



At the Service of One Health

**Logbook of acquired practical
skills and competences over the
course of training
in veterinary medicine
FMUZG**

21 April 2024


Student ID number:



Logbook of acquired practical skills and competences over the course of training in veterinary medicine – FMUZG

DRAFT

Student ID number:




Logbook of acquired practical
skills and competences over the course of training in
veterinary medicine – FMUZG

Learning outcomes will be regularly reviewed and
suggestions for amendments should be forwarded to:

Faculty of Veterinary Medicine, University of Zagreb
Committee for integrated undergraduate and graduate studies

Heinzelova 55
10 000 Zagreb
Croatia



Tel. +385 (0) 1 2390 111
Fax. +385 (0) 1 2441 390
e-mail: vlahovic@vef.unizg.hr

2024

Student ID number:



Faculty of Veterinary Medicine, University of Zagreb
Heinzelova 55, 10000 Zagreb
Republic of Croatia
Tel: +385 1 239011
Fax: +385 1 24413901
Website: www.vef.unizg.hr
E-mail: dekanat@vef.unizg.hr

Establishment Head (Dean)

Marko Samardžija, DVM PhD, Full Professor

Vice-dean for IUGS and Students

Ksenija Vlahović, DVM, PhD, Full Professor

Vice-dean for finance and investment

Hrvoje Capak, DVM, PhD, Full Professor

Vice-dean for quality control

Gordana Gregurić Gračner, DVM, PhD, Full Professor

Vice-dean for science, postgraduate studies and international cooperation

Nino Maćešić, DVM, PhD, Full Professor

Vice-dean for IUGS in English and lifelong education

Marko Pećin, DVM, PhD, Full Professor

Student ID number:

PREFACE

We were prompted to prepare the “Logbook of acquired practical skills and competences over the course of training in veterinary medicine – FMUZG” document by the recommendations of the European Association of Establishments for Veterinary Education (EAEVE). Following the visitation procedure by EAEVE in April 2023, for the purpose of enhancing and advancing the study programmes at our Faculty, recommendations were adopted, that is, measures for improvement in relation to continuation of the enhancement of the traceability of *Day One Competences* (ESEVT *Day One Competences, DOC*), by integrating them better into the program learning outcomes.

The Logbook of acquired practical skills and competences over the course of training in veterinary medicine – FMUZG document is evidence of the specific knowledge and skills acquired by students of the Faculty during the entire period of their studies. The document makes it possible to systematically monitor, notice and record observations about the level of competences achieved and the tasks set, as defined by the curriculum. The Teaching and Quality Management Service within the Dean’s Office, as well as the teaching staff with the function of head of subject, are responsible for up-dating, drawing up and controlling *the Day One Competences* log and its improvement. The document will enable students to monitor the completion of all the planned procedures and practical training, included in the study programme. This approach makes more objective assessment possible, with transparent examinations, and improved ability for continuous monitoring of students’ success and advancement. Certification by teachers will be based on the results achieved during theoretical and practical classes. The emphasis is on the possibility of direct assessment of the clinical skills and knowledge listed in the *Day One Competences*. The concluding signature from the teaching course is an expression of the level of competence the student has achieved in the course/field as a result of the entire evaluation process over the academic year, and is given on the basis of all the elements of assessment acquired. After completing the degree, continuous professional training in the chosen field of activity will be necessary.

Advisory Committee: The strong support and constructive comments of teachers in the position of heads of subject and their deputies in the 2023/2024 academic year. Individual veterinarians representing various aspects of professional work offered helpful comments, for which we are particularly grateful.

Editor

Ksenija Vlahović, DVM, PhD, Full Professor
Vice-dean for IUGS and Students

Student ID number:

ACKNOWLEDGEMENTS

We would like to thank the following persons from heads of subject or their deputies in the 2023/2024 academic year, for their contributions to this logbook.

| | |
|--|---|
| <p>Branka Artuković, DVM, PhD, Full Professor Renata Barić Rafa, DVM, PhD, Full Professor Maja Belić, DVM, PhD, Full Professor Željka Cvrtila, DVM, PhD, Full Professor Anamaria Ekert Kabalin, DVM, PhD, Full Professor Andrea Gudan Kurilj, DVM, PhD, Full Professor Snježana Kužir, DVM, PhD, Full Professor Kristina Matković, DVM, PhD, Full Professor Tomislac Mašek, DVM, PhD, Full Professor Srebrenka Nejedli, DVM, PhD, Full Professor Željko Pavičić, DVM, PhD, Full Professor Marina Pavlak, DVM, PhD, Full Professor Krešimir Severin, DVM, PhD, Full Professor Marinko Vilić, DVM, PhD, Full Professor Silvijo Vince, DVM, PhD, Full Professor Dražen Vnuk, DVM, PhD, Full Professor Nevijo Zdolec, DVM, PhD, Full Professor Tatjana Živičnjak, DVM, PhD, Full Professor Andreja Prevendar Crnić, DVM, PhD, Full Professor Maja Popović, DVM, PhD, Full Professor Nevenka Rudan, DVM, PhD, Full Professor Maja Belić, DVM, PhD, Full Professor Romana Turk, DVM, PhD, Full Professor Alen Slavica, DVM, PhD, Full Professor Juraj Grizelj, DVM, PhD, Full Professor Ivana Tlak Gajger, DVM, PhD, Full Professor Goran Bačić, DVM, PhD, Full Professor Nikica Prvanović Babić, DVM, PhD, Full Professor Emil Gjurčević, DVM, PhD, Full Professor Albert Marinculić, DVM, PhD, Full Professor Nika Brkljača Bottegaro, DVM, PhD, Assoc. Prof. Mirna Brkljačić, DVM, PhD, Assoc. Prof. Hrvoje Capak, DVM, PhD, Assoc. Prof. Ivan Folnožić, DVM, PhD, Assoc. Prof. Željko Gottstein, DVM, PhD, Assoc. Prof. Josipa Habuš, DVM, PhD, Assoc. Prof. Franjo Martinković, DVM, PhD, Assoc. Prof. Krešimir Matanović, DVM, PhD, Assoc. Prof. Maja Maurić Maljković, DVM, PhD, Assoc. Prof. Sven Menčik, DVM, PhD, Assoc. Prof. Selim Pašić, DVM, PhD, Assoc. Prof. Selma Pintarić, DVM, PhD, Assoc. Prof. Branimira Špoljarić, DVM, PhD, Assoc. Prof. Daniel Špoljarić, DVM, PhD, Assoc. Prof.</p> | <p>Zoran Vrbanac, DVM, PhD, Assoc. Prof. Hrvoje Valpotić, DVM, PhD, Assoc. Prof. Mario Ostović, DVM, PhD, Assoc. Prof. Dean Konjević, DVM, PhD, Assoc. Prof. Ana Shek Vugrovečki, DVM, PhD, Assoc. Prof. Ivan-Conrado Šoštarić, DVM, PhD, Assoc. Prof. Martina Crnogaj, Assoc. Prof. Martin Torti, Assoc. Prof. Vladimir Stevanović, Assoc. Prof. Denis Cvitković, Assoc. Prof. Luka Krstulović, PhD, Assist. Prof. Ivan Alić, DVM, PhD, Assist. Prof. Diana Brozić, DVM, PhD, Assist. Prof. Jelena Gotić, DVM, PhD, Assist. Prof. Tomislav Mikuš, DVM, PhD, Assist. Prof. Mirela Pavić Vulinović, DVM, PhD, Assist. Prof. Lana Pađen, DVM, PhD, Assist. Prof. Kristina Starčević, DVM, PhD, Assist. Prof. Ena Oster, DVM</p> |
|--|---|

Student ID number:

Contents

| | |
|---|----|
| Preface..... | 4 |
| Acknowledgements..... | 5 |
| Contents..... | 6 |
| General provisions..... | 7 |
| Day One Competences..... | 12 |
| General Rules for Filling Out the Document..... | 14 |
| Subject code for certificate..... | 15 |
| Fundamental and Preclinical Courses..... | 16 |
| Clinical Courses..... | 43 |
| References..... | 71 |

DRAFT

Student ID number:

General provisions

Educational aims and the general strategy for the design, resources and management of the curriculum status.

FVMUZ has developed and is implementing an Integrated Undergraduate and Graduate University Study (IUGUS) in Veterinary Medicine (VM) in line with the requirements of the Bologna Process and the requirements of the Croatian Qualifications Framework (CQF) and Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). In Croatia, the VM profession is a regulated profession, and therefore the IUGS programme is aligned with the provisions of the Act on Regulated Professions and Recognition of Foreign Professional Qualifications (OG 124/09, 45/11, 82/15, 70/19 and 47/20), Directive 2005/36/EC of the European Parliament and of the Council on the recognition of professional qualifications, and Directive 2013/55/EU of the European Parliament and of the Council amending Directive 2005/36/EC.

Defining learning outcomes (LOs) and delivering the study programme in line with the mission, vision and objectives of the FVMUZ is a guarantee of the recognition and mobility of Doctor of Veterinary Medicine (DVM), graduates of the FVMUZ, within the European Higher Education Area (EHEA) and the European Research Area (ERA). The anticipated LOs clearly reflect the competencies needed for inclusion in the labour market, continuing education, or other needs of the individual and society as a whole.

All students wishing to obtain the qualification of DVM must acquire the competencies included in the Diploma Supplement (DS), and the competencies adopted by Day One Competences (DOC) including the general academic and professional attitudes related to professional development, and the relevant generic and clinical skills.

The Curriculum is implemented through subjects covering all subject groups, as listed in European System of Evaluation of Veterinary Training (ESEVT) SOP Annex 2, to achieve the Objectives of the IUGS programme. The Curriculum is regularly reviewed, improved, adjusted and updated to ensure that it remains relevant, adequate and that the DOCs can be effectively achieved.

Graduates of the IUGS programme are awarded with the qualification of DVM in Veterinary Sciences. The degree and qualification in VM conform to Qualification Level 7.1.sv of the CQF Descriptor, which is in line with the European Qualification Framework (EQF).

For new graduates, Croatian Veterinary Chamber (CVC) issues the license permitting them to practice veterinary medicine. International students receive a license in their home country in accordance with the legislation in force in that country.

Since 2016/2017, a study programme of veterinary medicine in English has been implemented. The IUGS programme in English is conducted in the same manner as studies in Croatian. The number of compulsory and elective subjects, and the three tracks are completely identical in both study programmes.

Student ID number:

The curriculum design is based on the following principles:

- The modern design of the curriculum is the result of nearly a century of teaching tradition, application of modern scientific achievements, the Bologna Process and ESG.
- Competence-based learning outcomes acquired at the curriculum and subject level are defined and described in the subject syllabi and catalogue of learning outcomes.
- Teaching, learning and examination methods are constructively aligned with the learning outcomes.
- The IUGS programme is designed by consistently distributing and integrating study subjects so that students acquire the knowledge and skills necessary to develop clinical competencies.
- An interdisciplinary approach to teaching in which subjects are integrated horizontally and vertically, from both non-clinical and clinical disciplines.
- Student-centred learning: students are encouraged to participate actively in their own learning, fostering transferable skills such as problem-solving, exploratory learning, critical thinking, and self-directed learning.
- Study tracks¹ in the fifth academic year provide advanced competence training.
- As part of the study programme, students must complete a variety of practical training. For example, students are required to complete external practical training (EPT) in a different veterinary organisations and institutions. The entire practice programme is created such that the student is designated a mentor, and that programme implementation is monitored and up to date.
- The principles of One Health Concept have been introduced through the compulsory and elective subjects.
- By encouraging the development of digital technologies and artificial intelligence (DT&AI) through the acquisition of digital skills, the FVMUZ is modernising the profession and offering new services and products for the Croatian market and the global market.
- The current IUGS programme was adapted to the ECTS credit system.
- Each study year, the total student workload is 60 ECTS credits, with one semester consisting of 30 ECTS credits. One ECTS credit represents 25 to 30 hours of student workload during the subject.
- A skills lab was opened in 2022 and training has been gradually introduced into the curriculum.

Resources and management of the curriculum

In addition to the facilities on campus and the veterinary teaching hospital (VTH), the following partners are being integrated into curriculum delivery: Ministry of Agriculture (MA), Board of Veterinary Medicine (BVM) (20 mentors), 53 veterinary stations and ambulatory services in the territory of Croatia (98 instructor mentors). The Črnovščak hunting and training ground operates as part of the FVMUZ and is used for the needs of teaching, research and professional work within the scope of the FVMUZ. Additional

Student ID number:

resources include the National and University Library in Zagreb (NSK) which has learning space and electronic resources, University Computing Centre SRCE (applications, repositories, collaboration tools, IT and intermediary systems).

Study tracks:

In the 10th semester of study, students select a study track: SCA, FAH or VPH and take the compulsory clinical subjects, subjects related to veterinary public health and other compulsory subjects within the selected study track. In the study tracks, intensive hands-on clinical training and problem-based learning in small groups is of the utmost importance. In these subjects, real and complex problems from everyday professional life are analysed. Furthermore, students are involved in seminars, practical work and discussions about scientific issues, and they make research-based decisions about further procedures.

During the winter semester of the 5th year of study, the Vice-dean for IUGS and students and the course leaders in each study track present students with the main characteristics of each study track and their subjects during the workshop. Students also receive a brochure outlining each of the study tracks and their subjects. Detailed descriptions of the study tracks can be found in the Information Package (IP, catalogue of all subjects).

Since 2016/2017, a IUGS programme of VM has been delivered in English. The programme in English is completely the same as Croatian programme and is delivered according to the same rules (approved by UNIZG and MSE) and same QA processes, except for those related to enrolment. The number of compulsory and elective subjects, and the three tracks are identical in both study programmes. The LOs and qualifications resulting from the study programme IUGC in English are published in the Diploma Supplement.

All students enrol in 62 core subjects in their 1st to 6th year of study (including compulsory subjects related to an individual study track), while students select a total of 70 elective subjects.

With the exception of the core subjects which are compulsory for all students, the curriculum includes electives that students may choose from the list of the elective subjects. Study tracks include compulsory subjects related to individual study tracks and electives related to individual study tracks.

Sources of additional information - Republic of Croatia; Ministry of Science, Education and Sports, <http://mzos.hr>, University of Zagreb, <http://www.unizg.hr>, Faculty of Veterinary Medicine, <http://www.vef.unizg.hr>

Curriculum hours of extra mural studies (EMS) for each student

In the first four years of study, all students are required to carry out practical field work during mandatory subjects, outside of the Faculty. This field work is a part of basic, zotechnical, pre-clinical and clinical subjects. It is in accordance with programme progression requirements and complement core learning. Field work is defined as an off-

Student ID number:

campus supervised learning experience in which academic and non-academic persons are involved. In the pre-clinical years (year 1/2), students undertake 96 hours of pre-clinical work placements/extra mural studies (EMS). In the clinical years (years 4/5/6) they undertake 33 hours extra mural studies.

Core clinical exercises/practicals/seminars prior to the start of the clinical rotations

- From the 1st to 4th semester, students are in contact with animals, either those available at the FVMUZ facilities or during farm visits in the form extra mural studies (EMS) (related to the following subjects: Introduction to Veterinary Medicine, Zoology, Environment, Animal Behaviour and Welfare, Animal Breeds Characteristics, Basic Animal Nutrition, Domestic Animal Physiology, Animal Breeding and Production). In doing so, they are trained for adequate knowledge of the structure, ethological and physiological needs of animals, and learn the skills and competences necessary for their breeding, nutrition, welfare, reproduction and hygiene in general. From the very first year of studies, FVMUZ encourages and prepares students for self-study and lifelong learning. Bones (whole skeletons/fragmentary), fresh organs, whole carcasses and other materials (microscopic slides, museum collections, software, models, etc.) are routinely used in pre-clinical training. The carcasses used in practical teaching, e.g., of anatomy, are donated after euthanasia (selection is based on biosecurity assessment); fresh organs are procured from slaughterhouses, and the quantity of both is determined on the basis of the number of students at the subject level.
- In the 5th and 6th semesters, as part of the General and Special Veterinary Pathology subject, students participate actively in laboratory exercises and perform dissections of whole carcasses of different animal species. In the 5th semester, students acquire knowledge, skills and competencies necessary for responsible and reasonable use of veterinary drugs in the treatment of animals, ensuring the safety of food chains and environmental protection.
- In the 6th semester, students are trained for efficient communication with owners, the public, colleagues and authorities. They are trained for professional conversation, conversation in individual cases, and other communication using advanced technology. For acquiring clinical skills before working on live patients and in the form of a special classroom, integration of the CSL is underway. In the CSL, students can practice veterinary skills, techniques and can self-assess their knowledge. Clinical Propaedeutics is performed with theoretical and practical training on the clinic's own animals in small groups. Students begin to develop their clinical skills through problem-based teaching and mandatory clinical work (with appropriate supervision). In studying Clinical Propaedeutics, students learn to perform general examinations animal fixation methods of all organ systems, blood sampling, drug injection techniques, etc.
- In the 7th and 8th semesters, students are included in clinical subjects through lectures and laboratory exercises (reproduction, neurology, orthopaedics, ophthalmology, anaesthesia, etc., in smaller groups), where they can acquire theoretical and practical knowledge and clinical experience through independent

Student ID number:

learning and mandatory clinical work with supervision. Students develop their clinical thinking and knowledge in aetiology and pathogenesis through diagnostics and examinations, treatments and accompanying procedures. They are also trained to use basic imaging equipment and perform an examination appropriate to the case, in accordance with good health and safety practices, and to assist all types of animals (including horses and exotic animals) in case of emergence. Clinical rotations are undertaken in small groups of students per teacher (from 4 to 6), also for night shifts and AC subjects.

- In the 9th, 10th and 11th semesters, students are trained to apply knowledge, skills and competencies in: preventive medicine, epidemiology, analytical skills, maintaining prescribed necessary documentation and making appropriate treatment plans and treatment management in the interest of patients (related to subjects Herd Health and Veterinary Epidemiology). Students perform AC work, including examination, diagnostics, therapy and general patient care, under teacher supervision. Students are able to improve their practical and clinical skills and acquire their first clinical experience in the field. They also acquire knowledge on applying principles of biosecurity, zoonotic disease control, environmental protection, sorting and disposal of medical waste. The One Health Concept is introduced in curriculum (related to subjects Infectious Diseases of Domestic Animals, Emerging Infectious Diseases, Zoonoses and Parasitic Zoonoses). During practical clinical work, students are required to describe all cases in the Ambulatory Clinic Logbook (Field work log) (HR) (ENG) and the Night Shift Logbook (HR) (ENG).
- The DOCs list is available to students, teachers and external stakeholders in the EPT Work Logbook (HR) (ENG) and other documents related to clinical subjects. It is also available on the FVMUZ website and other professional publications and journals.
- The Faculty has a software programme (VEF.Protocol) for registering patients in clinics and it is intended for issuing prescriptions, recording findings in patient records, scheduling examinations and charging for services. The programme is available to all employees and students.
- Training for the professional ethics and legal responsibilities of veterinarians in relation to patients, owners, society and the environment is performed from the 1st to 11th semester and is contained within the following subjects (core and elective subjects): Veterinary Ethics, Environment, Animal Behaviour and Welfare, Introduction to Veterinary Medicine, History of Veterinary Medicine and Forensic Veterinary Medicine, Responsibilities in Veterinary Medicine and State Veterinary Medicine.
- Adequate knowledge of hygiene and technology for the production, manufacture and placing on the market of food for animals or food of animal origin intended for human consumption forms the basis of training through subjects in the 10th and 11th semester, e.g. Food Hygiene and Technology and Veterinary Public Health. In addition to these subjects, this is also delivered in the elective subjects (Type 2) in the study tracks VPH and Type 3 elective subjects related to study track VPH.

Student ID number:

Day One Competences

“Competence” is a concept that unites knowledge, skills and attitudes. Competence requires acquisition of knowledge and skills, as well as self-confidence and the ability to apply what has been learned in practice. Day One Competences are the minimum standards required and the starting point for various roles in the veterinary profession.

After completing the degree, life-long professional training in the chosen field of activity will be necessary. Some fields of work may require training at the post-graduate level and further formal qualifications. New graduate students who have achieved Day One Competences should be able to perform the appropriate tasks independently as part of the duties of the veterinary profession, and will be sufficiently self-confident to perform the work of veterinary medicine, whilst still aware that they should seek guidance from more experienced colleagues. New graduates will probably need more time to perform some procedures. The support and guidance of older colleagues must be made possible and be readily available.

The Veterinary Faculty of the University of Zagreb is responsible for acquisition of Day One Competences by their students, and guarantees that students, when they graduate, are prepared to fulfil their professional role. In that sense, they are helped by professional practice in veterinary organizations. This contributes to the further perfection of skills for students through practical work, and even to the acquisition of new competences.

The acquired Day One Competences means that the graduated veterinarian is able to:

- 1.1 Understand the ethical and legal responsibilities of the veterinarian in relation to animals under his/her care, the environment, clients, policies and society.
- 1.2 Demonstrate knowledge of the organisation, management and legislation related to a veterinary business economics and employment rights.
- 1.3 Promote, monitor and maintain health and safety in the veterinary setting; demonstrate knowledge of systems of quality assurance; apply principles of risk management to their practice.
- 1.4 Communicate effectively with clients, the public, professional colleagues and responsible authorities, using language appropriate to the audience concerned and in full respect of confidentiality and privacy.
- 1.5 Prepare accurate clinical and client records, and case reports when necessary, in a form satisfactory to colleagues and understandable by the public.
- 1.6 Work effectively as a member of a multi-disciplinary team in the delivery of services.
- 1.7 Understand the economic and emotional context in which the veterinary surgeon operates.
- 1.8 Be able to review and evaluate literature and presentations critically.
- 1.9 Understand and apply principles of clinical governance, and practise evidence-based veterinary medicine.

Student ID number:

- 1.10 Use their professional capabilities to contribute to the advancement of veterinary knowledge and One Health concept, in order to improve animal health and welfare, the quality of animal care and veterinary public health.
- 1.11 Demonstrate ability to cope with incomplete information, deal with contingencies, and adapt to change.
- 1.12 Demonstrate that they recognise personal and professional limits, and know how to seek professional advice, assistance and support when necessary.
- 1.13 Demonstrate an ability of lifelong learning and a commitment to learning and professional development. This includes recording and reflecting on professional experience and taking measures to improve performance and competence.
- 1.14 Take part in self-audit and peer-group review processes in order to improve performance.
- 1.15 Obtain an accurate and relevant history of the individual animal or animal group, and its/their environment.
- 1.16 Handle and restrain animal patients safely and with respect of the animal, and instruct others in helping the veterinarian perform these techniques.
- 1.17 Perform a complete clinical examination and demonstrate ability in clinical decision-making.
- 1.18 Develop appropriate treatment plans and administer treatment in the interests of the animals under their care with regard to the resources available.
- 1.19 Attend in an emergency and perform first aid in common animal species*.
- 1.20 Assess the physical condition, welfare and nutritional status of an animal or group of animals and advise the client on principles of husbandry and feeding.
- 1.21 Collect, preserve and transport samples, select appropriate diagnostic tests, interpret and understand the limitations of the test results.
- 1.22 Communicate clearly and collaborate with referral and diagnostic services, including providing an appropriate history.
- 1.23 Understand the contribution that imaging and other diagnostic techniques can make in achieving a diagnosis. Use basic imaging equipment and carry out an examination effectively as appropriate to the case, in accordance with good health and safety practice and current regulations.
- 1.24 Recognise signs of possible notifiable, reportable and zoonotic diseases as well as abuse and take appropriate action, including notifying the relevant authorities.
- 1.25 Access the appropriate sources of data on licensed medicines.
- 1.26 Prescribe and dispense medicines correctly and responsibly in accordance with legislation and latest guidance.
- 1.27 Report suspected adverse reactions through the appropriate channel.
- 1.28 Apply principles of bio-security correctly.
- 1.29 Perform aseptic procedures appropriately.
- 1.30 Safely perform sedation, and general and regional anaesthesia; implement chemical methods of restraint.
- 1.31 Assess and manage pain.
- 1.32 Recognise when euthanasia is appropriate and perform it with respect of the animal, using an appropriate method, whilst showing sensitivity to the feelings of owners and

Student ID number:

others, with due regard to the safety of those present; advise on disposal of the carcase.

- 1.33 Perform a systematic gross post-mortem examination, record observations, sample tissues, store and transport them.
- 1.34 Perform ante-mortem inspection of animals destined for the food-chain, including paying attention to welfare aspects; correctly identify conditions affecting the quality and safety of products of animal origin, to exclude those animals whose condition means their products are unsuitable for the food-chain.
- 1.35 Perform inspection of food and feed including post-mortem inspection of food producing animals and inspection in the field of related food technology.
- 1.36 Advise on, and implement, preventive and eradication programmes appropriate to the species and in line with accepted animal health, welfare and public health standards.

Underpinning knowledge and understanding In order to perform effectively their professional duties, new veterinary graduates will need underpinning knowledge in the field of biological, social and animal sciences and laws related to the animal industries. In general, this includes the following:

- 2.1 Understanding of, and competence in, the logical approaches to both scientific and clinical reasoning, the distinction between the two, and the strengths and limitations of each.
- 2.2 Research methods, the contribution of basic and applied research to veterinary science and implementation of 3Rs (Replacement, Reduction, Refinement).
- 2.3 The structure, function and behaviour of animals and their physiological and welfare needs.
- 2.4 A knowledge of the businesses related to animal breeding, production and keeping.
- 2.5 The aetiology, pathogenesis, clinical signs, diagnosis and treatment of the common diseases and disorders that occur in the common animal species*.
- 2.6 Awareness of other diseases of international importance that pose a risk to national and international biosecurity and trade.
- 2.7 Legislation relating to animal care and welfare, animal movement, and notifiable and reportable diseases.
- 2.8 Medicines legislation and guidelines on responsible use of medicines, including responsible use of antimicrobials and antiparasitics.
- 2.9 The principles of disease prevention and the promotion of health and welfare.
- 2.10 Veterinary public health issues, e.g. epidemiology, transboundary epizootic diseases, zoonotic and food-borne diseases, emerging and re-emerging diseases, food hygiene and technology.
- 2.11 Principles of effective interpersonal interaction, including communication, leadership, management and team working.
- 2.12 The ethical framework within which veterinary surgeons should work, including important ethical theories that inform decision-making in professional and animal welfare-related ethics.

This Logbook serves as evidence that taught material and skills,

Student ID number:

**indicated in the curriculum and some specific subjects for acquisition of
have been covered.**

.....
(Name, surname, family name)

.....
(Student ID number)

.....
(Year of enrolment in the FVMUZ)

**The methods for certification and assessment are reliable and include
different approaches. The quality control of student logbooks ensures
that all clinical procedures, theoretical and practical training planned in
the curriculum are fully completed by each student.**

General Rules for Filling Out the Document

1. At the beginning of a student's studies at the Veterinary Faculty, as well as after completion of all the activities listed in the study programmes, the Office for Integrated Studies of the Veterinary Faculty will conduct complete verification of each "Logbook of acquired practical skills and competences over the course of training in veterinary medicine – FMUZG", ensuring its validity.
2. Evaluation of skills and Day One Competences must be based on real patients, animals, as well as simulation using puppets, models and schemes.
3. Certification of meeting the requirements or activities is performed by the teacher, who must write in their name and signature.
4. "Shown, taught and explained" means being present at the Faculty and in the teaching facilities where the material in question is taught or explained in detail by a student, in order to demonstrate specific knowledge and skills. "Performed under the supervision of a teacher" means conducting specific handling and laboratory procedures, researching a problem, topic etc.
5. Certification of skills is performed during practical classes and clinical procedures, when receiving points etc.
6. The completion and certification of skills is conducted throughout the entire period of study, and lastly following the defence of the master's thesis.
7. From time to time, each student will scan and save a back-up copy of the document, which serves as proof if the actual document is lost or destroyed.

University Integrated Undergraduate and Graduate Study in Veterinary Medicine

Student ID number:

| Subject code for certificate | Subject code for certificate | Subject code for certificate |
|---|---|---|
| 1. 160995 Anatomy with Organogenesis of Domestic Animals I | 21. 198132 Animal Breeding and Production | 40. 253246 Internal Medicine |
| 2. 160899 Physics and Biophysics | 22. 173844 Hygiene and Housing of Animals | 41. 198139 Surgery, Orthopaedics and Ophthalmology II |
| 3. 212592 Medical Chemistry | 23. 173878 General Microbiology | 42. 198140 Obstetrics and Reproduction I |
| 4. 185559 Zoology | 24. 161017 Histology with General Embryology | 43. 198141 Methods of Physical Therapy and Diagnostics |
| 5. 160986 Botany in Veterinary Medicine | 25. 253207 Parasitology and Parasitic Diseases | 44. 198142 Biology and Pathology of Beneficial Insects |
| 6. 160998 Basic Statistics in Veterinary Medicine | 26. 185659 General Veterinary Pathology | 45. 253249 Biology and Pathology of Aquatic Organisms |
| 7. 161004 Introduction to Veterinary | 27. 226365 Pathophysiology I | 46. 198148 Toxicology |
| 8. 161006 Environment, Animal Behaviour and Welfare | 28. 185661 Special Microbiology | 47. 238174 Surgery, Orthopaedics and Ophthalmology III |
| 9. 161013 Anatomy with Organogenesis of Domestic Animals II | 29. 185662 Pharmacology | 48. 212606 Obstetrics and Reproduction II |
| 10. 253193 Biochemistry in Veterinary Medicine | 30. 238160 Radiation Hygiene | 49. 238178 Food Hygiene and Technology |
| 11. 161022 Animal Breeds Characteristics | 31. 253244 Parasitology and Parasitic Diseases | 50. 212608 Infectious Diseases of Domestic Animals |
| 12. 173682 Physiology of Domestic Animals I | 32. 185665 Special Veterinary Pathology | 51. 212609 Veterinary Epidemiology |
| 13. 173702 Molecular Biology and Genomics in Veterinary Medicine | 33. 238161 Pathophysiology II | 52. 212676 State Veterinary Medicine |
| 14. 238159 Basic Animal Nutrition | 34. 238162 Clinical Propedeutics | 53. 212680 Infectious Diseases of Domestic Animals |
| 15. 173706 Anatomy with Organogenesis of Domestic Animals III | 35. 185773 Communication Skills in Veterinary Medicine | 54. 238191 Food Hygiene and Technology |
| 16. 198130 Animal Breeding and Production | 36. 253245 Internal Medicine | 55. 212682 Field Service Clinic |
| 17. 173723 Hygiene and Housing of Animals | 37. 198136 Surgery, Orthopaedics and Ophthalmology I | 56. 226395 Forensic Veterinary Medicine |
| 18. 253196 Veterinary Immunology | 38. 198137 General and Clinical Radiology | 57. 253998 Poultry Diseases |
| 19. 253198 Physiology of Domestic Animals II | 39. 198138 Game Breeding and Management | 58. 238195 Heard Health |
| 20. 238158 Applied Animal Nutrition | | 59. 226402 Veterinary Economics |
| | | 60. 226406 Field Service Clinic |

Student ID number:

FUNDAMENTAL AND PRECLINICAL SUBJECTS

Abbreviations

IU-PR Study Programme Learning Outcomes
 OIU-SK Mandatory Learning outcomes of the qualification/professional standard
 DOC Learning outcomes - Day One Competences

Subject (Course): **Zoology**
 Subject code for certificate: **185559**
 IU-PR: 1
 OIU-SK:7
 DOC: 1.2, 1.7, 1.14, 2.,1, 2.2, 2.12

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Taxonomically classify every animal to the phylum level and mammals to the order level. | | | | |
| 2 | Interpret basics of evolutionary processes. | | | | |
| 3 | Explain the structure and role of cell parts during cell divisions. | | | | |
| 4 | Distinguish types of reproduction, ways and processes of fertilization | | | | |
| 5 | Know abiotic and biotic ecological factors and mechanisms of their interactions | | | | |
| 6 | Distinguish biomes and phases of community successions. | | | | |
| 7 | Classify types of pollutants and basic mechanism of their interactions in ecosystems. | | | | |

Student ID number:

Subject (Course): **Botany in veterinary medicine**

Subject code for certificate: **160986**

IU-PR: 1, 2

OIU-SK: 1, 7

DOC: 1.7, 1.14, 2.1, 2.12, 2.2, 1.20, 2.3, 2.4

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Compare the structure of prokaryotic and eukaryotic cells and enumerate groups of prokaryotes and explain their significance for animal health as well as the role and application of bacteria in the biosphere and life of humans and animals | | | | |
| 2 | Distinguish basic systematic categories of plants important for veterinary medicine | | | | |
| 3 | Differentiate morphology group of plants important in animal nutrition and identify groups of medicinal and honey plants and groups of plants poisonous to animals | | | | |
| 4 | Draw and explain the processes associated with cell division in plants and animals, and operate a light microscope and draw observed cells and intracellular structures | | | | |
| 5 | Written to summarize their knowledge of the structure of plant cells and the function of its organelles with special reference to material, accommodation and the role of DNA molecules | | | | |
| 6 | Demonstrate their knowledge in the process of separating molecules of DNA from plant cells | | | | |
| 7 | Explain the processes that arise from inorganic organic matter and light energy is converted to chemical (division reaction, photolysis of water and the respiratory chain) | | | | |
| 8 | Systems used to search for content relevant to botany in veterinary medicine using literature and databases | | | | |

Student ID number:

Subject (Course): **Medical Chemistry**

Subject code for certificate: **212592**

IU-PR: 1, 3

OIU-SK: 7

DOC: 1.21

| NO | Learning outcome at the course level | Date, period | time | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|--------------|------|---------------------------------|-------------------|-------------------------------------|
| 1 | Apply basic chemical reactions and physicochemical processes; | | | | | |
| 2 | Compare the structure and properties of simple organic compounds and complex biologically important molecules; | | | | | |
| 3 | Link the relationship of chemical structure of a molecule and its physical and chemical properties; | | | | | |
| 4 | Independently use basic methods of analytic chemistry for quantitative and qualitative analysis; | | | | | |
| 5 | Apply chemical calculations to solve the tasks. | | | | | |

DRAFT

Student ID number:

Subject (Course): **Physics and biophysics**

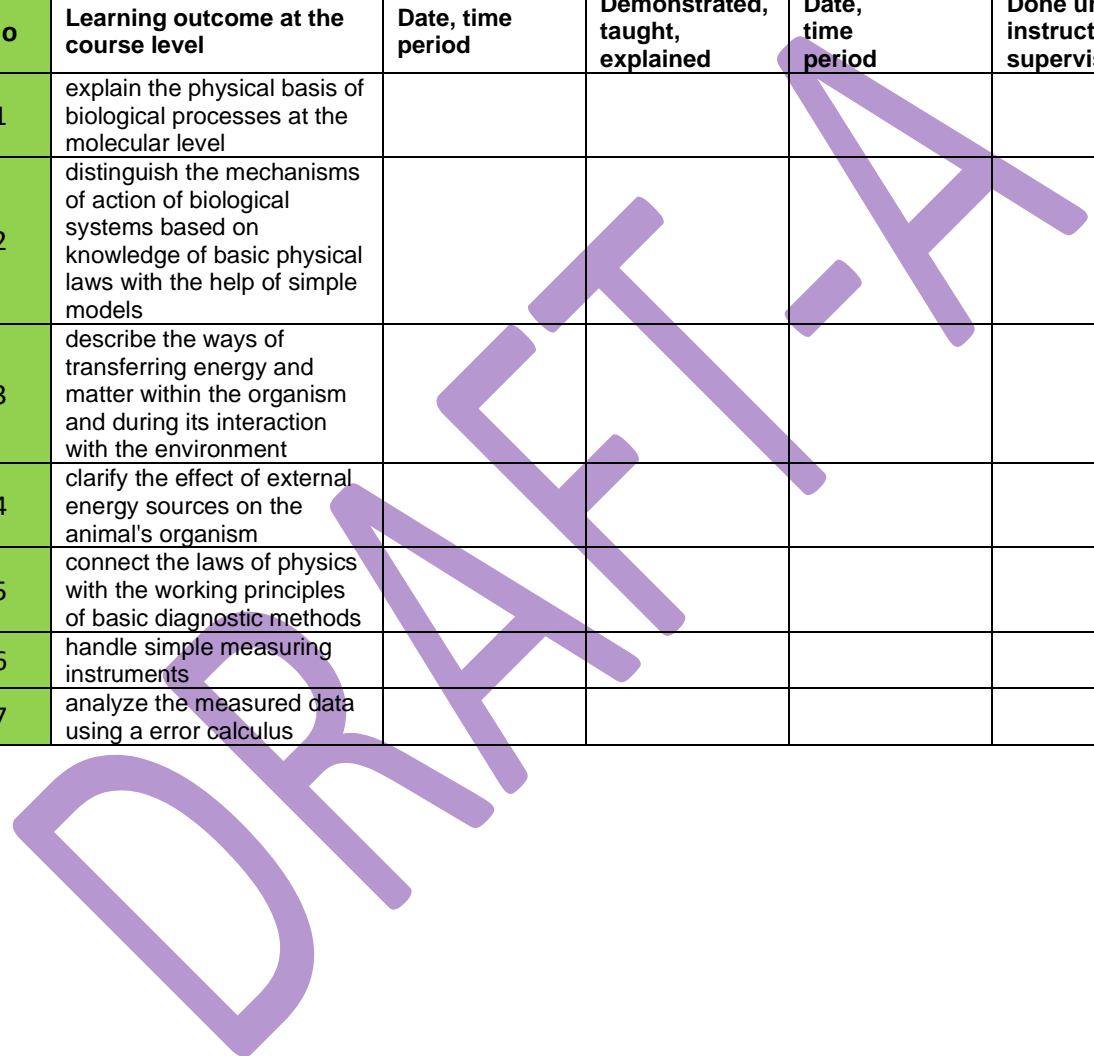
Subject code for certificate: **160899**

IU-PR: IU-PR1, IU-PR3, IU-PR7

OIU-SK: 2, 7

DOC: 1.8, 1,23, 1.30, 2.2

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | explain the physical basis of biological processes at the molecular level | | | | |
| 2 | distinguish the mechanisms of action of biological systems based on knowledge of basic physical laws with the help of simple models | | | | |
| 3 | describe the ways of transferring energy and matter within the organism and during its interaction with the environment | | | | |
| 4 | clarify the effect of external energy sources on the animal's organism | | | | |
| 5 | connect the laws of physics with the working principles of basic diagnostic methods | | | | |
| 6 | handle simple measuring instruments | | | | |
| 7 | analyze the measured data using a error calculus | | | | |



Student ID number:

Subject (Course): **Basic Statistic in Veterinary Medicine**

Subject code for certificate: **160998**

IU-PR: 1, 7

OIU-SK: 7

DOC: 1.8; 2.1; 2.2

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | identify the types of variables | | | | |
| 2 | interpret the results of basic statistical data processing and analysis | | | | |
| 3 | determine the normality of variables | | | | |
| 4 | select the test to verify the hypothesis | | | | |
| 5 | determine the correlation between two or more variables | | | | |
| 6 | utilise different programming environments for statistical analysis | | | | |

DRAFT

Student ID number:

Subject (Course): **Anatomy with Organogenesis of Domestic Animals I**

Subject code for certificate: **160995**

IU-PR: 1

OIU-SK: 7

DOC: 2.3; 1.8; 1.28

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Following successful completion of the course, students will be able to describe the function and structure of the studied organs and organ systems | | | | |
| 2 | After successful completion of the course, the student will use the acquired knowledge in the study of veterinary medicine and veterinary practice | | | | |
| 3 | Following successful completion of the course, the student will distinguish organs and organ systems and their function in different species of domestic mammals | | | | |
| 4 | After successful completion of the course, the student will be able to assess whether or not it is a normal macroscopic anatomical finding | | | | |
| 5 | After successful completion of the course, the student will be able to present the usual development and changes in the embryonic development of organs and organ systems | | | | |
| 6 | After successful completion of the course, the student will be able to independently assess the mutual relationship between the organs and organ systems of domestic mammals and understand their function. | | | | |

Student ID number:

Subject (Course): **Environment, Animal Behaviour and Welfare**

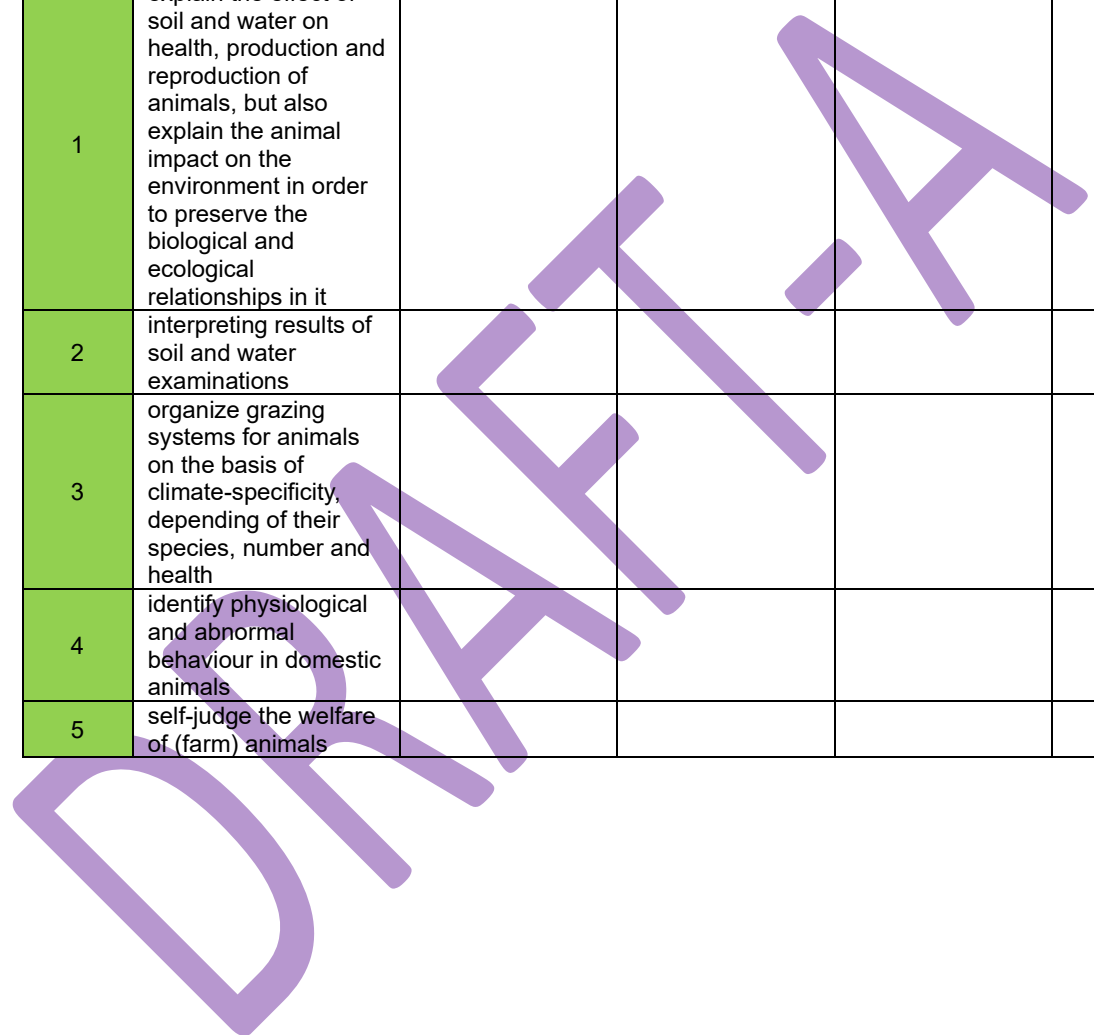
Subject code for certificate: **161006**

IU-PR: 2,8

OIU-SK: 1

DOC: 1.10; 1.13; 1.14; 1.15; 1.8; 2.2; 2.3; 2.4; 2.7; 2.9

| No | Learning outcome at the course level - | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | explain the effect of soil and water on health, production and reproduction of animals, but also explain the animal impact on the environment in order to preserve the biological and ecological relationships in it | | | | |
| 2 | interpreting results of soil and water examinations | | | | |
| 3 | organize grazing systems for animals on the basis of climate-specificity, depending of their species, number and health | | | | |
| 4 | identify physiological and abnormal behaviour in domestic animals | | | | |
| 5 | self-judge the welfare of (farm) animals | | | | |



Student ID number:

Subject (Course): **Anatomy with Organogenesis of Domestic Animals II**

Subject code for certificate: **161013**

IU-PR: 1

OIU-SK: 7

DOC: 2.3; 1.8; 1.28

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Following successful completion of the course, students will be able to describe the function and structure of the studied organs and organ systems | | | | |
| 2 | After successful completion of the course, the student will use the acquired knowledge in the study of veterinary medicine and veterinary practice | | | | |
| 3 | Following successful completion of the course, the student will distinguish organs and organ systems and their function in different species of domestic mammals | | | | |
| 4 | After successful completion of the course, the student will be able to assess whether or not it is a normal macroscopic anatomical finding | | | | |
| 5 | After successful completion of the course, the student will be able to present the usual development and changes in the embryonic development of organs and organ systems | | | | |
| 6 | After successful completion of the course, the student will be able to independently assess the mutual relationship between the organs and organ systems of domestic mammals and understand their function. | | | | |

Student ID number:

Subject (Course): Anatomy with Organogenesis of Domestic Animals III

Subject code for certificate: **173706**

IU-PR: 1

OIU-SK: 7

DOC: 2.3; 1.8; 1.28

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Following successful completion of the course, students will be able to describe the function and structure of the studied organs and organ systems | | | | |
| 2 | After successful completion of the course, the student will use the acquired knowledge in the study of veterinary medicine and veterinary practice | | | | |
| 3 | Following successful completion of the course, the student will distinguish organs and organ systems and their function in different species of domestic mammals | | | | |
| 4 | After successful completion of the course, the student will be able to assess whether or not it is a normal macroscopic anatomical finding | | | | |
| 5 | After successful completion of the course, the student will be able to present the usual development and changes in the embryonic development of organs and organ systems | | | | |
| 6 | After successful completion of the course, the student will be able to independently assess the mutual relationship between the organs and organ systems of domestic mammals and understand their function. | | | | |

Student ID number:

Subject (Course): Animal Breeds Characteristics

Subject code for certificate: **161022**

IU-PR: 2, 7

OIU-SK: 1, 7

DOC: 1.8; 1.14, 1.20

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Explain the morphological, physiological and psychological changes of animals after domestication and selection directed to certain characteristics as well as animal breed characteristics (general and special) | | | | |
| 2 | Identify the species, breed, category and / or production type of domestic animals (cattle, horses, pigs, sheep, goats, donkeys, poultry, dogs, cats and the most important breeds of rabbits, laboratory animals and cage pets) | | | | |
| 3 | Describe the exterior of certain domestic animals | | | | |
| 4 | Evaluate production type or breeding group based on individual phenotypic characteristics | | | | |
| 5 | Use the gained knowledge in judging the exterior, condition, constitution, temperament and age as well as measuring and marking of animals | | | | |
| 6 | Identify basic administrative books, forms and computer programs used in the registration of domestic animals | | | | |

Student ID number:

Subject (Course): **Biochemistry in Veterinary Medicine**

Subject code for certificate: **253193**

IU-PR: 1, 2

OIU-SK: 1

DOC: 1, 2

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | After successfully passing the course student will be able to define the structure of most proteins, carbohydrates and fats in the body, and the importance of certain types of chemical bonds in metabolic processes | | | | |
| 2 | to explain the correlation of structure and main function of most proteins, carbohydrates and fats | | | | |
| 3 | to show the sequence of biochemical changes in the major metabolic pathways, explain the effect of the major enzyme systems in catalysis of certain reactions | | | | |
| 4 | to analyse the ways of regulation of biological activity | | | | |
| 5 | to apply a simple biochemical methods for measuring analytes in biological samples | | | | |
| 6 | to understand the connection of metabolic pathways and accept the theoretical basis for the selection and evaluation to the results of various laboratory measurements and understand changing of metabolic pathways using various treatment procedures | | | | |

Student ID number:

Subject (Course): **Introduction to Veterinary**

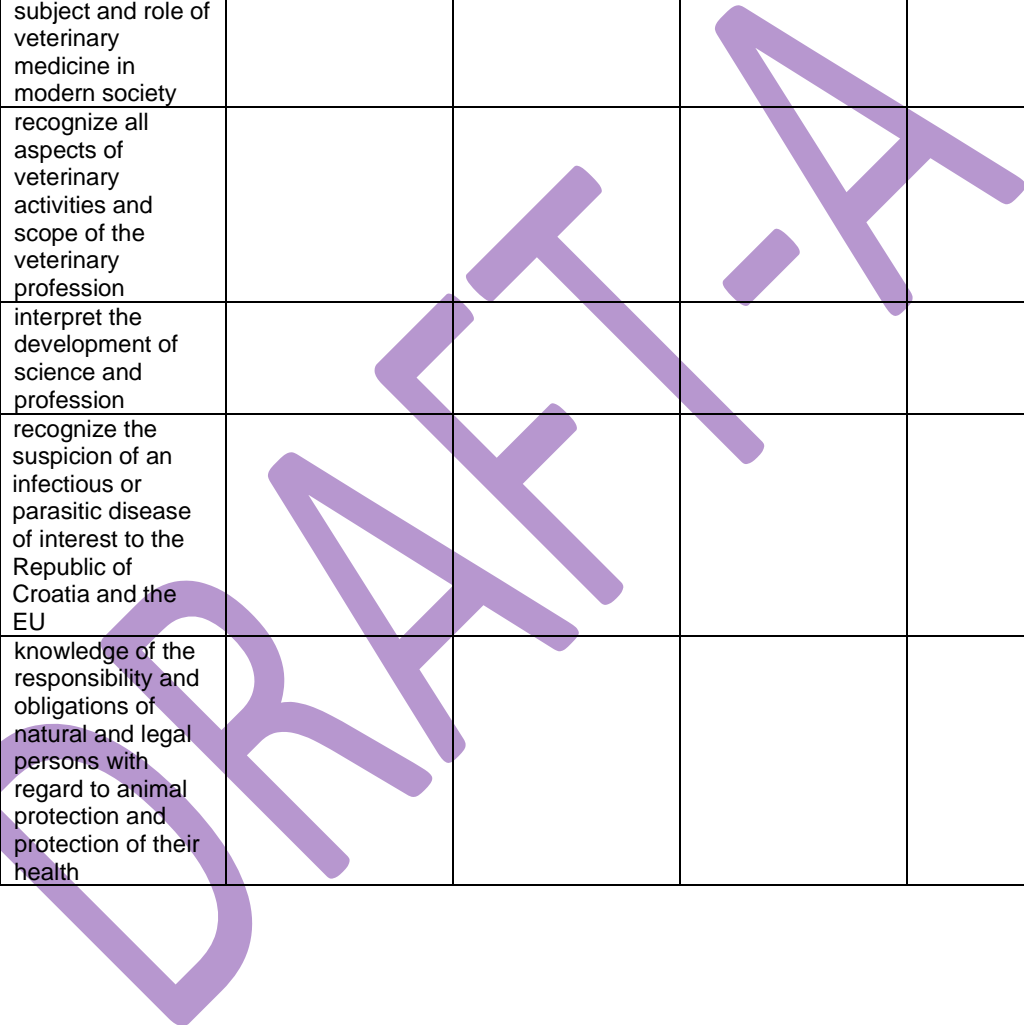
Subject code for certificate: **161004**

IU-PR: 1, 10 i 8

OIU-SK: OIU-SK: 7

DOC: DOC: 1.1 i 2.12

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | define the term, subject and role of veterinary medicine in modern society | | | | |
| 2 | recognize all aspects of veterinary activities and scope of the veterinary profession | | | | |
| 3 | interpret the development of science and profession | | | | |
| 4 | recognize the suspicion of an infectious or parasitic disease of interest to the Republic of Croatia and the EU | | | | |
| 5 | knowledge of the responsibility and obligations of natural and legal persons with regard to animal protection and protection of their health | | | | |



Student ID number:

Subject (Course): **Applied Animal Nutrition**

Subject code for certificate: **238158**

IU-PR: 1,2

OIU-SK: 1

DOC: 1.20, 1.21,1.8, 2.3, 2.4

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Knowing the characteristics of feeding different species of domestic and wild animals in certain physiological periods | | | | |
| 2 | Estimating the daily nutritive needs of animals according to the tables of nutritional requirements, biological experiments and practical experience | | | | |
| 3 | Recognize deficiencies in feed of domestic and wild animals | | | | |
| 4 | Applied manual and computer assembling meals for certain species and categories of animals | | | | |
| 5 | Recommend proper feeding for different species and categories of animals in practical farm conditions and corrections for inappropriate feeding | | | | |

Student ID number:

Subject (Course): **Physiology of domestic animals I**

Subject code for certificate: **173682**

IU-PR: 1,3

OIU-SK:1

DOC: 1.8, 1.21, 1.28, 2.3

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | describe the basic principles and the facts of the physiological processes from the cell to the whole organism | | | | |
| 2 | explain the physiological functions of the blood, nervous and muscular system and hormones | | | | |
| 3 | recognize the importance of maintaining continuous function of blood, nerve and muscle tissue, | | | | |
| 4 | connect the regulatory mechanisms maintain homeostasis and acid-base balance; | | | | |
| 5 | use the skills of obtaining and analyzing whole blood, plasma, and serum | | | | |
| 6 | to evaluate whether the obtained values are within physiological limits for certain species of domestic animals | | | | |
| 7 | to conclude how blood tests can indicate certain pathological changes or certain disease stages | | | | |

Student ID number:

Subject (Course): Physiology of domestic animals II

Subject code for certificate: **253198**

IU-PR: 1,3

OIU-SK:1

DOC: 1.8, 1.21, 1.28, 2.3

| No | Learning outcome at the course level - | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | describe physiology of heart and cardiovascular system, respiration, digestion in monogastric animals and ruminants, excretion, the metabolism of nutrients, minerals and vitamins, physiological processes of oviposition, lactation and thermoregulation; | | | | |
| 2 | associate regulatory mechanisms of specific body systems; | | | | |
| 3 | interpret functions of different body systems during different physiological conditions; | | | | |
| 4 | prepare biological samples for various laboratory analyses; | | | | |
| 5 | know the concept of modern diagnostic tools and machines (haematological and biochemical analyser, spirometry, ECG, EMG, EEG); | | | | |
| 6 | analyse and interpret the results of laboratory tests | | | | |

Student ID number:

Subject (Course): **Hygiene and Housing of Animals**

Subject code for certificate: **173723 i 173844**

IU-PR: 2, 10

OIU-SK: 1

DOC: 1.10, 1.13, 1.20, 1.28, 1.36, 1.8, 2.4, 2.7, 2.9

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | describe the impact of the accommodation and housing conditions of certain species and categories of animals on their health, production and reproductive performance | | | | |
| 2 | define the role of veterinarians in the transportation and care of animals, in order to avoid stress and disorders in their health due to improper transfer from one environment to another, or poor hygiene of animals | | | | |
| 3 | choose ways of animal waste substances disposing for the environmental pollution prevention | | | | |
| 4 | independently measure microclimatic conditions in certain animal facilities | | | | |
| 5 | propose appropriate measures of disinfection and control of harmful insects and rodents in order to preserve the animals and humans health status | | | | |
| 6 | independently conclude about animal welfare on the basis of the production conditions | | | | |

Student ID number:

Subject (Course): **Histology with General Embryology**

Subject code for certificate: **161017**

IU-PR: 1; 2

OIU-SK:1

DOC: 1,21; 1,28; 2.2; 2.3

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | recognize and define the basic elements of the microscopic structures of tissues and organs of animals | | | | |
| 2 | explain and compare the structure of certain organs in different animal species | | | | |
| 3 | propose the necessary histological method of processing the sample | | | | |
| 4 | independently cut off a piece of tissue and fix it correctly for the selected histological method | | | | |
| 5 | use the microscope efficiently for the purpose of analysis and study of histological slides | | | | |
| 6 | recognize and analyze the histological slides of various organs and tissues | | | | |
| 7 | examine the relations between the structures and development of domestic animals | | | | |

Student ID number:

Subject (Course): **Molecular biology and genomics in veterinary medicine**

Subject code for certificate: **173702**

IU-PR: 1, 7

OIU-SK:7

DOC: 1.2, 1.7,. 1.14, 2.1, 2.2, 2.12, 1.8, 1.25, 2.1

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Recognition and understanding of contemporary aspects of cytology, molecular biology and genetics in veterinary medicine, public health and forensic | | | | |
| 2 | Understanding of basic principles of molecular research of animal cells and tissue | | | | |
| 3 | Understanding of molecular processes of replication, transcription and translation of animal information macromolecules. | | | | |
| 4 | Understanding health and ecological justification and risk of using transgenic animal organisms and cells, biotechnological preparations (cytokines, hormones, enzymes, vaccines, medications) and genetically modified food of animal origin. | | | | |
| 5 | Understanding genetic disorders of animals of interest for veterinary medicine | | | | |
| 6 | Selecting molecular-genetic method for preventive, diagnostic and therapy of ill animal. | | | | |

Student ID number:

Subject (Course): **Animal Breeding and Production**

Subject code for certificate: **198130, 198132**

IU-PR: 2; 7

OIU-SK: 1; 7

DOC: 1.3; 1.7; 1.8; 1.10; 1.20; 1.21; 1.28; 1.36; 2.2; 2.4; 2.7; 2.9

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | After successfully completing the course, students will be able to explain the role of the genetic basis in different ways of breeding and exploiting animals, | | | | |
| 2 | apply different methods to improve the genetic basis of animals with regard to specific breeding traits, | | | | |
| 3 | interpret the breeding value of purebred animals | | | | |
| 4 | utilize breeding programs | | | | |
| 5 | explain molecular genetic methods in improving animal production and health | | | | |
| 6 | identify different animal production systems, | | | | |
| 7 | collect and analyze animal health and production data, set goals in cooperation with the farmer and control progress towards the set goals. | | | | |

Student ID number:

Subject (Course): **Basic Animal Nutrition**

Subject code for certificate: **238159**

IU-PR: 2, 3

OIU-SK: 1

DOC: 1.20, 1.21, 2.4

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Understand basic concepts about nutrients | | | | |
| 2 | Have an insight into analytical methods and basic chemical analysis of feed | | | | |
| 3 | Estimate the nutritional value of feeds | | | | |
| 4 | Understand the variations between feed mixtures and pet food | | | | |
| 5 | Have knowledge about substances that can contaminate feed | | | | |
| 6 | Interpret the results of individual analyses of animal feed | | | | |
| 7 | Recognize the nutritional value and safety of certain feed ingredients | | | | |
| 8 | Know the production technology of certain forms of feed | | | | |
| 9 | Identify the specific nutritional needs of animals in certain physiological and production periods | | | | |
| 10 | Calculate the required nutritional composition of feed suitable for individual physiological and production periods | | | | |

Student ID number:

Subject (Course): **General Microbiology**

Subject code for certificate: **173878**

IU-PR: 3

OIU-SK: 4

DOC: 1.8, 1.21, 1.28

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | to demonstrate basic knowledge on morphology, physiology, specific qualities of cultivation and identification of microorganisms | | | | |
| 2 | to demonstrate basic knowledge on antigen properties, tenacity, relation to antimicrobial substances, pathogenicity of microorganisms | | | | |
| 3 | to demonstrate basic knowledge on methods of etiological diagnostics as well as possibilities of immunoprophylaxis of infectious diseases | | | | |
| 4 | students can take and send different materials for microbiological and immunological tests | | | | |
| 5 | perform simple procedures of microorganism identification, including use of commercial compounds suitable for veterinarians in practice | | | | |

Student ID number:

Subject (Course): **Veterinary Immunology**

Subject code for certificate: **253196**

IU-PR: 1, 5

OIU-SK: 3, 4

DOC: 1.8, 1.10, 1.36, 2.9

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Unite the importance of serological methods with identification of infectious agents | | | | |
| 2 | Perform the proper serological reactions for right diagnosis of infectious disease | | | | |
| 3 | Read off and interpretate the obtained results of serological methods | | | | |
| 4 | Aquire knowledge of vaccinnes and vaccination programs for safety of animal health | | | | |
| 5 | Conceive the meaning of hyper- and hypo-reactivity of immune system with its outcomes | | | | |

DRAFT

Student ID number:

Subject (Course): **Radiation hygiene**

Subject code for certificate: **238160**

IU-PR: 1

OIU-SK: 7

DOC: 1.8; 1.13; 1.35

| No | Learning outcome at the course level - | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | recognize the sources of ionizing radiation | | | | |
| 2 | describe the pathway of radioactive contamination and the biological effects of ionizing radiation | | | | |
| 3 | protect the housings, animal habitats, domestic animals, animal feed and foodstuff from radioactive contamination and radiation | | | | |
| 4 | perform decontamination of domestic animals, animal feed, meat, milk, water and other food of animal origin, animal habitats, various subjects and environment (soil, farmlands) and check up the success of decontamination | | | | |
| 5 | evaluate radiation hygiene properties of meat, milk and other food | | | | |
| 6 | use the dosimeters and detectors of ionizing radiation and calculate the radiation dose | | | | |
| 7 | recognize food conserving by ionizing radiation | | | | |
| 8 | recognize the sources of non-ionizing (microwave) radiation and describe the biological effects | | | | |

Student ID number:

Subject (Course): **Pathophysiology I**

Subject code for certificate: **226365**

IU-PR: 3

OIU-SK: 4

DOC: 1.8; 1.21; 1.28

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Define the terms health and disease | | | | |
| 2 | Describe bioactive substances and their role in pathophysiology | | | | |
| 3 | Describe endocrinopathies | | | | |
| 4 | Describe disturbances in neural system function | | | | |
| 5 | Master biological samples handling | | | | |
| 6 | Determine serum protein, glucose and lipid concentrations and interpret the results | | | | |

DRAFT

Student ID number:

Subject (Course): **Pathophysiology II**

Subject code for certificate: **238161**

IU-PR: 3

OIU-SK: 4

DOC: 1.8; 1.21; 1.28

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Describe disturbances in carbohydrate, fat and protein metabolism | | | | |
| 2 | Describe disturbances in hepatic and biliary function | | | | |
| 3 | Describe digestive system pathophysiology | | | | |
| 4 | Describe disturbances in blood and hematological system | | | | |
| 5 | Describe disturbances of heart functions | | | | |
| 6 | Describe disturbances in respiratory system functions | | | | |
| 7 | Describe renal diseases pathophysiology | | | | |
| 8 | Perform biochemical laboratory analyses and interpret results | | | | |
| 9 | Perform hematological laboratory analyses and interpret results | | | | |

Student ID number:

Subject (Course): Communication Skills in Veterinary Medicine

Subject code for certificate: **185773**

IU-PR: 9

OIU-SK: 3

DOC: 1.4; 1.6; 1.11; 1.14; 1.22; 2.11; 2.12

| IU broj | | | | | |
|---------|--|--|--|--|--|
| 1 | analyze and compare communication relationships in dialogue and persuasion in discussing the prognosis of treatment and risk communication; | | | | |
| 2 | correctly interpret the underlying concepts - intrapersonal, interpersonal, verbal, nonverbal, social and media communication; | | | | |
| 3 | argue the importance of knowing the communication dynamics and challenges of communication in veterinary; | | | | |
| 4 | to describe the role of verbal and non-verbal communication in everyday and business life and prepare to talk about giving diagnosis and therapy; | | | | |
| 5 | analyze and interpret the verbal and non-verbal communication of their interlocutors; | | | | |
| 6 | use the acquired knowledge about the relationship of interpersonal communication and communication in the business environment; | | | | |
| 7 | analyze and compare various types of communication; | | | | |
| 8 | to evaluate the quality of interpersonal communication; | | | | |
| 9 | critically analyze and adopt the process of active listening in interpersonal diagnostic communication; | | | | |
| 10 | to argue the reasons why it is necessary to know the communication dynamics in the everyday and business environment and how to use them in relation between veterinarian and owner of the client; | | | | |

Student ID number:

CLINICAL COURSES

Subject (Course): **General Veterinary Pathology**

Subject code for certificate: **185659**

IU-PR: 1, 3

OIU-SK: 4, 7

DOC: 1.8; 1.15; 1.21; 1.28; 1.33; 2.6

| No | Learning outcome at the course level | Date, period | time | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|--------------|------|---------------------------------|-------------------|-------------------------------------|
| 1 | get knowledge in general pathology for further performing of education in other clinical subjects | | | | | |
| 2 | be able to recognise a pathological process | | | | | |
| 3 | be able to make a right diagnosis for a purpose of therapy | | | | | |
| 4 | if the animal perishes to get the right diagnosis in a proper way (by autopsy and other laboratory studies) thus act as a preventive measure for other animals | | | | | |

Student ID number:

Subject (Course): **Special Veterinary Pathology**

Subject code for certificate: **185665**

IU-PR: 4, 5

OIU-SK: 2, 3, 4, 6

DOC: 1.8; 1.10; 1.11; 1.15; 1.21; 1.28; 1.33; 2.6

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | analyze pathological changes (lesions) and classify them in order to determine specific animal diseases | | | | |
| 2 | analyze microscopic slides of basic pathologic processes and most important animal diseases | | | | |
| 3 | correlate macroscopic and microscopic changes together with the results of other ancillary laboratory tests | | | | |
| 4 | make diagnosis and conclusion about emergence and development of disease or animal death | | | | |
| 5 | write necropsy report | | | | |

DRAFT

Student ID number:

Subject (Course): **Pharmacology**
 Subject code for certificate: **185662**

IU-PR: 4, 6, 8

OIU-SK: 5, 6

DOC: 1.1; 1.9; 1.10; 1.11; 1.18; 1.26; 1.27; 1.30; 1.31; 1.34; 1.35; 2.8

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | choose the most suitable drug(s) indicated for a specific disease or pathological condition, taking into account species, age and other factors | | | | |
| 2 | differentiate the treatment approach with regard to the categories of animals (individual and group treatment) | | | | |
| 3 | apply a drug or a combination of drugs in an optimal dose according to prescribed dosing regimen | | | | |
| 4 | write a veterinary prescription for different forms of medicine | | | | |
| 5 | choose the appropriate analgesic therapy within the framework of multimodal pain therapy | | | | |
| 6 | use quality sources of pharmacological literature | | | | |

Student ID number:

Subject (Course): **Special Microbiology**

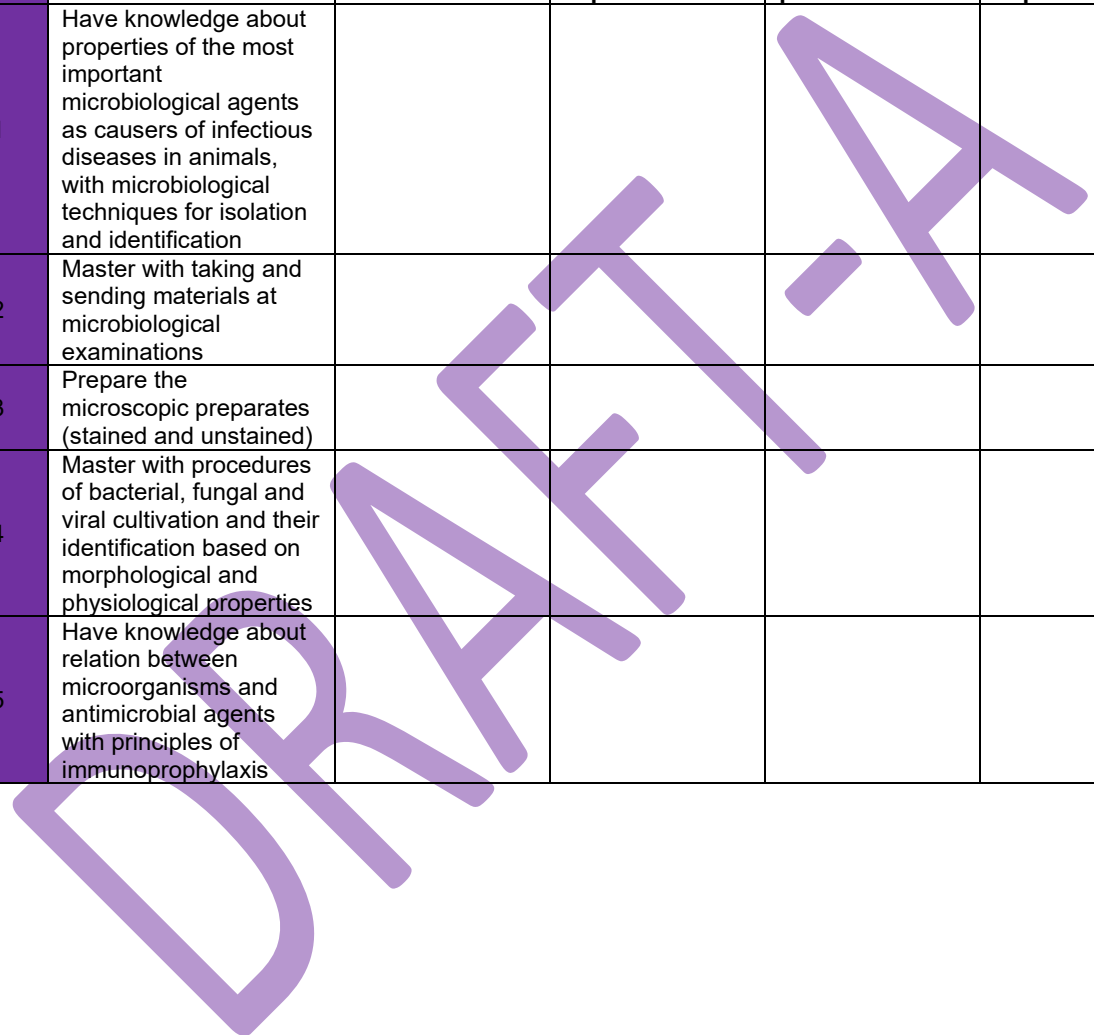
Subject code for certificate: **185661**

IU-PR: 3, 5

OIU-SK: 4

DOC: 1.8, 1.21, 1.28

| No | Learning outcome at the course level - VEFUNIZG | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Have knowledge about properties of the most important microbiological agents as causes of infectious diseases in animals, with microbiological techniques for isolation and identification | | | | |
| 2 | Master with taking and sending materials at microbiological examinations | | | | |
| 3 | Prepare the microscopic preparates (stained and unstained) | | | | |
| 4 | Master with procedures of bacterial, fungal and viral cultivation and their identification based on morphological and physiological properties | | | | |
| 5 | Have knowledge about relation between microorganisms and antimicrobial agents with principles of immunoprophylaxis | | | | |



Student ID number:

Subject (Course): **Biology and Pathology of Beneficial Insects**

Subject code for certificate: **198142**

IU-PR: 2,10

OIU-SK: 1,2

DOC: 1.1, 1.10, 1.15, 1.17, 1.21, 1.24, 1.26, 1.28, 1.36, 2.5

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Annotate the role of honeybee in natural ecosystems | | | | |
| 2 | Explain manner of life and activities of honeybee colony, construction of combs and development of brood | | | | |
| 3 | Recognize different types of hives, feeders and water suppliers, and beekeeping equipment | | | | |
| 4 | Describe individual organs of health honeybee and alterations caused by diseases | | | | |
| 5 | Apply basic clinical and diagnostic techniques with aim to appoint suspicion on honeybee diseases | | | | |
| 6 | Define role of veterinarian in procedure of sampling and sending materials for laboratory examinations, treatments and sanitation of diseases | | | | |

Student ID number:

Subject (Course): **Biology and Pathology of Aquatic Organisms**

Subject code for certificate: **253249**

IU-PR: 2,3,5,8

OIU-SK:1,3,4,5

DOC: 2,3; 2.4; 1.21; 1.33; 1,36; 1.24; 2.9; 2.8; 2.7

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Recognize fish species and other aquatic organisms important for breeding | | | | |
| 2 | Obtain general knowledge about breeding of aquatic organisms | | | | |
| 3 | Comprehend the importance and role of veterinarians in maintenance of fish health and human health | | | | |
| 4 | Perform routine diagnostic examination, recognize clinical signs of disease | | | | |
| 5 | Professional sampling and transport of samples for laboratory examinations | | | | |
| 6 | Apply therapeutic measures and measures for prevention of disease | | | | |

DRAFT

Student ID number:

Subject (Course): **Toxicology**
 Subject code for certificate: **198148**

IU-PR: 4, 6, 8

OIU-SK: 2, 5, 6

DOC: 1.1; 1.11; 1.15; 1.17; 1.18; 1.19; 1.30; 1.34; 2.5

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | recognize poisoning | | | | |
| 2 | undertake therapeutic measures | | | | |
| 3 | evaluate the success of the therapeutic measures | | | | |
| 4 | evaluate possible hazardous consequences produced by the poisoning | | | | |
| 5 | identify possible sources of pet poisoning among things from their immediate living environment | | | | |
| 6 | professional sampling and transport materials for toxicological analysis | | | | |
| 7 | evaluation of the results of chemical toxicological tests in the case of residues according to legislation | | | | |
| 8 | identify fish and avian poisoning, and poisoning with venoms and toxins of animals | | | | |

Student ID number:

Subject (Course): **Parasitology And Parasitic Diseases**

Subject code for certificate: **253207, 253244**

IU-PR:4,

IU-PR:5

OIU-SK: 3;4;6

DOC 1.10; 1.12; 1.13; 1.18; 1.21; 1.24; 1.26; 1.28; 1.36; 2.5; 2.6; 2.8; 2.10

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Knowledge of biology and ecology of parasites and vectors of veterinary and medical importance | | | | |
| 2 | Identification of important parasites and their developmental stages | | | | |
| 3 | Knowledge of pathogenesis caused by parasites or their developmental stages | | | | |
| 4 | Application of diagnostic skills regarding collection, preparing and investigation | | | | |
| 5 | Interpretation of diagnostic results | | | | |
| 6 | Knowledge of the control of parasites and appropriate treatment | | | | |

Student ID number:

Subject (Course): **Clinical Propedeutics**

Subject code for certificate: **238162**

IU-PR: 3, 4, 9

OIU-SK: 1, 2

DOC: 1.15, 1.16, 1.17, 1.20, 1.21

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Students will be able to make clinical examination | | | | |
| 2 | Students will have adequate knowledge for basic differential diagnostics of most common clinical problems. | | | | |
| 3 | Students shall be able to perform additional clinical examinations (depending of the organic system involved). | | | | |
| 4 | Students will be able to decide which advanced additional clinical methods should be employed and be able to partly conduct those methods, eg. blood analysis). | | | | |

DRAFT

Student ID number:

Subject (Course): **Internal Medicine**
 Subject code for certificate: **253245, 253246**

IU-PR: IU-PR 1, 3, 4, 7, 9, 10

OIU-SK: 2, 6

DOC: 1.4; 1.5; 1.6; 1.7; 1.8; 1.9; 1.11; 1.15; 1.16; 1.17; 1.18; 1.19; 1.21; 1.22; 1.23;
 1.26; 1.27; 1.28; 1.31; 1.32; 2.1; 2.5; 2.12

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | perform clinical examination of a sick animal or herd | | | | |
| 2 | observe clinical signs of diseases of the digestive system, liver and pancreas, diseases of the heart and blood vessels, blood and blood-forming organs and diseases of the metabolism | | | | |
| 3 | interpret and relate clinical signs of different organs or organ systems and accordingly prepare a clinical report or presentation of a clinical case | | | | |
| 4 | independently interpret the basic laboratory findings in a sick animal or herd | | | | |
| 5 | independently establish a working diagnosis in a sick animal | | | | |
| 6 | independently start treatment with usual drugs or procedures, and if necessary perform euthanasia | | | | |
| 7 | independently assess integral and longitudinal observation and interpretation of different diseases, critically using professional literature | | | | |

Student ID number:

Subject (Course): **General and Clinical Radiology**

Subject code for certificate: **198137**

IU-PR: 3,4

OIU-SK:2

DOC: 1.6, 1.23, 1.16., 2.1

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | After successful completion of the course, the student will be able to understand the physics of x-ray and CT imaging, potential harmful effect of x-ray and protection | | | | |
| 2 | After successful completion of the course the student will be able to perform the x-ray survey and the image processing | | | | |
| 3 | After successful completion of the course, the student will be able to analyse and interpret different anatomical structures and opacities with the goal of determining the diagnosis | | | | |
| 4 | After successful completion of the course, the student will be able to choose and apply suitable contrast survey and to compare it with plain radiographs | | | | |
| 5 | After successful completion of the course, the student will be able to evaluate the diagnostic possibility in different pathological conditions and to determine the possible use of radiological exam. | | | | |

Student ID number:

Subject (Course): **Game management and breeding**

Subject code for certificate: **198138**

IU-PR: 1, 2, 5

OIU-SK: 1, 3, 7

DOC: 2.1; 1.20; 2.3; 1.30; 1.11; 1.3; 2.9

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Recognize the characteristics of game that are important for breeding, depending on the conditions of the habitat as well as the type and purpose of breeding | | | | |
| 2 | Identify most important management aims for large and small game in different intensified breeding system | | | | |
| 3 | Accept the basics principles of keeping and breeding game animals in natural and farm conditions | | | | |
| 4 | Accompany the regulations and planning of breeding procedures, facilities and health monitoring as a unique technological complex | | | | |
| 5 | Assess the category and value of the game and possible risks during manipulation and handling | | | | |
| 6 | Apply the principles of game we | | | | |
| 7 | Prepare and organize SOP for all important game species during handling, transport and exploitation | | | | |
| 8 | Create the Hunting Management Plan, Game Breeding Program and Game Protection Program | | | | |

Student ID number:

Subject (Course): **Methods of Physical Therapy and Diagnostics**

Subject code for certificate: **198141**

IU-PR: 3,4

OIU-SK: 2

DOC: 1.6, 1.18, 1.23, 2.1

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | After successful completion of the course, the student will be able to know different methods of physical therapy and their effect on the body | | | | |
| 2 | After successful completion of the course the student will be able to apply and to determine the duration of the methods depending on clinical condition | | | | |
| 3 | After successful completion of the course, the student will be able to to evaluate the outcome of physical therapy treatment | | | | |
| 4 | After successful completion of the course, the student will be able to to interpret ultrasound image of different body system | | | | |

Student ID number:

Subject (Course): **Infectious Diseases of Domestic Animals**

Subject code for certificate: **212608, 21280**

IU-PR: 3, 4, 5, 8, 10

OIU-SK: 2, 3, 4, 6

DOC: 1.3, 1.5, 1.6, 1.8, 1.9, 1.10, 1.11, 1.13, 1.15, 1.17, 1.18, 1.19, 1.21, 1.22, 1.24, 1.26, 1.28, 1.32, 1.36, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Recognise the suspicion of an infectious disease. | | | | |
| 2 | Identify the factors that determine infectious disease occurrence, spread and termination. | | | | |
| 3 | Apply measures to prevent the immediate spread of infectious diseases. | | | | |
| 4 | Carry out a diagnostic procedure with the aim of raising the suspicion of an infectious disease. | | | | |
| 5 | Choose the sampling method of diagnostic material and the necessary laboratory tests for objective diagnosis of infectious diseases. | | | | |
| 6 | Evaluate the laboratory test results. | | | | |
| 7 | Choose a further procedure with the animals suffering from an infectious disease. | | | | |
| 8 | Carry out targeted treatment. | | | | |
| 9 | Implement legally prescribed measures for the control and/or eradication of infectious diseases. | | | | |
| 10 | Recommend measures for the suppression and prevention of infectious diseases that are not legally regulated. | | | | |

Student ID number:

Subject (Course): **State Veterinary Medicine**

Subject code for certificate: **212676**

IU-PR: 5, 6, 1 i 8

OIU-SK: OIU-SK: 2, 3 i 7

DOC: 1.1, 1.2, 1.10, 1.26, 1.32, 1.36, 2.6, 2.7 i 2.8

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | interpret, apply and implement the formal legislation of the area of the General Administrative procedure the Veterinary Act, the Veterinary Medicinal Products Act, the Food Act, the Animal Protection Act and subordinate legislation based on the above and equivalent regulations of secondary legislation of the European Union | | | | |
| 2 | know the procedure and manner of issuing the record and decisions in the administrative procedure related to veterinary activities | | | | |
| 3 | knowledge of the following procedures in veterinary medicine: veterinary checks and controls on farms, farms, livestock fairs and other facilities issuing animal health certificates, certificates for consignments of products of animal origin and feed; conducting compulsory marking of animals and keeping prescribed records on the identification and registration of animals of the movement, on the implementation of stipulated measures for the detection, prevention, control and control of infectious or parasitic diseases, take diagnostic material from animals, samples of products of animal origin and animal waste matter for the purpose of examining the health status of animals, i.e. the sanitary safety of products of animal origin | | | | |
| 4 | recognize the suspicion of an infectious or parasitic disease of interest to the Republic of Croatia and the EU | | | | |
| 5 | knowledge of the responsibility and obligations of natural and legal persons with regard to animal protection and protection of their health | | | | |

Student ID number:

Subject (Course): **Forensic Veterinary Medicine**

Subject code for certificate: **226395**

IU-PR: 4, 7 i 9

OIU-SK: OIU-SK: 2, 3 i 7

DOC: DOC: 1.1, 1.4, 1.11, 1.24, 1.33 i 2.12

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | apply the acquired knowledge of veterinary medicine clinics, veterinary public health, animal production and biotechnology with newly acquired ones in the field of forensic veterinary medicine to use in veterinary medicine | | | | |
| 2 | recognize the responsibility of future veterinary staff in dealing on requests by judicial authorities, inspection control, legal and natural persons | | | | |
| 3 | recognize and apply of formal and material legislation of Civil, Misdemeanour and Criminal Act | | | | |
| 4 | knowledge of the professional witness and expert witness duties in report writing and giving evidence in court | | | | |
| 5 | ability to investigate, collect evidence from or prepare reports about matters concerning crime scene investigation | | | | |
| 6 | knowledge of the procedure of identification of vertebrates from the preparation of various biological samples to the performance of selected molecular methods | | | | |
| 7 | ability to carry out forensic necropsy as full as possible, in order to ascertain the cause of death, the mechanism of death and the manner of death | | | | |
| 8 | ability to carry out forensic clinical examination of an animal prior to purchase or that might be the subject of a legal case | | | | |
| 9 | ability to estimate the value of animals relevant to legal and insurance cases | | | | |
| 10 | knowledge of medical-legal and forensic aspects of most important animal diseases and disorders | | | | |

Student ID number:

Subject (Course): **Obstetrics and Reproduction 1**

Subject code for certificate: **198140**

IU-PR: 4

OIU-SK: 2,4,6

DOC: 1.9, 1.11, 1.12, 1.15, 1.16, 1.17,1.18, 1.19, 1.23, 1.26, 1.27, 1,28, 1.29, 1.30, 1.31, 1.32, 2.5

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Interpretation of knowledge on ovarian function | | | | |
| 2 | Interpret knowledge on the influence of various factors on ovarian function | | | | |
| 3 | Interpret knowledge on fertilization and pregnancy diagnostics | | | | |
| 4 | Interpret knowledge on delivery | | | | |
| 5 | Interpret knowledge on the physiology and pathology of the puerperium, diseases of the offspring | | | | |
| 6 | Interpret knowledge about the structure of sperm cell, spermatogenesis, semen collection, artificial insemination of domestic animals | | | | |
| 7 | Interpretation of knowledge about the structure of the mammary gland, physiology of lactation, inflammatory conditions and treatment | | | | |

Student ID number:

Subject (Course): **Herd Health**
 Subject code for certificate: **238195**

IU-PR: 2, 5, 8

OIU-SK: 1, 2, 3, 4

DOC: 1.4, 1.11, 1.15, 1.17, 1.18, 1.28, 1.36

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Basic principles of herd health and production management | | | | |
| 2 | Interpreting the farm status according to general requirements | | | | |
| 3 | Organizing the farm visits | | | | |
| 4 | Complete the farm report with present state, plans for the future and veterinarian recommendation for the improvement | | | | |

DRAFT

Student ID number:

Subject (Course): **Field Service Clinic**
 Subject code for certificate: **212682, 224602**
 IU-PR: 4, 5
 OIU-SK: 1, 2, 3, 4
 DOC: 1.5, 1.11, 1.15, 1.16, 1.17, 1.25, 1.28

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Independently perform all diagnostic procedures including methods of clinical examination in conditions of field work. | | | | |
| 2 | Taking samples from the live patients or cadavers which would enable material for all types of laboratory tests. Perform all obstetrical procedures that can be performed well in the conditions of fieldwork and routine gynecological and andrological exams for all aspects of clinical reproductive practice. Perform all surgical procedures adapted to conditions of fieldwork and thorough clinical examination of all kinds of internal diseases on farm. | | | | |

Student ID number:

Subject (Course): **Surgery, orthopaedics and ophthalmology 1**

Subject code for certificate: **198136**

IU-PR: 4

OIU-SK: 2,4,6

DOC: 1.3; 1.4; 1.5; 1.6; 1.7; 1.8; 1.9; 1.11; 1.12; 1.13; 1.15; 1.16; 1.17; 1.18; 1.19; 1.21; 1.22; 1.23; 1.28; 1.29; 1.31; 1.32; 2.1; 2.5; 2.12

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Take history, treat and restrain the animal in a safe and human way and perform the whole clinical examination. | | | | |
| 2 | Propose the other additional diagnostic examination which are needed to get objective status of the surgical patient. | | | | |
| 3 | Determine the way and content of treatment in postoperative period of patient; fill in surgical and anesthesiologic protocol and taking record in the book of patient in a way understandable to his/her profession and the public. | | | | |
| 4 | Administer safely the sedation, local and general anaesthesia and estimate the control of the pain. | | | | |
| 5 | Recognise states indicating appropriateness of euthanasia and make it in a human way understandable to the emotional state of the owner. | | | | |
| 6 | Apply techniques of first aid giving in case of bleeding, wounds, burns and frost bite injuries. | | | | |
| 7 | Perform techniques involving workup and bandaging the wounds, immobilisation and hemostasis. | | | | |
| 8 | Assist during surgical procedures, honoring the principles of aseptic surgery. | | | | |
| 9 | Be able to conservatively and surgically workup small wounds and apply basic techniques of stitching of organs and tissues and choose adequate suture material. | | | | |

Student ID number:

Subject (Course): **Surgery, orthopaedics and ophthalmology 2**

Subject code for certificate: **198139**

IU-PR: 4

OIU-SK: 2,4,6

DOC: 1.3; 1.4; 1.5; 1.6; 1.7; 1.8; 1.9; 1.11; 1.12; 1.13; 1.15; 1.16; 1.17; 1.18; 1.19; 1.21;
1.22; 1.23; 1.28; 1.29; 1.31; 1.32; 2.1; 2.5; 2.12

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Recognize certain diseases of head and neck of small and large animals, as well as undergo basic treatment. | | | | |
| 2 | Recognize thoracic diseases and undergo basic treatment and stabilize thoracic patient and point him to referral clinic | | | | |
| 3 | Recognize various types of hernias and decide the type of treatment. | | | | |
| 4 | Recognize indications for castration in various animal species. | | | | |
| 5 | Recognize the patient with alimentary and urogenital disease, type of treatment and indication for pointing him to referral clinic | | | | |
| 6 | Decide for the indication for laparotomy in ruminants | | | | |
| 7 | Recognize the abdominal disease in a horse, with colic pain as the cardinal symptom | | | | |
| 8 | Discuss the basic postulates of surgical diagnostics and treatment of oncologic patient | | | | |
| 9 | Recognize the eye diseases of small and large animals and undergo basic treatment of eye disease, as well as emergency treatment, and pointing to referral clinic | | | | |

Student ID number:

Subject (Course): **Food Hygiene and Technology**

Subject code for certificate: **238178, 238191**

IU-PR: 6

OIU-SK: 5

DOC: 1.6, 1.10., 1.12, 1.24, 1.341.35, 2.6, 2.7, 2.9, 2.10

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | explain the structure, purpose and methods of veterinary inspection, control and monitoring of production, processing and distribution of food of animal origin | | | | |
| 2 | identify hazards and risks in the production and distribution of food of animal origin | | | | |
| 3 | interpret results quality assessment and health food safety | | | | |
| 4 | differentiate between types of food to the production process | | | | |
| 5 | define factors acceptability of food for human consumption | | | | |
| 6 | know legislation for the purposes of participation in the preparation and analysis reports in the field of hygiene and technology of food of animal origin | | | | |
| 7 | assess the hygiene practices of production facilities and indicators of process control | | | | |

Student ID number:

Subject (Course): **Veterinary epidemiology**

Subject code for certificate: **212609**

IU-PR: 5,7,9

OIU-SK: 2,3,4

DOC: 1.8, 1.21, 1.22, 1.36, 2.9, 2.10

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Identifying the types of data, types of sampling, collecting, sorting and processing of data | | | | |
| 2 | Applying epidemiological methods in biomedical research | | | | |
| 3 | Interpretation of association (risk, odds ratio, etiological fraction, ...) | | | | |
| 4 | Evaluation of diagnostic tests, defining the cut off values, interpretation of sensitivity, specificity and predictive values of the diagnostic test | | | | |
| 5 | Analysis and decision making in the implementation of preventive measures | | | | |
| 6 | Support in the planning of programs of animal and public health care | | | | |
| 7 | Application of epidemiological methods in research | | | | |
| 8 | Interpretation of the basic epidemiological concepts | | | | |
| 9 | To distinguish and interpret the epidemiological studies | | | | |
| 10 | To distinguish and calculate the measures of the epidemiological assessment of disease occurrence and association | | | | |
| 11 | To be able to make own study design | | | | |

Student ID number:

Subject (Course): **Surgery, orthopaedics and ophthalmology 3**

Subject code for certificate: **238174**

IU-PR: 4

OIU-SK: 2,4,6

DOC: 1.3; 1.4; 1.5; 1.6; 1.7; 1.8; 1.9; 1.11; 1.12; 1.13; 1.15; 1.16; 1.17; 1.18; 1.19; 1.21;
1.22; 1.23; 1.28; 1.29; 1.31; 1.32; 2.1; 2.5; 2.12

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Recognise diseases of muscles, tendons, joints and ligaments in small animals, determine the basic treatment and indication for referring patients to a referral clinic. | | | | |
| 2 | Diagnose fracture and use basic ways to treat fractures in small animals. | | | | |
| 3 | Give the first aid to a patient, immobilize the fracture and recommend other options of treatment. | | | | |
| 4 | Recognise type of lameness, diseases of muscles, tendons and tendon sheaths in large animals. | | | | |
| 5 | Recognise paralyzes and paresis in small and large animals and estimate indication for referring patients to a referral clinic. | | | | |
| 6 | Recognise hoof and toes diseases in large animal, treat simple cases and indicate possible need to refer the patient to a referral clinic | | | | |
| 7 | Know basics of hoof corrections, types of horseshoes and with the basic techniques of toes corrections. | | | | |
| 8 | Perform basic neurological examination, diagnostics of a fracture and luxation of vertebrae and estimate the indication for referring the patients to a referral clinic. | | | | |
| 9 | Diagnose diseases of intervertebral disc and degenerative diseases of vertebral column and is able to estimate indication for referring the patents to a referral clinic. | | | | |

Student ID number:

Subject (Course): **Obstetrics and Reproduction 2**

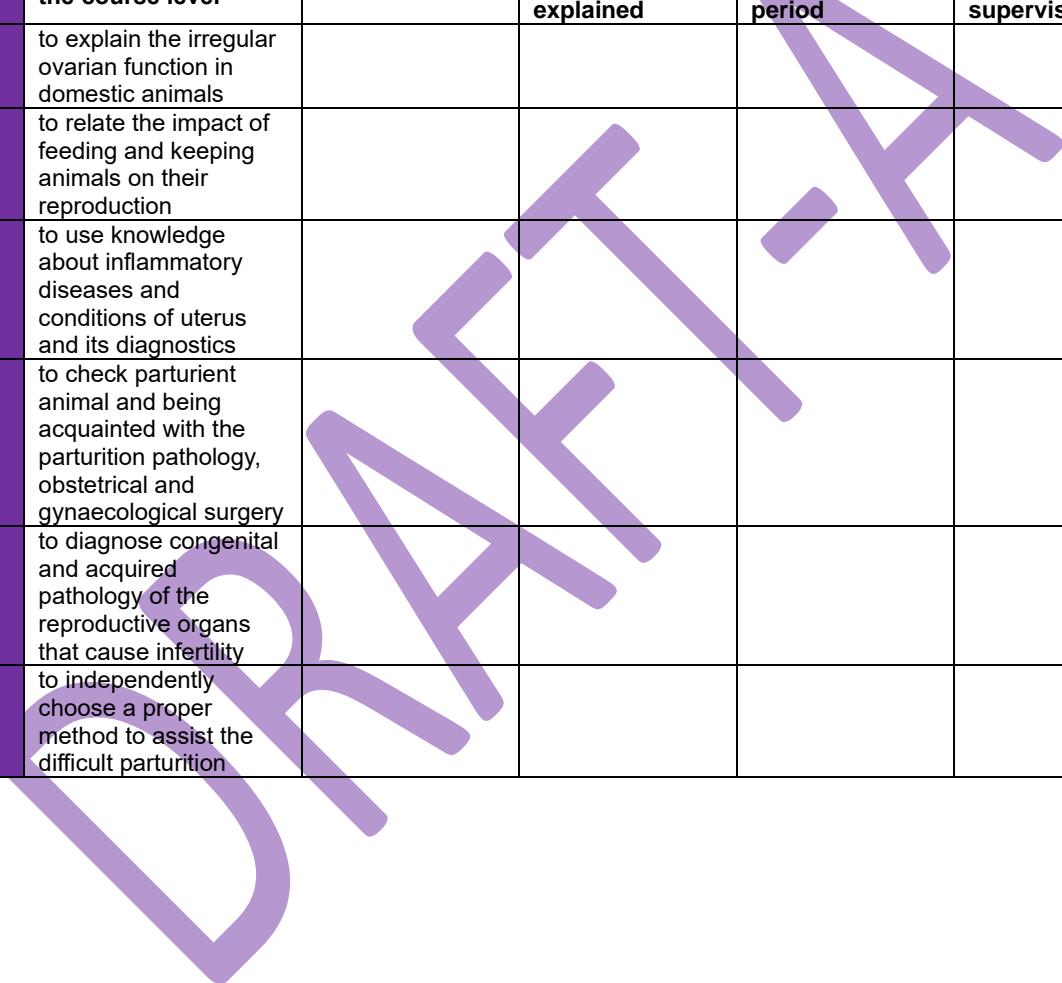
Subject code for certificate: **212606**

IU-PR: 4

OIU-SK: 2, 4, 6

DOC: 1.9, 1.11, 1.12, 1.15, 1.16, 1.17, 1.18, 1.19, 1.23, 1.26, 1.27, 1.28, 1.29, 1.30, 1.31, 1.32, 2.5

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | to explain the irregular ovarian function in domestic animals | | | | |
| 2 | to relate the impact of feeding and keeping animals on their reproduction | | | | |
| 3 | to use knowledge about inflammatory diseases and conditions of uterus and its diagnostics | | | | |
| 4 | to check parturient animal and being acquainted with the parturition pathology, obstetrical and gynaecological surgery | | | | |
| 5 | to diagnose congenital and acquired pathology of the reproductive organs that cause infertility | | | | |
| 6 | to independently choose a proper method to assist the difficult parturition | | | | |



Student ID number:

Subject (Course): **Food Hygiene and Technology**

Subject code for certificate: **238178, 238191**

IU-PR: 6

OIU-SK: 5

DOC: 1.6, 1.10., 1.12, 1.24, 1.34, 1.35, 2.6, 2.7, 2.9, 2.10

| IU Number | Learning outcome at the course level | Date, period | time | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|-----------|---|--------------|------|---------------------------------|-------------------|-------------------------------------|
| 1 | explain the structure, purpose and methods of veterinary inspection, control and monitoring of production, processing and distribution of food of animal origin | | | | | |
| 2 | identify hazards and risks in the production and distribution of food of animal origin | | | | | |
| 3 | interpret results quality assessment and health food safety | | | | | |
| 4 | differentiate between types of food to the production process | | | | | |
| 5 | define factors acceptability of food for human consumption | | | | | |
| 6 | know legislation for the purposes of participation in the preparation and analysis reports in the field of hygiene and technology of food of animal origin | | | | | |
| 7 | assess the hygiene practices of production facilities and indicators of process control | | | | | |

Student ID number:

Subject (Course): **Poultry diseases**

Subject code for certificate: **253998**

IU-PR: 2, 3, 4, 5

OIU-SK: 1, 2, 3, 4, 6

DOC: 1.3, 1.10, 1.15, 1.16, 1.17, 1.18, 1.20, 1.21, 1.22, 1.24, 1.28, 1.33, 1.36, 2.3, 2.5, 2.6, 2.9, 2.10

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|--|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | Recognize poultry diseases of infectious and noninfectious ethiology | | | | |
| 2 | Knowing basics of technology principals and poultry health protection be able to independently organize health control on poultry holdings in defined area | | | | |
| 3 | Independently estimate serology and other diagnostic procedure results and recommend and apply immunoprotection measures | | | | |
| 4 | Independently apply basic principles of treatment and other procedures with aim to protect and control specific diseases, especially zoonosis. | | | | |
| 5 | Perform necropsy and select appropriate samples for further diagnostic procedures | | | | |

Student ID number:

Subject (Course): **Veterinary economics**

Subject code for certificate: **226402**

IU-PR: 9

OIU-SK: 3

DOC: 1.2, 1.4, 1.7, 2.6

| No | Learning outcome at the course level | Date, time period | Demonstrated, taught, explained | Date, time period | Done under instructor's supervision |
|----|---|-------------------|---------------------------------|-------------------|-------------------------------------|
| 1 | interpret basic economic terms | | | | |
| 2 | explain the laws of production and economic success indicators | | | | |
| 3 | explain and interpret criteria in decision analysis | | | | |
| 4 | recognize and assign costs | | | | |
| 5 | make veterinary calculations | | | | |
| 6 | apply economic methods of loss assessment due to animal disease | | | | |
| 7 | apply economic assessment procedures on animal health protection programs and decision making | | | | |
| 8 | draft a systematic animal health protection program | | | | |

DRAFT

Student ID number:

REFERENCES

- DIREKTIVA 2005/36/EZ EUROPSKOG PARLAMENTA I VIJEĆA od 7. rujna 2005. o priznavanju stručnih kvalifikacija: <https://eur-lex.europa.eu/legal-content/HR/TXT/PDF/?uri=CELEX:32005L0036> (pristupljeno 28. veljače 2024.)
- DIREKTIVA 2013/55/EU EUROPSKOG PARLAMENTA I VIJEĆA od 20. studenoga 2013. o izmjeni Direktive 2005/36/EZ o priznavanju stručnih kvalifikacija i Uredbe (EU) br. 1024/2012 o administrativnoj suradnji putem Informacijskog sustava unutarnjeg tržišta („Uredba IMI“). <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:354:0132:0170:hr:PDF>
- ESEVT Day One Competences, DOC 2019: https://www.eaeve.org/fileadmin/downloads/eccvt/List_of_subjects_and_Day_One_Competences_approved_on_17_January_2019.pdf
- EQF (2017): Council Recommendation on the European Qualifications Framework for Lifelong Learning and Repealing the Recommendation of the European Parliament and of the Council of 23 April 2008 on the Establishment of the European Qualifications Framework for Lifelong Learning, of 22 May 2017(2017/C 189/03). [https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32017H0615\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32017H0615(01)&from=EN) (pristupljeno 28. veljače 2024.)
- ESEVT SOP (2019): Manual of Standard Operating Procedure, ESEVT SOP 2019, as approved at the Zagreb General Assembly, 30 May 2019 and amended at the Turin General Assembly, 30 September 2021. EAEVE, European System of Evaluation of Veterinary Training (ESEVT). Dostupno online: https://www.eaeve.org/fileadmin/downloads/SOP/ESEVT_SOP_2019_As_amended_in_September_2021.pdf (pristupljeno 17. kolovoza 2023.).
- HKO: <https://hko.srce.hr/registar/ustanova/detalji/53> (pristupljeno 28. veljače 2024.)
- STANDARD KVALIFIKACIJE - DOKTOR/DOKTORICA VETERINARSKJE MEDICINE, <https://hko.srce.hr/registar/standard-kvalifikacije/detalji/181>. (pristupljeno 28. veljače 2024.)
- STANDARD ZANIMANJA - DOKTOR VETERINARSKJE MEDICINE, <https://hko.srce.hr/registar/standard-zanimanja/detalji/237>. (pristupljeno 28. veljače 2024.)
- STRATEGIJA RAZVOJA VETERINARSKOGA FAKULTETA U RAZDOBLJU 2023.-2027. https://www.vef.unizg.hr/wp-content/uploads/2018/08/STRATEGIJA_2023_2027_final-HR.pdf (pristupljeno 28. veljače 2024.)

Student ID number:



The content and distribution of theoretical and practical training among the different groups of subjects is balanced and coordinated in a way to ensure that graduating veterinarians are able to fulfill their professional roles in different fields.

Certification by the FVM Student Affairs Office

1. Presenting a new Logbook at start of studies:

.....
(date, signature, seal)

2. All activities in the Logbook have been completed:

.....
(date, signature, seal)

**LOGBOOK OF ACQUIRED PRACTICAL
SKILLS AND COMPETENCES OVER THE COURSE OF TRAINING IN VETERINARY**

MEDICINE The Logbook is approved by Protocol XXXXX
on Faculty Council meeting of the FVMUZ, Faculty of Veterinary Medicine, University
of Zagreb

Publishing house: XXXX Zagreb, 2024.

Student ID number:



DRAFT-A