by students themselves. The topics of the theses have to be from the field of veterinary medicine and correspond to the results of the study program of veterinary medicine.
20. The topics shall be discussed in the meeting of the department and checked by Study Program Committee before the submission to the dean's office. The purpose of discussion is to prevent future discussions about relevance of the topic, its usefulness and necessity of veterinary medicine study programme's results.
21. Approved topics are published in the dean's office and/or in the electronic space of LSMU by February 1 of the current year.
22. Every student has to select preliminary topic of the thesis and agree with the supervisor, till 10th of May (in eighth semester).
23. If the student does not select a unit of the thesis, the dean shall allocate the student to certain unit according to the number of students conducting the theses in certain units in 5 working days after from the deadline for student selection.
24. When the students select the supervisors and departments, the dean issues a decree indicating the full name of the student and the units, where the theses are conducted.
25. The thesis is prepared from the beginning of the ninth semester according to the syllabus. The preparation of the thesis may be started earlier following the student's wish and if the process is arranged with prospective supervisor of thesis.
26. The student, together with supervisor, shall prepare individual work plan (annex 9) of the thesis within one calendar month (until September 30) from the beginning of thesis' preparation. It has to contain a topic, objective and tasks of the thesis, and preliminary terms of work performance. The individual work plan shall be approved in the meeting of the department.
27. The student shall prepare the thesis independently following the requirements set herein. The student shall collect material for thesis during independent work hours and during practical training at the Academy's units, at the LSMU VA Centre for Practical Training and Experimentation, livestock farms, enterprises, laboratories or other institutions involved in veterinary activities.
28. In agreement with the head of the unit and the supervisor of the final work, the student may have access to the equipment necessary for the thesis preparation at the departments, laboratories or other units of the University
29. At the end of each semester supervisor estimates student's works done according to the individual work plan. The students shall receive a credit test at the end of semester that

(“Pass”/“Not passed”) shall be recorded in the e-register in the LSMU SIS database. The final register formed by the department (clinic/institute) shall be delivered to the dean’s office.

30. The preparation course of the thesis shall be discussed at the end of the tenth semester during the meeting of the department, where the work is conducted. The intermediate report of the student (Annex 10) shall be delivered to the dean’s office together with the extract from the minutes of the meeting of the department, where it should be marked whether the student has carried out the planned tasks. If the student failed to perform planned tasks, the academic failure is recorded. Academic failure can be completed within retake week.
31. The finished thesis shall be delivered to the supervisor at least 3 months before the end of studies.
 - 31.1. The signature of the person who edited the thesis and confirming the correctness of the work in the English language, is required on the front cover of the work (Annex 4).
 - 31.2. The supervisor shall check the thesis and record the decision on the completion of the work and compliance with the requirements described herein (Annex 4). The decision shall be confirmed by the signature of supervisor.
32. The prepared and confirmed by the supervisor thesis shall be presented during the meeting of the department. The theses (one copy) approved in the unit and the extract from the meeting’s minutes (containing the list of students, who are recommended or not recommended to defend the work), shall be delivered to the dean’s office.
33. The students, who have met all the requirements of the study programme, are allowed to defend the theses. The decision to allow the student to defend the thesis shall be executed as the Rector’s order.
34. The student, who has academic failures, is not allowed to defend the thesis.
35. If dishonest behaviour, work’s plagiarism, duplication or falsification of research data are determined while preparing the thesis, the person, who has found such things, shall write an official report to the dean. The further procedure is specified in the LSMU Regulation of the Studies.
36. All the theses have to be checked according to the procedure set by the Senate for plagiarism.
37. When the permit to defend the thesis is given, the postgraduate student has to download the thesis to the Research Information System CRIS at least 30 calendar days before the public defence day set by the Rector or Vice Rector for studies.
38. The detailed requirements for the writing of Master Thesis are given in Annexes 1 and 2.

IV. REVIEWING OF THE THESES

39. At least 30 days before the defence day, the thesis shall be submitted to the reviewer through the CRIS Research Information system. The reviewer shall be from the field of study in which the reviewed thesis is written. The reviewer evaluates the thesis in accordance with the criteria specified in paragraph 50 and delivers a review and assessment of the thesis (Annex 7) to the dean’s office before the deadline set by the dean’s office.
40. The student is entitled to get familiar with the review at least 3 days before the defence of the thesis and to get prepared to answer the reviewer’s questions or to explain the specified shortages.
41. If the reviewer's assessment of the thesis is negative, the second reviewer shall be ordered by the dean’s decree to review the thesis. If the second reviewer evaluates the final work negatively, defence of the thesis is not allowed.

V. COURSE OF DEFENCE OF THE THESES

42. The date of public defence of the theses shall be announced at least one month before the defence day on the board of the dean's office of the Faculty of Veterinary Medicine and/or digital area of University.
43. The Commission's chairman and members have to review the theses in the CRIS Research Information system before the date of defence of the theses.
44. The theses are defended in public meetings of the Commission.
45. The dean's office shall present the printed theses with the reviews to the chairman and members of the defence commission before the beginning of the meeting.
46. Defence procedure of the theses:
 - 46.1. The Commission's chairman shall present the composition of the commission, its powers and explain the defence procedure.
 - 46.2. The student shall present presentation – the prepared report on the thesis (with the *MS Power Point* programme), where the topic, its relevance, objective, tasks, research methodology, results, conclusions and recommendations or suggestions are given.
 - 46.3. Up to 15 minutes are given for the student's report.
 - 46.4. Afterwards the chairman of the Commission presents the reviewer's observations and questions, while the student answers those questions.

VI. EVALUATION OF THE THESES

47. The reviewer evaluates the thesis in accordance with the criteria specified in paragraph 51.
48. The Commission's members shall evaluate each thesis during the meeting according to the criteria specified in paragraph 52 by completing the evaluation form of thesis by the commission's member (Annex 8). The Commission's member shall write his/her observations, arguments and questions on the form. When the final evaluation is given the meaning of evaluation in the words shall be provided in the brackets.
49. Criteria of thesis' evaluation for reviewer:
 - 49.1. Compliance of structural parts of the thesis to requirements set in the Procedure. Formation of content, glossary of key terms and abbreviations. Formation of content, glossary of key terms and abbreviations
 - 49.2. Informativeness of the thesis' summary and correct usage of the foreign language. Properly selected keywords.
 - 49.3. Substantiation of the scientific relevance of the selected topic.
 - 49.4. Correct formulation and substantiation of the thesis' objective and tasks (tasks covers the topic of thesis).
 - 49.5. Review of scientific literature, completeness, adequacy of the scientific literature used for the bibliographical review with the content of the work, its comprehensiveness and novelty.
 - 49.6. Description of research investigation and research methods. Description of data statistical analysis and appropriate selection and performance of statistical methods.

- 49.7. Presentation of research results, clearness and consistency of description. Correct analysis of the findings and clear presentation of statistical calculations.
 - 49.8. Interpretation of the findings and comprehensiveness of discussion, suitable substantiation with the data of other scientists and comparison of results, expression of opinion.
 - 49.9. Validity, concreteness and compliance of the conclusions (recommendations/suggestions) with the topic and objectives of the work.
 - 49.10. Correct citation of information sources in the thesis. Creation of a bibliographical list.
 - 49.11. Thesis' compliance to the requirements of the style (the text is fluent, consistent, scientific) and correct language. Technical formalization of work text, tables, pictures, and other information following the requirements listed below.
50. Evaluation criteria of thesis' presentation (report):
- 50.1. Substantiation of the relevance of the topic, highlighting of the matter, formulation of the objective and raising the tasks.
 - 50.2. Presentation of research methodology, correctness of application of methods. Correct selection of statistical methods.
 - 50.3. Analysis and consistency of presentation of the findings. Statistical processing of data.
 - 50.4. Summarisation and interpretation of the findings, expression of opinion.
 - 50.5. The specificity of the conclusions, adequacy to the objective and the tasks.
 - 50.6. The scientific level of the work.
 - 50.7. The quality of visual material and oral presentation.
 - 50.8. Reasoned and logical answers to questions, ability to discuss. Fluency of language.
51. Evaluation of the theses in the ten-grade system:
- 51.1. **Excellent (10 points)** – the quality of the thesis' content and presentation satisfies all requirements and evaluation criteria of this procedure. The data analysis has been carried out correctly. The logical and comprehensive of the findings has been presented. The conclusions have been formed correctly and based on the findings. The original research of scientific significance has been carried out. There are no drawbacks of content or editorial character. The presentation of the work is clear, informative, and the answers to the questions are comprehensive, correct and reasoned.
 - 51.2. **Very good (9 points)** – the quality of the thesis' content and presentation satisfies all requirements and evaluation criteria of this procedure; however little supplementation and editorial corrections are needed, which would not change the received results, their interpretation or conclusions. The data analysis and interpretation of results have been carried out correctly. The conclusions have been formed correctly and are reasoned. The answers to the questions are comprehensive, essentially correct and reasoned.
 - 51.3. **Good (8 points)** – not all requirements and evaluation criteria of this procedure are satisfied; some supplementation and/or correction of results' analysis and/or methodology are needed, which would change the interpretation of received results; or some conclusions have to be specified without changing their essence. The present data analysis has been carried out correctly. The conclusions have been formed correctly and based on results. The presentation of the work does not have any structural drawbacks, the answers to the questions are reasoned and essentially correct, although their clarity could be corrected.

- 51.4. **Moderate (7 points)** – not all requirements and evaluation criteria of this procedure are satisfied. Some supplementation and/or correction of results' analysis and/or methodology are needed, which would change the interpretation of received results and some conclusions; or the conclusions have to be supplemented (the lacking conclusions should be inserted). The analysis of results is not comprehensive; however the majority of the data analysis has been carried out correctly; the corresponding conclusions have been formed correctly and based on the findings. The presentation of the work needs to be specified; there are some unclear points. During the defence the student is not able to answer some questions comprehensively, and the reasoning is lacking.
- 51.5. **Satisfactory (6 points)** – the majority of the requirements and evaluation criteria of this procedure are not satisfied. The theses are incomplete or have drawbacks of the theoretical analysis, data analysis, official content and formal figuration drawbacks, etc. The research tasks do not correspond to the research objective or some tasks important for the research have been implemented only in part. The review of literature does not correspond to the topic of the theses. Some research results or their examination are inadequate with the research topic. During the defence the student does not answer or answers incorrectly to the essential topic-related questions.
- 51.6. **Weak (5 points)** – the requirements and evaluation criteria of this procedure are satisfied minimally. The theses have all the necessary structural parts, but the results do not satisfy the majority of the requirements and evaluation criteria, especially related to the research methodology, research results, correctness of their analysis and validity of conclusions. During the defence the student is not able to answer the questions of the reviewer or members of the Commission.
- 51.7. **Failed** – the thesis does not satisfy minimal requirements of this procedure: the majority or all of the structural parts are lacking, the majority of the research results are incorrect, and the conclusions are not reasoned. During the defence the student does not answer the questions of the reviewer or members of the Commission related to the research topic, research results, conclusions and their validity. The thesis is evaluated with negative grade or the permission to defend the thesis is not given if the commission determines the fact of plagiarism or in other cases of academic dishonesty.
52. The final evaluation of the thesis consists of reviewers' evaluation – 30 percent (percent coefficient – 0,3) and mean of evaluations of the Commission's members – 70 percent (percent coefficient – 0,7). The results of all the calculations shall be rounded down according to the mathematical rules.
53. The final grade of the thesis is calculated according to the following formula:

$$E = 0,3 \times R + 0,7 \times \left(\frac{K_1 + \dots + K_n}{n} \right)$$

E – final grade of the thesis;

R – evaluation of reviewer;

K – evaluations of the Commission's members;

n – number of the Commission's members.

54. The secretary shall write the topic of the thesis, the mean to the nearest hundredth of grade of the reviewer and Commissions members and final grade into the commission's minutes. The minutes shall contain the questions asked by the Commission and the student's answers to them. The minutes shall be signed by all the members of the Commission.

55. The secretary shall record the final evaluations into the defence register and student's credit book in the column of thesis. The credit books shall be signed by all the members of the Commission.
56. The final grades of the theses shall be verified by the commission's voting before their publication to the students.
57. The not defended thesis, which receive less than 5 grades, are regarded as academic failure and the student is expelled.
58. A student who failed to present the thesis is allowed to defend the final work only after renewal of studies in accordance with the procedure of the LSMU Regulation of the Studies.
59. If the student does not agree with the evaluation of the thesis, s/he has a right to submit an appeal following the procedure described in the LSMU Regulation of the Studies.
60. The persons, who implement the study programme and defend the theses, are conferred with the qualification of veterinary doctor and Master's degree. The diploma of higher education together with the supplement are issued for them.

VII. EFFECT OF THE PROCEDURES

61. The amendments of Procedure of Preparation, Defence and Evaluation of Master Theses of the Study Programme of Veterinary Medicine (approved 02-09-2015, minutes no 05) comes into effect on 07 September 2021. The procedure is valid for students enrolled in 2017-2019.

VIII. FINAL PROVISIONS

62. The description may be amended by decision of the Council of the Faculty of Veterinary Medicine.

ANNEXES

DETAILED REQUIREMENTS FOR THE STRUCTURE OF THE THESIS

- The main structural elements of the thesis are the following:
 - Title page;
 - Flyleaf that confirms independence of the done work;
 - Table of contents;
 - Summary in Lithuanian and English;
 - Abbreviations (if necessary);
 - Introduction with the objective and tasks of the work;
 - Review of literature;
 - Research methods and material;
 - Research results;
 - Discussion of results;
 - Conclusions;
 - Suggestions/recommendations (optional part);
 - Acknowledgement (optional part);
 - List of literature;
 - Annexes (if necessary).
- The **title page** (Annex 3) provides the necessary information: name of higher education school, name of the faculty, full name of the student, name of the topic (in Lithuanian and English), name of the study programme – MASTER THESIS of Integrated studies of Veterinary Medicine, full name of the supervisor, pedagogical title, scientific degree, city, year. The topic's title has to be informative, concrete and in compliance with the presented material.
- The **second page** (Annex 4) provides confirmation about independence of the done work and responsibility for correctness of the Lithuanian language (English for foreign students) in the done work^{*1}, conclusion of the supervisor about defence of the Master Thesis, number of the approbation minutes of the Master Thesis in the department (clinic/institute) and conclusion, as well as evaluation of reviewer of the Master Thesis.
- **Table of contents** – it is a part that itemizes the structure of the thesis. The table of contents is written as the chapter's headline – in capital letters. All chapters, sections and subsections of the thesis shall be referred in the table of contents. The enumeration shall be done in Arabic numerals. The abbreviations, summary in the Lithuanian and English languages, introduction, acknowledgement(s), conclusions, recommendations, list of literature, and annexes shall not be enumerated. The table of contents shall be presented tidily. The titles of the chapters shall be written in capital letters, while the titles of sections and subsections – in small letters. The titles of the chapters, sections and subsections provided in the table of contents have to correspond to the titles given in the thesis, and their enumeration without changing the succession. The table of contents shall be refined when the thesis is completed.

^{*1} In order to ensure the correctness of the Lithuanian language, the prepared final thesis is edited by the Lithuanian (English) language specialist (editor) chosen by the student.

- **Summary (Annexes 5 and 6)** – brief description of the thesis' essence in Lithuanian and English. At first the summary shall be written in Lithuanian, then in English. If the thesis is prepared in English, the summary in English shall go first and then – in Lithuanian. The title of the thesis, author's name, surname and keywords shall be indicated in the summary. The brief information on the problem solved by the thesis' author, methods used by the author, and received results shall be provided. The texts of the summaries shall be printed on one page and shall not exceed 1700 characters without spaces. The summaries in the Lithuanian and English languages shall be the same. The summary is written when the thesis is finished.
- **Abbreviations** – the abbreviations acceptable on the international level or used as shortened scientific names should be provided. The abbreviations shall be explained when they are used in the text for the first time. The abbreviations cannot be used in the titles of the chapters, sections and subsections, except when the abbreviations are conventional.
- **Introduction** – it is an introductory part, the card of the Master Thesis. The relevance of the work is highlighted in the introduction. The reasoned explanation about works performed in the particular analyzed area and about lack of researches shall be provided with regard to scientific publications. In such a way the **objective** and the set **tasks** of the thesis presented in the end of the introduction are substantiated. The introduction has to be directly related to particular topic of the work, researches performed in the work, and objective of the work. The volume of the introduction shall be 1-2 pages.
- **Objective of research** – it is a formed goal to attain the particular work result. The objective has to correspond to the title of the topic and cover it. It is formed briefly, usually by one sentence.
- When the objective of the work is formed, the concrete **research tasks (it is recommended 2-4 tasks)** that allow to reach the objective of the research and which reflect work consistency and logics, are determined. All tasks shall be enumerated. It is not suitable to formulate such tasks as, for example: "To make a review of literature on the chosen topic" or "To summarize the obtained results and to present conclusions and recommendations", as this is not a task related to a specific task, but applies to all master's theses.
- **Review of literature** – the topic-related scientific researches carried out in Lithuania and abroad have to be described in separate sections and subsections. The review of literature has to be directly related to the topic of the thesis and the carried-out researches. It is recommended to use the latest publications of the authors (recommended not older than 10 years). It is not recommended to quote the textbooks because they are not original; only the material re-quoted by other authors. The review of literature should not be very wide with regard to the topic. It has to correspond certain topic and conducted researches. The structure of textbooks (e.g., aetiology, clinical symptoms, pathogenesis, epizootic data, diagnosing, prophylaxis, treatment, etc.) or facts of textbooks should be avoided in this part. It is not recommended to use the literature not related to the topic. The volume of this part should make 20-30 percent of the total volume of the work.
- **Research methods and material.** The place, time and period of performed research shall be described in this part of thesis. Then this part describes consistently the object of the conducted or analyzed researches, tested animals and methods, or describes the course of research and other important research conditions. If the animals were examined, it has to be noted that the scientific researches have been conducted in observation of requirements for animal care, keeping, usage and veterinary requirements. The statistical methods and software (e.g., Microsoft Excel, SPSS, Statistica, SAS, etc.) should be indicated in this part. The grouping principles of data, models of statistical data and calculated statistical

indexes should be presented. It is important to clearly indicate the scope of the research (number of samples tested). Research methods are presented in accordance with the order of the formulation of tasks. Student must draw a scheme of the research. The volume of this part should be 4-6 percent of the total volume of the thesis.

- **Research results** – the chapter, where the results of the researches conducted by the author are described. The results of other authors shall not be used in this part. The results shall be presented in such a sequence as defined in the tasks. This chapter may have sections and subsections. The clear and substantiated data of researches, veterinary procedures, observations, expertises, inspections, etc. shall be presented and described. The data shall be presented in the text, tables or pictures without repeating them, and in the text by references to tables or pictures. When the results are described, it is recommended to stress immediately, which result was higher or lower than some other (e.g., infection in the group A (82,3%) was 3 times higher ($P < 0,01$) than the infection in group B (27,4%)). The data provided in the chapter of research results should be processed by statistical methods. It is necessary to indicate whether the results obtained are statistically reliable, by writing the value of p after the result (e.g., $p < 0,05$). The considerations, presumptions or explanations of results should not be included in this chapter. The volume of the research result's part should make 30-50 percent of the total volume of the thesis.
- **Discussion of results.** This part is used to compare the noticed regularities with the findings of other authors, to explain the received results on the ground of findings of other authors and to express author's opinion. The description of results of own researches should not be repeated here. The text should not be overloaded with numbers; the tables or pictures should not be presented. The volume of this part should be about 3-5 percent of the total volume of the thesis.
- **Conclusions.** There are clear and brief answers to the tasks set in the beginning of the thesis. The conclusions shall be written on the new page. They shall be enumerated and formed on the ground of the research results, concretely, briefly, and according to the sequence of tasks. The conclusions must be accurate, concise and clearly stated. Is not allowed to repeat results only. Usually one conclusion (several if necessary) shall be written for one task. The conclusions should show, whether the tasks set in the introductory part have been solved and whether the objective of the work has been achieved. The tables, pictures, quotations and other references to the bibliographical sources shall not be presented in this chapter.
- **Suggestions/Recommendations.** The practical suggestions/recommendations regarding the research methods, tools and modes to solve the problem shall be provided in this part. The recommendations shall be formed briefly, concretely and they shall be enumerated. This chapter is optional. The suggestions may not be separated into separate chapter. They may be included into the chapter of discussions.
- The **list of literature** shall be presented on the new page. The enumerated descriptions of the used literature and Internet sources (the latest, if possible) shall be presented. In order to make the list of literature, the Vancouver system should be used. The detailed information about Vancouver system is provided on the LSMU website, column of library (Information for users → Library Rules and Regulations). The bibliographical descriptions of the publications used in the work shall be presented according to their sequence of quotation in the text, starting with the first reference source. The descriptions should not be transliterated (e.g., sources written in Russian should be written in Russian letters).
- **Annexes** – optional yet necessary part in certain cases. The additional, auxiliary information or information prepared by the author independently may be included into the annexes (for example, statistical more concrete information, questionnaires of survey,

more thorough tables, pictures, maps, etc.). Besides, the annexes contain the information on publications from the research material, if the graduate was (co-)author, as well as on the made scientific reports, etc. The characters of the annexes are not included into the number of thesis' characters. The annexes shall be named and enumerated (e.g., Annex 1. Questionnaire of Survey). The references to the annex should be included into the text of the thesis.

CLERICAL REQUIREMENTS FOR THE THESES

- The text of the thesis has to be written by computer on one side of standard white paper of A4 format (210 x 297 mm).
- The recommended volume of the Master Thesis is 35-50 pages without annexes.
- The thesis has to be written in Lithuanian. The foreign students write the thesis in the language specified in the contract (English).
- The work has to be bound, tidy, written in correct and fluent language, without any proof mistakes. It has to satisfy the writing and punctuation requirements of the Lithuanian (English for foreign students) language. The ideas have to be laid out clearly, consistently, intelligibly and systematically.
- The computerized illustrations (diagrams, schemes, pictures, photos) have to be of good quality and sufficiently expressive.
- Margins of the text: from the left – 30 mm, from the top and the bottom – 20 mm, from the right – 10 mm.
- The pages (except for the title page) shall be enumerated. The page's number shall be written in the lower right corner of the page, in Arabic numerals, without any dots or commas.
- The first line of each paragraph shall be dragged from the left margin by 10 mm. The bilateral justification shall be set for the paragraphs – the text shall be justified according to the right and left margins.
- The space of 1,5 lines shall be left between the lines. The titles of the sections shall be dragged from the text by 2-line spacing, and the titles of sub-sections – by 1,5 lines.
- The thesis shall be printed in the font Times New Roman. The height of the characters of the main text is 12 pt (font). The Italic may be used in the text, for example, when Latin terms are written. The percent shall be marked in words in the text – proc., while the mark % shall be used in the English text.
- The text of the thesis is divided into **chapters, sections and subsections**.
- The titles of the chapters shall be written in capital letters in 16 pt bold font. The titles of the sections shall be written in 14 pt, subsections– 12 pt bold font, in small letters, except for the first letter.
- The title of the chapter shall be written in the new page, while the sections and subsections remain in the same page. The titles of the chapters and the sections shall be laid out symmetrically within the page's width, while the titles of subsections shall be started as the first line of the paragraph.
- The number of chapters, sections and subsections depends on the topic; however, the smallest structural unit should not be smaller than 0,5 page. The main keywords present in the title of the topic have to reflect and be related to the titles of the chapters, sections and subsections. The titles of the chapters, sections and subsections have to correspond to the content and reflect the consistent and logical examination of the topic.
- The headlines' words cannot be transferred. No dot is put after the headline. The headline cannot stay on one page, while the text starts on the other. The sections receive the number

of the chapter and its running number (e.g., 1.1., 1.2., etc.). The subsections receive the number of the section and its running number (e.g., 1.1.2., 1.1.3., etc.).

- The **tables** shall be enumerated successively along the entire thesis in Arabic numerals.
 - The number of table shall be written above the table in the left corner next to the word "Table". Both the table number and the word "Table" shall be written in **12 pt Italic bold** font. The title of table shall be written above it starting with capital letter in *12 pt Italic* font (e.g.: **Table 1.** *Dynamics of Human Salmonellosis in Lithuania in 2005-2015*). The informative title shall be given to the tables. If the name does not fit in one line, then the 1.5 interval between the title strings is not used (1 interval spacing shall be selected). After the title of the table, the dot is not given. If the tables are created by other authors, the number of source in the brackets has to be given.
 - Explanations/notes (if necessary) shall be written below the table in 10 pt font.
 - The references to the table have to be given in the text. In all the cases the tables have to be closely related to the text's material and thus they have to be commented accordingly.
 - The table has to be laid out vertically on the page or inserted in such a way that it should be rotated clockwise while reading the text.
 - The dimensions of values shall be written in the table's headline under the title of the descriptive value; therefore, only the numbers shall be presented in the main part of the table.
 - The numbers in the columns have to be aligned. No free space can be left in the table. If no data are available, the dash shall be written. The recurrent numbers cannot be replaced by quotation marks. The quotation marks shall be written only when the words repeat in the table's columns.
 - Small tables may be inserted in the same page one under another. In case of very long tables, which cover several pages, when the tables are transferred, the top headlines shall be repeated on the next pages and such as inscription as "Continuation of the Table 2" shall be written on the top of the table.
 - The first titles of top headlines of the tables shall be started with capital letter. If the table in vertical columns is divided in smaller parts under the top headline, the headlines of all the divided (smaller) columns shall be started with small letters (in the table, words and numbers shall not be written in bold)
- **Pictures** (illustrations/figures) shall be enumerated successively along the entire thesis in Arabic numerals.
 - The number of picture shall be written below the picture in the middle next to the word "Fig.". Both the picture number and the word "Fig." shall be written in **12 pt Italic bold** font. The picture's title shall be written below the picture starting with capital letter in *12 pt Italic* font using the abbreviation "Fig." (e.g.: **Fig. 1.** *Dynamics of Human Salmonellosis in Lithuania in 2005-2015*). The informative title shall be given to the pictures. If the name does not fit in one line, then the 1.5 interval between the title strings is not used (1 interval spacing shall be selected). After the title of the picture, the dot is not given.
 - Explanations/notes (if necessary) shall be written under the picture in 10 pt font.
 - Illustrations – graphs, photos, schemes and drawings are also considered to be pictures – shall be of good quality and sufficient resolution.
 - The titles of the x and y axes and the units of measurement shall be indicated.

- If the pictures are created by other authors, the number of source in the brackets has to be given.
- The references to the picture have to be given in the text. In all the cases the illustrations have to be closely related to the text's material and thus they have to be commented accordingly. The text can not repeat the results shown in the picture.
- The illustrations shall be laid out in the text just under the references to them or in the annexes.
- The illustrations with their numbers and titles have to be in one page and cannot be transferred.
- **Quotation of literature sources.** When the literature sources are quoted in the text, the Vancouver system should be used. When the source is quoted for the first time in the text, its number in Arabic numerals should be indicated, e.g., (1). If the same source I quoted in the other place in the text, the original quotation number should be left. When the author is mentioned in the text, the following words should be used: P. Petraitis (5) states that... When several sources are quoted in the same place, the numbers should be separated by comma, e.g., "Protein metabolism in the rumen is the result of the metabolism of microorganisms (16, 19)". If several sources are written in sequence the shortening is used e.g., "Bacteria of rumen absorb and process non-protein nitrogen and synthesize it into proteins (5–7, 12). The dash cannot be used between the quoting sources if only to adjacent sources are quoted (1, 2). The text shall be quoted and the statements of other authors shall be rephrased without distortion of essence. The statements, which repeat the thoughts of other authors word by word, shall be presented as quotations (within the quotation marks). It is unethical and considers as plagiarism to publish the text of some work in the theses using original ideas or thoughts of other author without reference to that author.

**LITHUANIAN UNIVERSITY OF HEALTH SCIENCES
VETERINARY ACADEMY**

Faculty of Veterinary Medicine

Name Surname

**Title EN
Title LT**

MASTER THESIS
of Integrated Studies of Veterinary Medicine

Supervisor: Assoc. Prof. Dr. Name Surname

KAUNAS year

THE WORK WAS DONE IN THE(specify the department)

CONFIRMATION OF THE INDEPENDENCE OF DONE WORK

I confirm that the presented Master Thesis “.....”.

1. has been done by me;
2. has not been used in any other Lithuanian or foreign university;
3. I have not used any other sources not indicated in the work and I present the complete list of the used literature.

(date)

(author's name, surname)

(signature)

**CONFIRMATION ABOUT RESPONSIBILITY FOR CORRECTNESS OF
THE ENGLISH LANGUAGE IN THE DONE WORK**

I confirm the correctness of the English language in the done work.

(date)

(editor's name, surname)

(signature)

**CONCLUSION OF THE SUPERVISOR REGARDING DEFENCE OF
THE MASTER THESIS**

(date)

*(supervisor's title, scientific degree,
name, surname)*

(signature)

**THE MASTER THESIS HAVE BEEN APPROVED IN
THE DEPARTMENT/CLINIC/INSTITUTE**

(date of approval)

*(title, scientific degree, name, surname
of the head of
department/clinic/institute)*

(signature)

Reviewer of the Master Thesis

(name, surname)

(signatures)

Evaluation of defence commission of the Master Thesis:

(date)

*(name, surname of the secretary of the defence
commission)*

(signature)

SKIRTINGŲ LAKTACIJŲ KARVIŲ, SERGANČIŲ ENDOMETRITU, GIMDOS BAKTERINIS UŽTERŠTUMAS

Vardenis Pavardenis

Magistro baigiamasis darbas

SANTRAUKA

Endometrito patogenezėje svarbus vaidmuo tenka bakterijoms. Šio darbo tikslas – nustatyti bakterijas iš endometritu sergančių skirtingų laktacijų karvių gimdos. Ištirti 47 pirmos–penktos laktacijos karvių gimdos išskyrų mėginiai, mikrobiologiniam tyrimui imti steriliais kateteriais iš gimdos kaklelio. Išskirtos bakterijos identifikuotos pagal biochemines ir antigenines savybes. Bakterijų padermių jautrumo/atsparumo antimikrobinėms medžiagoms tyrimas atliktas pagal Kirby-Bauer metodiką. Ištyrus 47 karvių, sergančių endometritu, gimdos išskyrų mėginius, bakterijos išskirtos iš 39 (83 proc.). Gryna bakterijų kultūra nustatyta 18 mėginių (38,30 proc.), dvi rūšys – 16 mėginių (34,04 proc.). Trijų skirtingų rūšių bakterijos rastos penkiuose mėginiuose (10,64 proc.). Ištyrus endometrito sukėlėjus, visų laktacijų karvių gimdoje vyravo aplinkos mikroorganizmai – *Enterococcus faecalis* (36,2 proc.), *Streptococcus uberis* (19,1 proc.) ir *Escherichia coli* (44,7 proc.).

Keturiolikai karvių (29,79 proc.) pirmą savaitę po veršiavimosi buvo užsilaikiusi placenta. Pagrindinis sukėlėjas – *Escherichia coli*, išskirtas 92,8 proc. atvejų. Atlikę statistinę analizę nustatėme, kad *Escherichia coli* darė įtaką endometrito išsivystymui ($p < 0,05$), skirtingos karvių laktacijos – placentos užsilaikymui ($p < 0,05$).

Gramteigiamų ir gramneigiamų bakterijų padermės, išskirtos iš skirtingų laktacijų karvių gimdos, jautriausios amoksicilinui su klavulanine rūgštimi.

Raktažodžiai: karvės, bakterijos, endometritas, skirtingos laktacijos.

BACTERIAL CONTAMINATION OF THE UTERUS IN DIFFERENT LACTATION COWS ON ENDOMETRITIS

Vardenis Pavardenis

Master Thesis

SUMMARY

Bacteria play an important role in the pathogenesis of endometritis in cows. The aim of the present investigation was to determine the bacteria from the uteri of different lactation cows on endometritis. In total, forty seven secretion samples from the uteri of the 1st to 5th lactation cows were investigated. Samples for microbiological analysis were collected with sterile catheters from uterine cervix of dairy cows of different lactation. Bacteria were identified according to biochemical and antigenic properties. The Kirby Bauer method was used to determine susceptibility of the pathogenic isolated bacteria to antimicrobial substances. Bacteria were isolated in 39 (83.0 %) cow's uterine secretion samples (from 47 investigated samples). The pure culture was determined in 18 (38.30 %) samples, two types of bacteria (mixed culture) were identified in 16 (34.04 %) samples, and three types in 5 (10.64%) samples. The results revealed that environmental bacteria were the most common isolates from cases of endometritis in the examined cows: *Enterococcus faecalis* (36.2 %), *Streptococcus uberis* (19.1 %) and *Escherichia coli* (44.7 %).

Fourteen cows had retained placenta (29.79 %) in the first postpartum week. The main agent *Escherichia coli* was isolated in 92.8 % ($p < 0.05$) of cows. Statistical analysis showed that isolation of *Escherichia coli* influenced the development of endometritis and the difference in lactation influenced the retention of placenta ($p < 0.05$).

Gram-positive and Gram-negative bacteria strains isolated from the uteri of different lactation cows on endometritis were most sensitive to amoxicillin with clavulanic acid.

Keywords: cows, bacteria, endometritis, different lactation.

EVALUATION OF THE THESIS EVALUATION OF THE REVIEWER

Author of the thesis: _____
 Title of the thesis: _____
 Study programme: Veterinary Medicine
 Volume of the work: ... pages

No.	Evaluation criteria of the thesis (substantiation of evaluation is necessary)	Evaluation in the ten- grade (1-10) system
1.	Formal matching	
	Compliance of structural parts of the thesis to requirements set in the Procedure. Formation of content, glossary of key terms and abbreviations. Informativeness of the thesis' summary and correct usage of the foreign language. Properly selected keywords. Correct citation of information sources in the thesis. Creation of a bibliographical list. Thesis' compliance to the requirements of the style (the text is fluent, consistent, scientific) and correct language. Technical formalization of work text, tables, pictures, and other information following the requirements listed below.	
	<i>Substantiation of reviewer's evaluation*:</i>	
2.	Introductory part	
	Substantiation of the scientific relevance of the selected topic. Correct formulation and substantiation of the thesis' objective and tasks (tasks covers the topic of thesis).	
	<i>Substantiation of reviewer's evaluation*:</i>	
3.	Teoretical part	
	Review of scientific literature, completeness, adequacy of the scientific literature used for the bibliographical review with the content of the work, its comprehensiveness and novelty.	
	<i>Substantiation of reviewer's evaluation*:</i>	
4.	Investigative part:	
4.1.	Research methods and material	
	Description of research investigation and research methods. Description of data statistical analysis and appropriate selection and performance of statistical methods.	
	<i>Substantiation of reviewer's evaluation*:</i>	
4.2.	Research results	
	Presentation of research results, clearness and consistency of description. Correct analysis of the findings and clear presentation of statistical calculations.	
	<i>Substantiation of reviewer's evaluation*:</i>	
4.3.	Discussion of results	
	Interpretation of the findings and comprehensiveness of discussion, suitable substantiation with the data of other scientists and comparison of results, expression of opinion.	
	<i>Substantiation of reviewer's evaluation*:</i>	
5.	Conclusions (and suggestions/recommendations)	
	Validity, concreteness and compliance of the conclusions (recommendations/suggestions) with the topic and objectives of the work.	

	<i>Substantiation of reviewer's evaluation*:</i>	
	The evaluation of Master Thesis in grade (to be written rounding to the nearest hundredth):	

**If any part is evaluated less than 10 points the evaluation of this part has to be substantiated by giving comment.*

Reviewr's questions (1-2), observations, comments:

(reviewer's title, scientific degree, name, surname, signature)

(date)

EVALUATION OF THE THESIS

EVALUATION OF THE MEMBER OF THE COMMISSION OF MASTER THESIS

Author of the thesis _____

Title of the theses _____

Study programme of Veterinary Medicine

Evaluation criteria of the presentation of the theses	Evaluation in the ten-grade (1-10) system
Substantiation of the relevance of the topic, highlighting of the matter, formulation of the objective and raising the tasks.	
Presentation of research methodology, correctness of application of methods. Correct selection and substantiation of statistical methods.	
Analysis and consistency of presentation of the findings. Statistical processing of data.	
Summarisation and interpretation of the findings, expression of opinion.	
The specificity of the conclusions, adequacy to the objective and the tasks.	
The scientific level of the work.	
The quality of visual material and oral presentation.	
Reasoned and logical answers to questions, ability to discuss. Fluency of language.	
Evaluation of the commission's member in grades (to be written rounding to the nearest hundredth):	

Other observations and arguments of the member of the commission of Master Thesis:

Questions asked by the commission's member:

(title, scientific degree, name, surname) *(signature)*

I APPROVE:

Dean of the faculty
of Veterinary Medicine

Name Surname

20

**LITHUANIAN UNIVERSITY OF HEALTH SCIENCES
PROGRAMME OF VETERINARY MEDICINE
INTEGRATED STUDIES
DEPARTMENT/CLINIC/INSTITUTE**

Student Name Surname of the
... year of the ... group

INDIVIDUAL WORK PLAN

Preparation duration of Master Thesis: yyyy mm dd – yyyy mm

Topic of Master Thesis:

Title title title title title title title title title title title title

Supervisor

Assoc. Prof. Dr. Name Surname

Kaunas, year

Objective of the work:

Tasks of the work:

- 1.
- 2.
- 3.
- 4.

MASTER THESIS PREPARATION PLAN

The tasks	Deadline
Discussion of the topic with the supervisor. Preparation of the Master Thesis' individual work plan, consideration on the plan in the unit (department/clinic/institute), presentation to the supervisor and dean's office (<i>the approved individual work plan shall be delivered to the dean's office together with the extract from the minutes of the unit's meeting before the 1st of October of the current year</i>).	September..... 20.. *
Theoretical studies necessary to solve the problem of Master Thesis. Thorough analysis of bibliographical sources. Analysis of theories, conceptions, models. Preparation of the plan of the Literature review chapter and arrangement with the supervisor.	October-November 20..
Collection of the bibliographical material.	October 20.. – May 20...
Planning of the experiment, mastering of work methodologies, sampling.	October 20.. – May 20...
Thorough analysis of bibliographical sources. Preparation of Literature review chapter.	June 20..
Preparation of the report for the first work stage according to the defined form. Presentation of the report in the unit's (department's/clinic's/institute's) meeting. (<i>The report and the extract from the minutes of the unit's meeting shall be delivered to the dean's office</i>).	June 20..*
Qualitative and quantitative data analysis. Description of the results.	June-September 20
Summing-up the results. Preparation of concise conclusions, suggestions and recommendations.	September- November 20..
Preparation of the bibliographical list. Arrangement of the work (correction of the title page, table of contents, pictures, tables, texts, citation, etc.).	November 20..
Preparation of summary in English and Lithuanian languages.	November 20..
Presentation of the final work to the supervisor. Supervisor's evaluation of the work's suitability for defence.	Up to the 1-st of April 20..*
Approval of the work in the unit (department/clinic/institute) (<i>the date may be specified in the current year</i>)	April 20..
Final formalization of the Master Thesis and delivery to the dean's office (<i>1 copy of the thesis with the signatures of the author, supervisor and head of the unit shall be delivered; the exact date will be indicated by the dean's office in the current year</i>)	May 20.. *
Downloading of the thesis into the CRIS database (<i>the exact date will be indicated in the current year</i>)	May 20.. *
Prospective date of the defence (<i>the exact date will be indicated by the dean's office in the current year</i>)	June 20.. m*

Remark: * - do not change rows and dates in the table.

The individual work plan of the scientific research work was discussed in the meeting of the unit (department/clinic/institute) of on.....20...., minutes No.

Supervisor

(signature)

Assoc. Prof. Dr. Name Surname

Student

(signature)

Name Surname

**LITHUANIAN UNIVERSITY OF HEALTH SCIENCES
PROGRAMME OF VETERINARY MEDICINE
INTEGRATED STUDIES
DEPARTMENT/CLINIC/INSTITUTE**

Student Name Surname of the
5th year of the ... group

**REPORT
OF MASTER THESIS PREPARATION**

Preparation period: yyyy 09 01 – yyyy 06

Kaunas, year

**Title of the Master
Thesis:**

1. Analysis of literature under the analyzed topic.

(describe what and how many (scientific) literature has been analyzed, in what databases the information has been searched for, what magazines have been analyzed the most, what topics have been examined independently, etc. The presentation of the list of articles is not needed.)

2. Research methodologies learnt by the author of Master Thesis and methods of statistical analysis planned for application (brief description).

3. Collected experimental and other material under the analyzed topic (brief description).

4. Other relevant information (participation in the courses, internships, conferences; presentations read in the conferences and seminars; published articles – brief description).

5. I have (not) implemented all the tasks according to the individual plan.

The report on postgraduate studies was discussed in the meeting of the
department/clinic/institute of on 20..., minutes No.

Student

(signature)

Name Surname

Supervisor

(signature)

Assoc. Prof. Dr. Name 1 Surname 1

Head of the department

(signature)

Assoc. Prof. Dr. Name 2 Surname 2