

Final Attainment Levels – Veterinary Medicine Curriculum

Final Attainment levels – Veterinary Medicine Curriculum Project group

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PREFACE

Commissioned by the Educational Board for Veterinary Medicine and with great enthusiasm, the Project group on Final attainment levels - Curriculum Veterinary Medicine (PECD) has drafted the final attainment levels for the studies in Veterinary Medicine.

During its activities, the project group has studied various memorandums on "Final attainment levels", both locally and abroad, formulated for other (veterinary) medical and biomedical studies.

With great appreciation, PECD made use of the thoughts of the authors of the Framework 2001 Medical Course: final attainment levels for the course in Medicine (or "Raamplan 1994 Artsopleiding(1)) and the authors of the Framework 2001 Medical Course (2), which forms the basis for this model, the framework, as used for these final attainment levels.

PECD would also like to thank the Professors and the Chairmen of the Educational Study Groups (ESG's) of the Faculty of Veterinary Medicine, and the management boards of the Royal Dutch Society for Veterinary Medicine (KNMvD) for all the useful advice which they were given on the draft of the final attainment levels.

List of Abbreviations

AVMA	American Veterinary Medical Association
B&P	Management and Policy
IEP	Interest group – Employed Practitioners
CVMA	Canadian Veterinary Medical Association
Dept	Department
VTI	group of Veterinarians employed in Trade and Industry
EAEVE	European Association of Establishments for Veterinary Education
EEC	European Economic Community
EU	European Union
FVE	Federation of Veterinarians of Europe
CA	Companion Animals
GMCA	Group Medical Science - Companion Animals
GMH	Group Medical Science for Horses
GMC	Group Medical Science for Cattle
GHwV	Group Homeopathic practicing Veterinarians
GHQC	Group Health and Quality Care
GPLD	Group Practitioners Large Domestic Animals
GPS	Group Poultry Science
GPH	Group Pigs Healthcare
GVS	Group Veterinary Specialists
HACCP	Hazard Analysis and Critical Control Point
IRAS	Institute for Risk Assessment Sciences
IFTES	Interfaculty institute For Teachers Training, Educational development and Study skills
KNMvD	Royal Dutch Society for Veterinary Medicine
ADA	Agricultural Domestic Animals
DFAO	Dutch-Flemish Accreditation Organisation
ESG	Educational Study Group
H	Horse
PECD	Final attainment levels Veterinary Medicine Curriculum Project Group
SANCO	SANté et protection des Consommateurs
VAAO	Veterinary Administration Association Office
UU	Utrecht University
VQB	Veterinary Quality Body foundation
ACDU	Association Cooperating Dutch Universities
VP	Veterinary Public Health
AHS	Act on Higher education and Scientific research
SR	Scientific Research
APV	Act on the Practicing of Veterinary Medicine

1. INTRODUCTION

1.1 What gave rise to the project - Final attainment levels Curriculum for Veterinary Medicine

In the past 10 years, a lot has happened in the educational innovation area within the Faculty of Veterinary Medicine. With the development and implementation of Curriculum 1995(3), specific objectives were formulated. The most significant objectives of Curriculum 1995 are:

- Acquiring problem solving skills
- Acquiring an academic thought and working level
- Acquiring social/communication skills
- Acquiring a market related and animal species specific basic competence for frontline practice in a section of veterinary medicine (animal species, sector)
- Becoming aware of the importance of lifelong studies

These objectives were closely defined and highlighted with the evolution towards Curriculum 2001(4). The main aims of Curriculum 2001 are:

- Further academic development of the curriculum Veterinary medicine
- Further (sector/animal species) differentiation with the introduction of separate study courses

In the development and preparation of both curriculums, relatively little attention was given to the actual formulation of the final attainment levels for veterinary studies. Global Final attainment levels for Veterinary Studies and Scientific Research were formulated (Chapter 1, Final report Curriculum commission, December 1993)(3) in the planning stage of Curriculum 1995.

In the planning stage for Curriculum 2001, the Educational Board drafted the memorandum, "Profile of a veterinarian"(5). No final attainment levels were included in the description of Curriculum 2001 and its relevant additional memorandums (6,7).

A further specification of the final attainment levels towards a singular assessable set of 'knowledge, skills and professional conduct' did not take place until now.

Educational innovation has become an ongoing process within scientific education. Within the Faculty of Veterinary Medicine, this involves the further development and implementation of Curriculum 2001 and planning regarding a future Bachelor-Master Curriculum. Professionally, an institutionalised Dutch and European specialist training already exists. Furthermore, accreditation regulations for veterinarians for horses, ruminants, pigs and poultry and a certification system for practices were established or are under development.

These developments within and outside the faculty, moved the Educational Board For Veterinary Medicine in the fall of 2003 towards a decision to have the Final attainment levels - Veterinary Medicine Curriculum, formulated and laid down.

1.2 Project purpose, as formulated in the assignment by the Educational Board(8)

“The formulation of the final attainment levels of veterinary studies, both involving the core curriculum as well as the various study courses. In other words, which set of ‘knowledge, skills and professional conduct’ is the new graduate equipped with. The final attainment levels must be formulated to such an extent, concretely and operationally, that it must be possible to translate this into educational sections (subjects in the Preparatory Phase and practical training) and into test formats”.

1.3 Project organisation and method of decision making

The Educational Board has established a Final attainment levels - Veterinary Medicine Curriculum Project group - (PECD). The PECD was assigned to draft the final attainment levels for the general qualified veterinary and for the various animal species and sectors of veterinary medicine, as reflected in the graduation fields.

The staff composition of the Final attainment levels - Veterinary Medicine Curriculum Project group, was as follows:

Dr. Hetty M.G. van Beers	- Dept. ¹ Health Care Agricultural Domestic Animals
Dr. Herman F. Egberink	- Dept. Infectious diseases & Immunology
Prof. Ludo J. Hellebrekers	- Educational Board
Prof. Jolle Kirpensteijn	- Dept. Medical Science - Companion Animals
Dr. Len J.A. Lipman	- Institute for Risk Assessment Sciences, Public Health & Food Safety Division
Dr. Joop B.A. Loomans	- Dept. Healthcare - Horses
Dr. Wim D.J. Kremer	- Dept. Health Care Agricultural Domestic Animals
Prof. Peter van Beukelen	- Educational director (until 1-1-2005), chairman
Dr. Hellen G.G.M. van der Maazen	- Education and Student affairs, official secretary
Dr. Jan C.M. Haarhuis	- Education and Student Affairs, advisor
Dr. Stefan P.J. Ramaekers	- IFTES ² , advisor

¹ Dept. Department

The Final attainment levels draft was submitted to the following representatives of the Faculty of Veterinary Medicine and the Royal Dutch Society for Veterinary Medicine (KNMvD) by the PECD for recommendation.

Faculty of Veterinary Medicine:

- All chairmen of Educational Study Groups (ESG's)
- All professors

KNMvD:

- Management of the Group - Medical Science - Companion Animals (GMCA)
- Management of the Group - Medical Science of Horses (GMH)
- Management of the Group - Medical Science of Cattle (GMC)
- Management of the Group - Pigs Healthcare (GPH)
- Management of the Group - Poultry Sciences (GPS)
- Management of the Group - Health and Quality Control (GHQC)
- Management of the Group - Veterinarians employed in Trade and Industry (VTI)
- Management of the Group - Practitioners Large Domestic Animals (GPLD)
- Management of the Group - Veterinary Specialists (GVS)
- Management of the Group - Homeopathic Practicing Veterinarians (GHwV)
- Management of the Interest Group Employed Practitioners (IEP)

The above people and bodies within and outside of the faculty have contributed towards the establishment of the Final attainment levels - Veterinary Medicine Curriculum, through their valuable advice.

From this procedure with its extensive consultations, one must definitely not jump to the conclusion that the final attainment levels were established by some sort of process where ‘the most votes apply’. The PECD has discussed and considered all advice based on that which the veterinary must know and be able to do at the conclusion of his studies.

The final report of the PECD was presented to the Educational Board For Veterinary Medicine. The Final attainment levels - Veterinary Medicine Curriculum was laid down on 21 December 2005 by the Educational Board, after consultation with the Educational Commission for Veterinary Medicine on 16 June 2005 and with the approval of the Dean.

The Final attainment levels Veterinary Medicine Curriculum is evaluated based on a 7 year cycle and adjusted where necessary. Every evaluation will take place 2 years prior to the faculty being visited in the scope of the educational accreditation. The annexure is evaluated on a 2 year cycle and adjusted where necessary. The Educational Board will establish an evaluation commission for this purpose.

1.4 Who is the Final attainment levels - Veterinary Medicine Curriculum drafted for?

The Final attainment levels Veterinary Medicine Curriculum is a necessary and handy instrument for various target groups before, during or after the veterinary medicine studies, i.e.:

- Students and future students of veterinary medicine: to be informed regarding the expected capabilities at the conclusion of the studies and to be able to assess the translation thereof into components of studies. They will be able to recognise components from the studies in the final attainment levels;
- ESG-members and other lecturers taking care of education in the veterinary medicine curriculum: to test the learning objectives/objectives of the educational components in which they develop or provide education based on the final attainment levels, for both the joint portion of the education as well as in the various graduation fields. They must translate the final attainment levels into concrete education;
- Veterinarians and their organisations: to be able to assess the level of knowledge, skills and professional conduct which can be expected from the recently graduated veterinarians;
- National and international organisations, government and semi-government, making use of veterinarian services: to be able to assess whether the level of the veterinary who recently graduated based on the veterinary medical curriculum of Utrecht, satisfies the level of activities expected by a veterinary and in which the veterinary differs from a non-veterinary;
- Foreign veterinary faculties, both within the EU as well as abroad: to be able to compare the level of the Utrecht veterinary medicine curriculum with that of the own training.

2. VIEWPOINTS IN LEGISLATION AND REGULATIONS

2.1 Introduction

In drafting the Final attainment levels - Veterinary medicine curriculum, the legal frameworks within which the studies should be presented and the legal frameworks with which the veterinary will have to deal with in his practise, was obviously considered too. The acts, guidelines and private law regulations mentioned in this chapter are the most significant pillars for the preparation of these final attainment levels. This notwithstanding the fact that the veterinary will have to have knowledge of numerous other Acts, like the Veterinary Medications Act, the Health and Welfare Act on Animals, the Meat Inspection Act, the Destruction Act and the Competitive Trading Act.

2.2 Act on Higher education and Scientific research (AHS)

Since 1 August 1993, the Act on Higher Education and Scientific Research (Act AHS) applies to veterinary studies. Prior to this, the Two Phase Structure Act was applicable. Contrary to the last-mentioned, the AHW do not have two phases in the veterinary education. This made it possible to combine the clinical practical training and the theoretical education in the curriculum with each other. On the contrary, in connection with the legislation regarding de study financing, a greater need originates to make it possible to complete the studies in the six years available. This demands such careful programming that waiting periods and other delays are avoided. All components deemed necessary will have to be addressed within the curriculum.

2.3 Act on the Practicing of Veterinary Medicine (APV)

The Act on Practicing of Veterinary Medicine which is in force since 1990, describes the qualifications of the veterinary. From this, one can also partly gather what is expected from a veterinary regarding knowledge, skills and professional conduct.

2.4 European Guidelines

Guideline 78/1026/EEG(9) indicates how the mutual recognition of diplomas, certificates and other veterinary titles are regulated. The guideline also contains directions regarding the free establishment of veterinarians and service provision within the EU countries. Guideline 78/1027/EEG(10) indicates how the coordination of the legal and administrative law stipulations regarding the activities of the veterinary is regulated and also indicates in an annexure which subjects the study programme leading to the diplomas, certificates and other titles of veterinary, must at least entail. The EU guideline SANCO 1190/2001/Rev. 8(11) describes the needs which the 'official veterinary' must satisfy.

2.5 Accreditation guidelines for the American Veterinary Medical Association (AVMA) / Canadian Veterinary Medical Association (CVMA)

For accreditation of a veterinary medicine education, the American Veterinary Medical Association has drafted the so-called "Accreditation policies and procedures of the AVMA council on education"(12). The most recent guidelines date from 2005. If an education meets these demands, the graduating veterinarians may, after passing the

American or Canadian government exam in veterinary medicine, lodge an appeal in North America, without the obligation of following an additional education. The Utrecht veterinary medicine education has been accredited by the AVMA / CVMA since 1973.

2.6 European Association of Establishments for Veterinary Education (EAEVE) accreditation guidelines

The European Association of Establishments for Veterinary Education laid down a set of "Standard Operating Procedures"(13) in 2002 to assess the European veterinary education. This is intended to test whether the veterinary studies satisfy the minimum demands as set by the EU (78/1026/EEC, 78/1027/EEC). An accreditation system already existed to this end. The Utrecht veterinarian education is already accredited under this system since 1992.

2.7 Association of Cooperating Dutch Universities (ACDU) and Dutch-Flemish Accreditation Organisation (DFAO) accreditation guidelines

The veterinary medicine education has also been visited by the Association for Cooperating Dutch Universities since 2000. The ACDU then accepted the AVMA/EAEVE accreditation as adequate. The Dutch-Flemish Accreditation Organisation has recently been established. With the introduction of the bachelor-master structure at the Dutch universities, the DFAO takes over the visitation and accreditation from the ACDU. In February 2003 (14), the DFAO drafted an accreditation framework to this end.

2.8 Veterinarian Code

The code of conduct for veterinarians and for the functioning of the veterinary in society, is described in the Dutch Veterinarian Code (15), drafted by the Royal Dutch Society for Veterinary Medicine (KNMvD) and the European "Good Veterinary Practice Code" (16), drafted by the Federation of Veterinarians of Europe (FVE). Here, particular attention was given to the professional responsibility of the veterinary.

2.9 Association of the Veterinary Quality Body (VQB) regulation / Viewpoints of quality policy KNMvD

The Association of the Veterinary Quality Body has drafted a recognition regulation (animal species specific) to clarify the professional qualities of and for veterinarians. The contents of the studies followed by the veterinary, i.e. the study completion field, is also guiding/deciding in the additional training demands set by the professional body as a precondition for adequate correlation of the accreditation regulations. Recently, the VQB was converted to a Veterinary Administration Association Office (VAAO).

3. FINAL ATTAINMENT LEVELS FOR VETERINARY MEDICINE CURRICULUM: EXPLANATION AND STRUCTURE

3.1 Explanation

The final attainment levels for the Veterinary Medicine curriculum indicate what can be expected from a veterinarian at the time that he graduates. In other words, what does a newly graduated veterinarian know and what can he do? The work entailed in the job of being a veterinarian is in no way static and final attainment levels do not have an infinite value.

The continuing developments in the profession, new scientific insights and also changing ideas in society all have consequences for the practice of veterinary medicine and the conditions that are imposed upon it. In recent decades there has been, increasingly, a differentiation of the work done by vets into the various sectors of veterinary medicine. This differentiation has led to a division being made in the course between a general section (that all students follow) and various majors (of which the student only does one). Given the above, the final attainment levels will need to be evaluated regularly and amended as necessary.

Prior to the drafting of these final attainment levels, the Final Attainment Levels Veterinary Medicine Curriculum Project Group (PECD) undertook extensive familiarisation.

Of course, the Dutch legal context was taken into account, as was the international context in which the course takes place, and national and international guidelines with respect to the practice of veterinary medicine, university education and the accreditation of courses. At the same time, the final attainment levels of other veterinary and medical courses, such as those of the British Royal College of Veterinary Schools(17), the Canadian Veterinary College of the University of Guelph(18) and the Dutch medical faculties(1, 2) were also examined.

When describing the final attainment levels, a structure was chosen that is comparable to that of the joint Dutch courses in Medicine (Framework plan 2001 Medical Course: final attainment levels for the course of Medicine [Raamplan 2001 artsopleiding; eindtermen van de artsopleiding](2)).

This structure fits into the current educational views about an adequate description of final attainment levels. In addition this also satisfies the curriculum objectives that form the basis of the education innovations since 1995:

- Increased animal species and sector differentiation
- Learning to solve veterinary problems
- More attention for scientific training
- More attention for communication, later extended to 'professional conduct'
- The stimulation of life-long learning
-

In this report where the term 'veterinarian' is used, what is meant is a veterinarian immediately after graduation.

In the text of the report wherever the masculine form is used (he, his and him), the feminine form (she or her) is also intended.

Where in the report the term 'public health' is used then 'food safety' is also implicitly meant.

3.2 Structure of the Final attainment levels for Veterinary Medicine

Every student, studying veterinary medicine in one of the faculties within the EU, acquires on graduation a **general licence** to practice veterinary medicine in the widest sense, in accordance with European guidelines.

The 'final attainment levels' constitute the written description of the characteristics that the graduate, the 'end product' of the course should meet.

In the following chapters of the current report "*Final attainment levels for the curriculum of Veterinary Medicine*" the final attainment levels are formulated both as **concept** and as **an overview of the course requirements**.

The practice of the profession of veterinarian goes beyond that of separate disciplines. It demands a way of veterinary thought and actions in which knowledge, skills and conduct are applied in a coherent manner. Learning to think and act in an integrated veterinary manner is thus a central, cohesive element in the veterinary medicine curriculum. That is why the final attainment levels are formulated independently of the various disciplines.

The general licensed veterinarian may be expected to be able to provide adequate veterinary care to animals that are kept. The "*animal species that are relevant to the final attainment levels*" are described in Chapter 4. This includes the various categories of use that can be distinguished among the animals that are kept, after which a specification of the animal species is given according to categories of use. This classification is important in terms of the division between the general section of the course and its accompanying final attainment levels and the various majors and their accompanying final attainment levels, which is made in the later chapters.

The final attainment levels are described as **concept** in **Chapter 5: "Profile of the veterinarian at the time of graduation"**. In this chapter there is a description (in general terms) of which capabilities the veterinarian must have at his disposal at the time of graduation. The profile can be regarded as the most succinct description of the vet's capabilities at the time of graduation. In addition to the description of the capabilities of the veterinarian a more detailed form of this profile is given for all majors. This detailed form of the profiles indicates the limit

to the level of care that can be expected from the veterinarian in the sector of his own major versus the other sectors.

The final attainment levels as **an overview of the course requirements** are given in more detail in the **Chapters 6 to 9**, the "*general final attainment levels*", and **Chapter 10**, the "*Questions / Problems that the veterinarian may have to face*".

The "*general final attainment levels*" form the specification of the profile in terms of knowledge, skills and professional conduct. The "*general final attainment levels*" are divided into **Chapter 6: "Technical aspects"**, **Chapter 7: "Scientific aspects"**, **Chapter 8: "Personal aspects"**, and **Chapter 9: "Social aspects"**. In these chapters the final attainment levels for both the general section of the course and the majors are given. Often the final attainment levels will be achieved because attention is paid to them both in the general section as well as in (one or more of) the majors. These final attainment levels are marked with a • in the column 'General' and, where relevant, with a • in the column(s) of one or more of the majors.

A limited number of final attainment levels are specific to one (or more) major(s). *These final attainment levels are shown in the tables in italics and with a • only marked in the column(s) of the major(s).*

To be able to speak of a general licence then both the general section of the course and one of the majors must have been completed.

Knowledge, skills and conduct learned in the part that is specific to the major, constitute an essential part of the training of the general licensed vet. The general licence is thus only acquired when the 6-year course is completed successfully.

Chapter 10, the "*Questions / Problems that the veterinarian may have to face*", is the specification of the "*general final attainment levels*", in particular of the technical aspects (**Chapter 6**), formulated in terms of questions or problems that a newly graduated veterinarian must be able to deal with. This chapter contains the intrinsic questions or problems, as an owner, carer or other interested parties could put them to the veterinarian in practice.

It is not expected hereby that every veterinarian will be able to answer in full every question that could be put to him. He must however be able, on the basis of his expertise, be able to draw up and implement a plan of attack (see the explanation to **Chapter 10: Questions / Problems list**). The "*Questions / Problems list*" is consequently a guide for the content of the (various parts of the) course.

As appendices to the Final attainment levels for Veterinary Medicine Curriculum two lists were included:

a "*Skills list*" (**Appendix 1**) and a "*Syndrome list*" (**Appendix 2**).

They are not part of the final attainment levels but form a guide to the interpretation of the profile, the general final attainment levels and the Questions/Problems list in terms of the (various parts of the) course.

The “*Skills list*” describes which skills the veterinarian should have a command of at the time of graduation. Hereby a distinction is made in the levels between the general section of the course and the various majors.

The “*Syndrome list*” describes which syndromes the veterinarian should know about and at what level at the time of graduation. Here too a distinction is made between the general section of the course and the major taken.

4. ANIMAL SPECIES RELEVANT FOR THE FINAL ATTAINMENT LEVELS

4.1. Categories

In the “use” of animals that are kept, the following categories are distinguished:

- **Production animals:**
Animals that are kept for the production of meat or other products of animal origin
- **Companion animals (pets):**
Animals that are kept for companionship of people
- **Hobby-, recreational-, sport- and working animals:**
Animals that are kept as a hobby, as a pastime, for recreational purposes, for sports purposes or for specific work tasks.
- **Laboratory animals:**
Animals that are kept for the purpose of (scientific) research and teaching, as laid down in the law on laboratory animals.

4.2 Specification of animal species that are kept and their use

Cattle are principally kept as production animals. In addition cattle are kept to a limited extent as a hobby and for recreational purposes, e.g. on children’s farms and in wildlife areas.

Small ruminants (sheep and goats) are mainly kept as production animals. In addition they are kept as a hobby and for recreational purposes. To a limited extent small ruminants are used as laboratory animals.

Pigs are mainly kept as production animals. To a limited extent pigs are kept as laboratory animals, or as a hobby. In the latter context potbelly pigs must also be considered.

Poultry, which along with hens includes for example ducks, turkeys and guinea fowl are primarily kept as production animals. They are also kept as hobby animals.

Horses, which also include ponies and donkeys, are mainly kept as pets and for recreational and sports purposes. These animals are kept both professionally (including breeding) and privately. To a limited extent horses, ponies and donkeys are (also) production animals. In addition horses are also kept for work tasks (mounted police).

Dogs are mainly kept as pets. They are also kept for sport (agility and dog racing) and they are used for work, for example as police-, guard-, tracker and rescue dogs, and as assistance dogs. Dogs are also kept professionally for breeding. To a limited extent they are also used as laboratory animals.

Cats are mainly kept as pets (and as a hobby animal, including exhibitions). Cats are also kept professionally for breeding. To a limited extent they are also used as laboratory animals.

Rabbits are mainly kept as pets and as hobby animals (including breeding and exhibitions). Rabbits are also used to a limited extent as laboratory animals, or kept as production animals.

Rodents, in particular rats, mice, guinea pigs and hamsters, are frequently kept as pets. The animal species are very often used as laboratory animals.

Fur-bearing animals are kept as pets and as a hobby (ferrets) and to a limited extent for the production of fur (mink).

Pet birds (in particular pigeons, various species of parrot and decorative birds) are kept as pets, as a hobby and for sport.

Other species of animals such as reptiles, amphibians, fish, zoo and dolphinarium animals are kept as a hobby, as pets and for recreational purposes. Fish are also kept as production animals and as laboratory animals. Animal species, such as lamas, deer and ostriches are also kept on a small scale as production animals.

The acquisition of knowledge, skills and professional conduct with respect to the veterinary care of these animal species does not lie within the 6-year curriculum. The necessary expertise should be acquired in post-graduate training courses. These animal species will therefore not be given any separate attention in this report on Final Attainment Levels for the Veterinary Medicine curriculum. In the course aspects of these animal species can however certainly come up if this is important for the

acquisition of insights that go beyond being species-bound, or for aspects of veterinary public health.

5. PROFILE OF THE VETERINARIAN AT THE END OF THE VETERINARY MEDICINE COURSE

5.1 Introduction

The veterinarian has during the course gone through a period of learning (knowledge), training (skills) and instruction (professional conduct). As a result he is able to practise the profession of veterinarian.

The profile (5.2) indicates what a veterinarian is, what is expected of him and what the most important characteristics and features of the veterinarian. This applies to **all** veterinarians who graduated from the Faculty of Veterinary Medicine of the University of Utrecht.

Subsequently the details of the profile of the veterinarian per major are given (5.3). This relates to the veterinarian working in the sectors: companion animals, horses, agricultural animals, veterinary public health, 'management and policy' and veterinary science research.

On reading this profile the reader should be very aware of the fact that this relates to a recently graduated veterinarian. This veterinarian will have to develop professionally in all sorts of domains and will need permanent training in his later practice of the profession. It cannot be expected of the recently graduated veterinarian that his knowledge, skills and professional conduct should be at the same level of that of a more experienced colleague.

5.2 Profile of the veterinarian

The veterinarian is expert, that is to say he:

1. has a wide pathobiological, population-biological and scientific insight, in accordance with the current insights into the science
2. has mastered veterinary problem solving and is able to form a professional judgment, to take decisions independently and to justify them
3. is able to carry relevant veterinary activities

The veterinarian acts professionally, that is to say he:

4. is aware of his social responsibility for the health and the welfare of animals and aspects of public health
5. maintains his own expertise and is able to deal flexibly with new developments
6. bears his limitations in mind in relation to animal species or activities for which he has not acquired sufficient competence during his study

The veterinarian is moreover:

7. legally competent to practise veterinary medicine independently
8. suitable to commence a further course of training such as specialisation and/or a course leading to a doctorate

For each aspect mentioned above a short explanation follows.

1. Has a wide pathobiological, population-biological and scientific insight, in accordance with the current insights into the science

The veterinarian is scientifically educated and acts in accordance with that. He has a solid foundation of knowledge, insight and experience, with pathophysiology and population biology as the core, based on basic and supporting disciplines, and further elaborated in the various dimensions that relate to animal health, animal welfare, public health and food safety. He can approach information in a scientifically critical manner and is able to form a reasoned opinion about it.

2. Has mastered veterinary problem solving and is able to form a professional judgment, to take decisions independently and to justify them

The veterinarian is able to answer veterinary questions – preventively or curatively- by means of investigation and analysis and to determine which approach is suitable as such. He does this in a methodical manner, i.e. purposefully and focused, systematically and consciously reasoned. He acts in accordance with the principles of 'evidence-based veterinary medicine' and is able to justify his judgments and to communicate clearly about these.

3. Is able to carry relevant veterinary activities

He is skilled in carrying out veterinary activities that are important in the context of diagnostics, prevention and therapy.

4. Is aware of his social responsibility for the health and the welfare of animals and aspects of public health

The veterinarian shows respect in his dealings with animals, animal owners and other relevant persons. He is prepared to take action and he feels responsible for the health and welfare of animals (and animal owners) and for (the veterinary aspects of) public health and food safety. He is reliable and clear in his agreements and refrains from making commitments that cannot be kept.

The veterinarian is capable of examining his own veterinary actions and those of others critically and is aware of his responsibility for the execution of veterinary health care as an organisation, whereby the financial, logistic and other restrictive factors within veterinary health care are also considered.

5. Maintains his own expertise and is able to deal flexibly with new developments

The veterinarian is able to modify his knowledge, skills and professional conduct to a evolving health care system, to scientific and social developments and to changing economic, legal and ethical boundaries. He keeps up to date with these developments and is aware of the necessity of lifelong learning and testing to be able to continue to function fully as a veterinarian.

6. Bears his limitations in mind in relation to animal species or activities for which he has not acquired sufficient competence during his study

The veterinarian is aware of the limitations of his profession and his own abilities. In such cases, he refrains from taking action himself and refers the 'patient' to a colleague who has more expertise on that problem.

7. Legally competent to practise veterinary medicine independently

On the basis of the Law on Higher Education and Scientific Research [Wet op het Hoger onderwijs en het Wetenschappelijk onderzoek (WHW)], the Law on the Practice of Veterinary Medicine [Wet op de Uitoefening van de Diergeneeskunde (WUD)] and the EU directive 78/1027/EEC the veterinarian legally authorised to practice all aspects of veterinary medicine. The limits of his competence are however defined by the programme followed during his study (major).

8. Suitable to commence a further course of training such as specialisation and/or a course leading to a doctorate

The knowledge and skills acquired during the undergraduate course permit the veterinarian to commence a post-graduate training course.

5.3 Details of the profile of the veterinarian per major

Companion animals (CA)

The veterinarian who has taken the Companion Animals major is equipped with a knowledge, skills and professional conduct package that makes him pre-eminently fit to function in the sector of veterinary medicine that is focused on dogs, cats, and small companion animals (in particular rabbits, rodents, ferrets and companion birds) that are kept individually or in groups as companion animals, for recreational purposes, for sports or for breeding.

Horses (H)

The veterinarian who has taken the Horses major is equipped with a knowledge, skills and professional conduct package that makes him pre-eminently fit to function in the

sector of veterinary medicine that is focused on horses that are kept individually or in groups as companion animals, for recreational purposes, for sports or for breeding.

Agricultural animals (AA)

The veterinarian who has taken the Agricultural Animals major is equipped with a knowledge, skills and professional conduct package that makes him pre-eminently fit to function in the sector of veterinary medicine for agricultural animals (ruminants, pigs and poultry) for both individual animals as well as herds. This veterinarian is the best person to talk to for the individual animal keeper, but also for the government and trade and industry in the animal production chain, in the field of animal health, animal welfare and public health.

Veterinary Public Health (VPH)

The veterinarian who has taken the Veterinary Public Health major is equipped with a knowledge, skills and professional conduct package that makes him pre-eminently fit to function in that sector of veterinary medicine that is concerned with safeguarding animal health and in those domains where the health of humans may be affected by the keeping and dealing with animals, by the animal production and the way in which these products are processed. This veterinarian is from this expertise the best person to talk to for government and trade and industry, but also for the individual animal keeper.

Management & Policy (M&P)

The veterinarian who has taken the Management & Policy major is equipped with a knowledge, skills and professional conduct package that makes him pre-eminently suitable for management and administrator's posts that are related to the various veterinary medicine work domains, within the government and in welfare organisations. Through the combination of specific clinical, pathobiological and population-biological knowledge on the one hand and management- and policy-related information on the other, the 'management & policy' is suited to serving as an intermediary between the industrial animal husbandry business, trade and industry and the (national and international) government.

Scientific Research (SR)

The veterinarian who has taken the Scientific Research major is equipped with a knowledge, skills and professional conduct package that makes him pre-eminently fit to work in (veterinary) biomedical research. Through the combination of specific non-species-bound pathobiological, population biological insight on the one hand and knowledge and experience in the field of biomedical research the 'scientific research' veterinarian 'is suited to act as an intermediary between the biomedical research world and veterinary medicine – practical and applied.

6.	Technical aspects	General	Major						
			CA	H	AA	VPH	M&P	SR	
6.1	The animal, the herd, the animal product, the farm, the owner or the surroundings								
	The veterinarian is able to:								
	work systematically	+	+	+	+	+	+	+	+
	to work in accordance with guidelines /protocols drawn up by the professional group and in line with public law and private law	+	+	+	+	+	+	+	+
	to handle his responsibility with respect to animal health, animal welfare and public health	+	+	+	+	+	+	+	+
	to handle his responsibility by taking measures that can reduce the risk of cross-contamination or the spreading of pathogens	+	+	+	+	+	+	+	+
	recognize in general the risks of keeping animals and in particular of animal diseases and to act accordingly	+	+	+	+	+	+	+	+
	monitor or safeguard animal health, animal welfare and public health in a manner that is transparent and as required by protocol	+	+	+	+	+	+	+	+
	to work with data bases that are specific to the sector	+	+	+	+	+	+	+	+
	<i>to make a SWOT analysis of, to form an opinion about, an animal-keeping business as a whole and of/about the various management processes with respect to animal health, animal welfare and public health</i>		+	+	+	+			
	<i>to extrapolate information about the health status and production level of animals to the farm level as well as to larger populations</i>				+				
	<i>control and manage the risks of pathogens, residues and toxins being transferred in food of animal origin</i>				+	+		+	
	<i>include, describe and analyse the farm profile[1] of farms in the animal production chain</i>				+	+			
	The veterinarian is knowledgeable and insightful in relation to:								
	the main features of the historic developments in veterinary medicine	+	+	+	+	+	+	+	+
	the fundamental biological principles and mechanisms that lies at the basis of health and illness, from the molecular and cellular level to the level of organs, the whole animal and the population	+	+	+	+	+	+	+	+
	the life cycle of the animals and the requirements that have to be set for the animal's environment	+	+	+	+	+	+	+	+
	interactions between environment, animal health, animal welfare and public health	+	+	+	+	+	+	+	+
	the scientific basis of preventive and therapeutic interventions	+	+	+	+	+	+	+	+
	epidemiological methods of tracing health problems	+			+	+		+	
	the animal production chains	+			+	+			
	<i>heritable disorders and the distribution thereof in closed populations</i>		+						
	<i>quality and risk management on cattle farms</i>				+	+			
	<i>the welfare of animals during the production process, transport and slaughter process</i>			+	+	+			
	<i>population dynamics of infections and intoxications, also in relation to bioterrorism</i>					+			
	<i>the principles, the concepts and the methods of good production practices and quality management from the harvest (good agricultural practices) through to and including the retail</i>					+			
	<i>The promotion and application of food hygiene and the promotion of food safety (good hygiene practices)</i>					+			
	<i>surveillance and monitoring systems in use within the safeguarding of food safety</i>				+	+			
	<i>audit methodologies and evaluation of the regulations of systems for the management of food safety</i>				+	+			
	<i>'emergency preparedness' in relation to animal disease outbreaks and public health</i>				+	+	+		

6.2	Description of the question	General	Major						
			CA	H	AA	VPH	M&P	SR	
	The veterinarian is able to:								
	form a clear picture of the question and to describe it unambiguously	+	+	+	+	+	+	+	+
	to describe data relating to the questions, such as a description of an animal, a herd and a farm profile	+	+	+	+	+	+	+	+
	to determine whether he needs to take special precautions when approaching or handling animals and/or animal products	+	+	+	+	+	+	+	+
	form a general impression of an individual animal, a group of animals, animal products, and the surroundings in which they are held and/or processed	+	+	+	+	+	+	+	+
	on the basis of the data provided, identify (groups of) animals and /or factors to which special attention should be paid during the investigation/examination	+	+	+	+	+	+	+	+
	determine whether the answer to the question, or the impression gained of animal(s) or animal product(s) has an influence on other parts of the chain, other animals, animal products and/or public health	+			+	+			
	designate, interpret and act accordingly depending on the urgency of the question and in life-threatening situations immediately give first aid	+	+	+	+	+	+	+	+
	6.3 Anamnesis								
	The veterinarian is able to:								
	take a full anamnesis in relation to the current question, the previous history, any possibly related questions, the surroundings, the questions relating to other animals or humans in the surroundings and/or by links in the production chain	+	+	+	+	+	+	+	+
	to estimate the relevance of the findings to the question, and classify and use them as the basis for further investigation	+	+	+	+	+	+	+	+
	to record the data from the anamnesis in a concise clear manner	+	+	+	+	+	+	+	+
	6.4 Initial examination								
	The veterinarian is able to:								
	approach individual animals or a group van animals or to (have them) immobilise(d) in such a way that the execution of a general examination is possible in a responsible manner	+	+	+	+	+	+	+	+
	to make a representative choice of the animals, animal-/ business data and animal products to be investigated	+	+	+	+	+	+	+	+
	carry out a general examination [2] on the animal, the animals, and/or to carry out investigations[3] into farm processes and into the quality and safety of foodstuffs of animal origin, in particular on the slaughter line	+	+	+	+	+	+	+	+
	recognise deviations from the normal picture and the natural variations on this in animals and animal products	+	+	+	+	+	+	+	+
	give an answer to the question of whether the surroundings/business in which the animal, the herd, the animal products are kept or processed could be of influence on the information obtained from the general examination	+	+	+	+	+	+	+	+
	state the findings and record them clearly and succinctly	+	+	+	+	+	+	+	+
	make a choice of the relevant organ systems for further physical examination, and/or make a choice of foodstuffs of animal origin for further investigation	+	+	+	+	+	+	+	+
	carry out a physical examination of the various organ systems in the animal species (i.e. where this is relevant to the various animal species)[4], taking the limits of one's own knowledge and skills into account	+	+	+	+	+	+	+	+
	carry out an investigation of foodstuffs of animal origin and the surroundings and conduct a risk analysis, in accordance with a validated procedure[5]	+				+			

	General	Major				
		CA	H	AA	VPH	M&P
6.5 Evaluation of findings						
The veterinarian is able to:						
to interpret, evaluate record and express (problem definition) the information from the question and preceding examination in correlation with each other	+	+	+	+	+	
set priorities in the plan of attack, if several problems have been defined (triage)	+	+	+	+	+	
formulate hypotheses about cause and result, resulting in a (differential) diagnosis	+	+	+	+	+	
take action on/ notify welfare abuses	+	+	+	+	+	
inform the responsible authorities on suspicion of notifiable diseases	+	+	+	+	+	
consider whether further investigation is merited given the nature of the question, the animal's suffering, the danger to other animals and/or humans and the burden on the environment	+	+	+	+	+	
estimate the urgency of any necessary actions	+	+	+	+	+	
consider the question in a broader perspective and where relevant in the context of the entire chain	+	+	+	+	+	
interpret the risk analysis in terms of a risk estimate	+	+	+	+	+	
estimate the need for additional investigation or intervention	+	+	+	+	+	
evaluate the relevance of supplementary investigation and/or intervention for the subsequent decision-making process taking account of:	+	+	+	+	+	
- the chance of success						
- the risks for public health						
- the safety of foodstuffs of animal origin						
- the degree to which the animal's welfare is affected						
the wishes of the person requesting the service						
the costs and benefits to be expected						
decide to tackle the problems himself or to call in the assistance of other with additional expertise, hereby taking account of the possibilities at the location and the limits of one's own knowledge and skills	+	+	+	+	+	
determine an inspection decision on the basis of recognised abnormalities in (unprocessed) animal products, or the lack thereof	+				+	
estimate whether and how an animal may and can be transported to another location	+				+	
get an animal ready for transportation	+	+	+	+	+	
if necessary destroy an animal for the right reasons and in the right manner, thereby, if application, taking account of possible use for consumption	+	+	+	+	+	
certify death	+					
6.6 Additional investigation						
The veterinarian is able to:						
collate additional information about animal(s), animal products, business and/or surroundings	+	+	+	+	+	
collate material in a safe and sound manner for additional investigation taking into consideration the conditions under which this should be transported	+	+	+	+	+	
execute or respectively request the additional investigation [6]	+	+	+	+	+	
interpret the results of the additional investigation or other information supplied	+	+	+	+	+	
discuss the findings of the additional investigation with the interested parties	+	+	+	+	+	
estimate, classify and use the results of the additional investigation according to their relevance to the question, and record the results of the additional investigation in a clear, concise manner	+	+	+	+	+	
<i>and legally competent to take x-rays</i>	+	+				

	General	Major				
		CA	H	AA	VPH	M&P
6.7 Evaluation of findings after additional investigation						
The veterinarian is able to:						
to interpret the information from the question and the foregoing examination in correlation with each other and to establish the (most likely) diagnosis	+	+	+	+	+	
to relate the results from the additional investigation to other animals, the surroundings or parts of the production chain	+	+	+	+	+	
translate the risk analysis in terms of a risk estimate	+	+	+	+	+	
once again estimate the urgency of necessary actions	+	+	+	+	+	
to analyse the question again if at this stage no diagnosis can be established	+	+	+	+	+	
come to a reasoned diagnosis which can serve as the starting point for giving advice, treatment and guidance	+	+	+	+	+	
to weigh up whether intervention is worthwhile for the animal, the herd, the animal product, the business, the owner or the surroundings	+	+	+	+	+	
6.8 Prevention and/or therapy						
The veterinarian is able to:						
establish the goal of the prevention- and/or therapy plan	+	+	+	+	+	
choose the optimum preventive and/or therapeutic intervention to achieve this goal from the various possibilities, taking the advantages and disadvantages for the animal, the herd, the animal products, the business, the owner and the surroundings, and which fits within the frameworks of the relevant legislation and regulations	+	+	+	+	+	
carry out or have carried out the chosen preventive or therapeutic intervention in accordance with the applicable standards of the profession	+	+	+	+	+	
provide insights in a logical manner into the chances of achieving a result with the intervention	+	+	+	+	+	
indicate in a logical manner when, why and on what basis and how the prevention or therapy plan will be modified	+	+	+	+	+	
communicate the instructions relating to the proposed interventions, the possible risks and the subsequent stages in a correct manner with the owner	+	+	+	+	+	
reduce as far as possible anxiety and/or unease in the animal and the human angst	+	+	+	+	+	
<i>use diagnostic epidemiology in the monitoring of problems related to foodstuffs of animal origin such as antibiotic resistance and residue problems</i>						+
<i>advise business about the application of food hygiene related to foodstuffs of animal origin</i>						+
6.9 Consultation, referral, and transfer						
The veterinarian is able to:						
consult the correct person or organisation	+	+	+	+	+	
obtain information from others, or to provide information to others for the benefit of transferring or referring a case	+	+	+	+	+	
6.10 Final evaluation						
The veterinarian is able to:						
determine to what extent the question has been answered	+	+	+	+	+	
draw conclusions as a result of the evaluation: if necessary to reconsider the diagnosis, or to re-analyse the problem and as necessary to modify the prevention- or therapy plan	+	+	+	+	+	
record the evaluation in writing and set up a plan for follow-up	+	+	+	+	+	

	General	Major				
		CA	H	AA	VPH	M&P
6.11 Management of a business						
The veterinarian shows that:						
he is aware of working in, or is (partly) responsible for a company or other organisation	+	+	+	+	+	+
he realises the need for adequate management in every professional form of cooperation	+	+	+	+	+	+
The veterinarian is able to:						
formulate (joint) objectives for an organisation	+					+
make a contribution to the development of a long-term policy	+					+
safeguard the quality of the working methods of an organisation	+					+
to evaluate the main features of the annual accounts of a company (or organisation)	+					+
to manage a veterinary pharmacy independently including the correct use of veterinary medications	+	+	+	+		
The veterinarian has knowledge and insight in relation to:						
the various organisational forms of a company	+					+
the role and responsibilities of the veterinarian as employee or employer	+					+
the basic principles of (business) management en marketing	+					+
<i>the basic principles of starting a practice, taking over a practice</i>		+	+	+		+

1 Those features of a company that distinguish the company from other companies, such as size, intended use of the animals, production level, status with regard to certain pathogens or contact structure

2 the measurement of respiration rate and pulse, the measurement of body temperature and the evaluation of the skin, mucous membrane and the lymph nodes, where this is relevant for the different species of animals (see Appendix 1: Skills List)

3 Ante- and post-mortem examination, as described in the law

4 See also the explanation to Appendix 1: Skills List

5 E.g. according to HACCP (Hazard Analysis and Critical Control Point) rules

6 See Appendix 1: Skills List

	General	Major				
		CA	H	AA	VPH	M&P
7. Scientific aspects						
7.1 Significance of scientific thinking for the actions of the veterinarian						
The veterinarian shows:						
a critical and analytical attitude to the scientific knowledge on which veterinary medicine activities are based	+	+	+	+	+	+
he is able to estimate the level of his own knowledge and skills on a solid scientific basis	+	+	+	+	+	+
The veterinarian is able to:						
track down, evaluate and pass on information that is professionally important in the literature or other sources. This includes:	+	+	+	+	+	+
- actively tracing relevant publications						
- making a selection from the relevant literature and keeping up to date with this literature						
- reading scientific literature critically and estimating its value						
- translating the results of scientific research into their application in the practice of veterinary medicine						
- cite professional literature						
- translate the results of scientific research in terms of various target groups (e.g. scientific forums, clients, the lay public)						
approach a (veterinary medicine) problem systematically in accordance with the accepted principles of natural sciences (Evidence-Based Veterinary Medicine (19)) and can thereby:	+	+	+	+	+	+
- translate the need for information concerned with a problem into a set of (clinical) questions that need to be answered	+					
- find the most suitable external 'evidence'	+					
- evaluate the evidence found for validity and significance	+					
- assess how to apply the evidence found to the problem in question	+					
- apply theories about hypothesis forming, problem solving and decision making in this process	+					
identify (important) veterinary medicine problems in the professional domain, suitable for setting up scientific study and translate these in terms of a simple research question	+					+
7.2 Basic principles of scientific research						
The veterinarian is able to:						
under supervision set up a study of a limited size, carry out the research and generate, interpret and/or evaluate the results and report on them (in writing and orally)	+					
<i>critically analyse and form a reasoned opinion of scientific (biomedical) research that is published or otherwise presented</i>						+
<i>identify, interpret, and summarise relevant literature and other relevant data, including databases, on a topic in a particular (biomedical) field and extrapolate this to a given practical research situation</i>						+
<i>draw up, to a great extent independently, a scientific (biomedical) hypothesis</i>						+
<i>convert, to a great extent independently, a scientific (biomedical) hypothesis into a research plan with accompanying protocols that can be carried out practically, with the application of the principles of research methodologies, statistics and epidemiology</i>						+
<i>make a considered choice, including ethical aspects, in relation to the use of laboratory animals or alternatives to laboratory animals</i>						+
<i>to a great extent independently carry out a research study in accordance with the plan and become skilled in the appropriate techniques</i>						+
<i>conduct animal tests, in accordance with the stipulations set out in Art. 9 of the Law on Animal Experiments</i>						+
<i>work safely, reliably, carefully and according to protocol, in relation to laboratory and field work etc.</i>						+
<i>arrive at a sound analysis of the results and thereby engage the help of an (external) expert at the right moment</i>						+
<i>independently write publications for the scientific literature</i>						+
<i>present result of research to scientific forums</i>						+
The veterinarian has knowledge and insight in relation to:						

		General	Major					
			CA	H	AA	VPH	M&P	SR
	the general principles of hypothesis formation, research methodologies[1]a and concepts of forms of scientific research that are relevant to veterinary medicine	+						
	the principles of scientific methodology, biostatistics and epidemiology	+						
	the process that leads to the publication of scientific data	+						
	scientific theories taking into account the historic perspective and the way in which knowledge arises and how this knowledge is supported	+						+
	fundamental aspects of welfare and behaviour in laboratory animals and the consequences of this for the setup of the study							+
	methodologies for justified removal of bodily materials from laboratory animals for the benefit of scientific research							+
	modern techniques that are used when carrying elementary and applied molecular biological, cellular, histological, pathological, biochemical, infective biological, immunological and genetic research and the accompanying protocols							+
	the various systems that ensure the quality of the scientific research study							+
	the fundamental working principles, the application possibilities and -restrictions of imaging techniques that are used for research purposes							+
	the application possibilities and -restrictions of epidemiological research							+
	the submission and presentation of project- and subsidy requests							+

1 including those related to data collection

		General	Major					
			CA	H	AA	VPH	M&P	SR
8.	Personal aspects							
	8.1 Aspects that apply generally							
	The veterinarian demonstrates							
	reliability, by keeping to agreements, working accurately and punctually, dealing with information obtained in a confidential manner and refraining from commitments that cannot be kept	+	+	+	+	+	+	+
	The veterinarian is able to:							
	communicate clearly verbally and non-verbally and to be able use different forms and methods of communication	+	+	+	+	+	+	+
	point out feelings of dissatisfaction present in others and/or himself with respect to his professional relationship, and to make them discussable and to react adequately, taking into account the boundaries of his own knowledge and skills and decency	+	+	+	+	+	+	+
	8.2 The relationship of the veterinarian with humans and animals							
	The veterinarian shows:							
	a respectful attitude to humans and animals, taking account of the emotions, norms and values of others and uses generally acceptable manners	+	+	+	+	+	+	+
	professional involvement in the animal, the (care) question of the client and understanding for the situation of the animal and the client in the context of society	+	+	+	+	+	+	+
	an understanding of the need to be able to deal well with his own emotions, norms and values in relation to questions about life, health, illness and death, in particular with veterinary ethics questions about the self-respect of the animal[1] and the balance between the wishes of the owner and personal ethical standpoints	+	+	+	+	+	+	+
	a respectful attitude to laboratory animals, taking account of the self-respect of the animal	+						+
	a respectful attitude to people who are involved in or who feel involved in animal experiments, taking account of emotions of other people, by respecting their views and using generally acceptable manners	+						+
	The veterinarian is able to:							
	deal professionally with the animal, the owner and the user, and with the specific requirements that are made of the animal and user in the context of the usage (sport, hobby, recreation), and thereby take account of the (sometimes conflicting) interests of animal, owner and user	+	+					
	carry out the prescribed monitoring tasks on a cattle farm				+	+		
	deal with the ethical problems in relation to the area of tension between the economy of the cattle farm (the business), animal health, animal welfare and public health and to make these discussible	+	+	+	+	+		
	8.3 Functioning in respect of veterinary activities							
	The veterinarian shows:							
	openness towards new developments	+	+	+	+	+	+	+
	willingness to keep his own expertise up-to-date or as the case may be to expand it	+	+	+	+	+	+	+
	willingness to actively seek possibilities for improvement	+	+	+	+	+	+	+
	willingness to set himself goals	+	+	+	+	+	+	+
	willingness to use problems, dilemmas and setbacks for further professional development	+	+	+	+	+	+	+

	General	Major					
		CA	H	AA	VPH	M&P	SR
awareness of the responsibilities of the veterinarian	+	+	+	+	+	+	+
willingness to promote the health and welfare of the animal and to promote the quality and safety of foodstuffs of animal origin taking account of the recognition of the self-respect of the animal	+	+	+	+	+	+	+
willingness to monitor and promote public health and (veterinary) environmental hygiene and consider thereby the interests of the owner of the animal and/or the owner of the animal products and the place and the function of veterinary medicine and its practitioners in society	+	+	+	+	+	+	+
The veterinarian is able to:							
deal with acute, or rapidly changing situations	+	+	+	+	+	+	+
deal with his own emotions, norms and values in relation to questions about life, health, illness and death, and to deal with veterinary ethics questions and also those relating to the balance between the wishes of the owner and the self-respect of the animal	+	+	+	+	+	+	+
act taking veterinary professional integrity into consideration	+	+	+	+	+	+	+
8.4 Functioning in respect of professional working relationships							
The veterinarian is able to:							
function cooperatively, which is apparent from:	+	+	+	+	+	+	+
- working together constructively in a team with other people							
- acting in a helpful and fraternal manner							
- giving and asking for feedback							
- contributing in an adequate manner to the working relationship							
- taking on various roles within the team taking into account the limits of his own knowledge and skills							
work systematically, which is apparent from:	+	+	+	+	+	+	+
- the organisation of the work activities							
- the structured, quality-conscious, purposeful and efficient way of working							
- the completion of work within the set time							
deal with positive and negative feedback and to ask in a timely manner for such feedback and to be able to incorporate his own contribution and those of others in his subsequent actions	+	+	+	+	+	+	+
delimitate, on the basis of his own knowledge, skills and responsibilities, his own tasks with respect to other (veterinary) disciplines and paraveterinary professions	+	+	+	+	+	+	+
deal with conflicts (conflict management)	+	+	+	+	+	+	+
function in the (inter)national network of health care for the animal species involved, such as there are now first-, second- and third-line practices/clinics, ratifications and specialisations		+	+	+	+		
translate observations relating to public health from the production chain of foodstuffs of animal origin, companion animals and the environment and express them in terms of those involved		+	+	+	+		
function cooperatively and constructively in a multidisciplinary context and in that position fulfil a bridging function between the (inter)national policy-forming bodies and those people executing policy in the animal-keeping businesses, trade and industry and the professional domain of veterinary medicine						+	
function cooperatively and constructively in a multidisciplinary research team and in that position fulfil a bridging function between the professional field of veterinary medicine and biomedical research							+

	General	Major					
		CA	H	AA	VPH	M&P	SR
8.5 Functioning in respect of personal characteristics							
The veterinarian is able to:							
act self-confidently, which is apparent from:	+	+	+	+	+	+	+
- the stating and harmonisation of own thoughts, feelings and behaviour							
- his ability to deal with stress, uncertainty, feelings of powerlessness and with the area of tension between ideals and the necessarily concrete professional actions							
- the awareness of own capacities and limitations. He realises the limits of his own expertise and of his own existing prejudices. He can recognise his own limitations and those of the veterinary profession as a whole							
- his logical, firm and honest actions							
deal with complications as a consequence of personal and veterinary actions. He thereby reflects critically about matters	+	+	+	+	+	+	+
examine from a distance his own functioning and behaviour, as well as that of the profession as a whole	+	+	+	+	+	+	+
handle criticism	+	+	+	+	+	+	+
deal with his own responsibility; dares to take difficult decisions including deciding not to treat, taking account of the personal circumstances, wishes and own responsibility of the person asking for the service	+	+	+	+	+	+	+
8.6 The mutual influences of work and private life							
The veterinarian shows:							
appreciation and recognition of estimating the importance of any tensions between work and private life	+	+	+	+	+	+	+
The veterinarian is able to:							
to take measures that the best way of reducing the tensions, including as necessary calling in professional help	+	+	+	+	+	+	+

	General	Major					
		CA	H	AA	VPH	M&P	SR
9. Social aspects							
9.1 The social responsibility of the veterinarian in relation to animal health, animal welfare, public health and food safety							
The veterinarian shows:							
an understanding of divergent moral outlooks and respect for other meanings and views and can handle them	+	+	+	+	+	+	+
the ability to regard himself and his work in the context of general principles of ethics: portrayal of man, world view and philosophy of life, and can translate this to his own actions	+	+	+	+	+	+	+
insight into the social place and function of animals and their use, in relation to the owner/user, public health, the environment and his colleagues and his own position and role in that	+	+	+	+	+	+	+
an understanding of the demand from society for guarantees with respect to animal welfare	+	+	+	+	+	+	+
an understanding of ethical aspects of veterinary medicine activities	+	+	+	+	+	+	+
the awareness that he practices his profession in a strongly market-guided and large-scale sector and the consequences that arise from this for the practice of veterinary medicine	+			+	+	+	
an understanding of the significance of veterinary medicine in relation to the tracing and recognition of zoonoses	+	+	+	+	+		
a critical and analytical attitude with regard to the use of laboratory animals for the benefit of scientific research and an awareness of the possible alternatives to animal testing	+						+
the awareness and the necessity of considering whether the results of a veterinary scientific study, which is to be set up, can be applied ethically and in a socially responsible manner							
the awareness of the social significance of the regular and non-regular interventions	+	+	+	+	+	+	+
the awareness that economic interests can exceed the capacity of the animal to adapt and thereby can be in conflict with the welfare of the animal		+	+	+			
The veterinarian is able to:							
weigh the interests of the animal and the general interest against each other and take a position on this and take action in accordance with that position	+	+	+	+	+	+	+
recognise and identify, weigh up ethical aspects and moral questions that are relevant to veterinary decisions and which arise during veterinary activities and subsequently act accordingly	+	+	+	+	+	+	+
clarify his own moral standpoints with arguments and justify these to owners, colleagues and other people	+	+	+	+	+	+	+
when there are outbreaks of infectious or notifiable diseases explain the measures taken by the government and make professional/expert comments on them	+	+	+	+	+	+	
inform/advise organisations in society about keeping animals in a responsible manner	+	+	+	+	+	+	
<i>have an active professional attitude with regard to the combating of infectious and/or notifiable animal diseases and think about plans for combating and monitoring with respect to these diseases</i>				+	+	+	
<i>in a responsible manner, inform the public about and explain to the public the use of laboratory animals and the possibilities and impossibilities of alternatives to the use of laboratory animals</i>							+
<i>inform the public and explain to the public the welfare or the lack of it in laboratory animals</i>							+
<i>explain research results in relation to socially relevant questions for the benefit of society</i>						+	+

	General	Major					
		CA	H	AA	VPH	M&P	SR
The veterinarian has knowledge and insight in relation to:							
general philosophical questions in veterinary medicine: the keeping of animals, health and disease, healing and death	+	+	+	+	+	+	+
the central role of the veterinarian in the animal health care system and the gatekeeper's function that is assumed from that	+			+	+	+	
the prohibition on the use of illegal substances in sport and production	+	+	+	+	+	+	
the factors that are definitive for the developments in animal health care, such as size, costs and financing (including insurances)	+	+	+	+	+	+	
the link between environment and food production (including waste management)	+			+	+		
the precautionary principle and the interests of consumers and animal owners	+				+		
information- and communications technology in relation to public health from the veterinary perspective ('early warning', 'rapid alert systems')	+				+	+	
<i>the unique position of the horse as a companion animal on the one hand, and on the other being intended for human consumption and the manner in which this is registered</i>			+			+	
9.2 (International) legal and judicial aspects of keeping animals and of practicing veterinary medicine							
The veterinarian shows:							
awareness of the mutual links between Dutch, European and global legislation and regulations in relation to animals and animal products	+			+	+	+	
The veterinarian is able to:							
be (or have himself) adequately informed and to deal with public and private law regulations in respect of the keeping of animals and the (public) health systems relevant to the veterinarian	+	+	+	+	+	+	+
deal with any conflicts between his professional integrity and the legislation and regulations	+	+	+	+	+	+	+
The veterinarian has knowledge and insight in relation to:							
the foundations and principles of the European and Dutch legislation and regulations in respect of animals[1] and animal products[2]	+	+	+	+	+	+	+
the legislation and regulations relating to the veterinarian – animal – owner relationship	+	+	+	+	+	+	+
the legally established competences of paraveterinary staff	+	+	+	+	+	+	+
the other legal and judicial aspects that are inherent to the practice of veterinary medicine, and guidelines connected to responsible care for and protection of the animal, with the (international) licence to practice and with liability	+	+	+	+	+	+	+
<i>the legal aspects of conducting scientific research</i>							+
9.3 Organisations concerned with the keeping of animals							
The veterinarian is able to:							
<i>cooperatively and constructively collaborate in the management of these organisations and manage/control (parts of) organisation(s)</i>							+
<i>on the basis of his own specific expertise to fulfill a bridging function between the various actors in the domain of primary animal keeping, trade and industry and (semi-) government, and in this develop and maintain a network of functional relationships both inside and outside his own organisation</i>							+
<i>analyse, interpret and explain the judicial, economic and social context of policy questions</i>							+
<i>follow scientific developments (the basic ideas) and to translate these into policy or as the case may be changes to policy</i>							+
<i>make a contribution to the implementation of policy, including strategy, the creation of sport, policy evaluation and as necessary modification of policy</i>							+

		General	Major					
			CA	H	AA	VPH	M&P	SR
	The veterinarian has knowledge and insight in relation to:							
	the place, function, social embedding, interests of and links between organisations involved in keeping animals, in the production of foodstuffs of animal origin and in public health	+	+	+	+	+	+	+
	the manner in which the sector is organised nationally and internationally	+	+	+	+	+	+	+
	<i>the specific interests, function and social embedding of organisations which are occupied with conducting veterinary/biomedical scientific research and of organisations and bodies that grant subsidies</i>							+
	<i>the general principles of strategic management, operational management (financial and personnel) and personal management</i>						+	
	<i>the managerial principles, as far as structure and make-up of, development (innovation/reorganisation) and financing of organisations (directly or indirectly) involved in keeping animals or in the production of foodstuffs of animal origins (related to: animal welfare, animal health, food safety, veterinary public health)</i>						+	

1 this includes legislation and regulations about keeping and caring for animals, the treatment, buying and selling, import and export of animals, about the financing of the care for animals and about conducting scientific research with animals

2 this includes legislation and regulations about the slaughter, inspection, processing, importing and exporting of animal products

10 QUESTIONS / PROBLEMS THAT THE VETERINARIAN MAY HAVE TO FACE

10.1 Explanation

This chapter contains the Questions/Problems that the veterinarian may have to face.

This Questions/Problems list can be regarded as a more detailed specification of Chapters 6 through 9, and in particular of Chapter 6, Technical aspects.

In the Questions/Problems list no distinction is made between the general section of the course and the majors. At the time of graduating, a veterinarian should be able, in principle, to deal with all the questions and/or problems listed here. In other words they should be able to draw up a plan of attack.

That does not however mean that the veterinarian will have to be able to (completely) solve all the questions/problems listed. Running through a more specific problem relating to a type of animal or a sector from a different major, is thus required to be less exhaustively solved, than specific questions/problems from one's own major. Sometimes the best plan of attack, the best solution on hand, is as soon as possible to call in assistance or to refer the question or problem to a colleague with that specific expertise.

In the Questions/Problems the questions/problems marked with grey are those that can affect a herd as well as an individual animal.

		Pig	Ruminant	Poultry	Horse	Dog	Cat	Rodent Rabbit Ferret	Bird
10.2 Questions / problems relating to:									
General									
	the status of animal health	+	+	+	+	+	+	+	+
	the care of the animal(s)	+	+	+	+	+	+	+	+
	the housing of animals incl. climate	+	+	+	+	+	+	+	+
	the hygiene (measures) at farm level	+	+	+	+	+	+	+	+
	the risk assessment for the immediate vicinity	+	+	+	+	+	+	+	+
	the status of the animal welfare	+	+	+	+	+	+	+	+
	a request for advice in relation to behaviour	+	+	+	+	+	+	+	+
	behaviour change/aggressive behaviour/anxious behaviour	+	+	+	+	+	+	+	+
	indications for /suspicion of maltreatment / neglect	+	+	+	+	+	+	+	+
	the status of the public health	+	+	+	+	+	+	+	+
	food safety	+	+	+	+			+	
	weight loss	+	+	+	+	+	+	+	+
	obesity/ overweight	+	+		+	+	+	+	+
	guidance on breeding	+	+	+	+	+	+	+	+
	preventive measures / vaccinations /worming	+	+	+	+	+	+	+	+
	lack of growth / production / performance	+	+	+	+	+	+	+	+
	reduced milk production	+	+		+	+	+		
	change in drinking behaviour	+	+	+	+	+	+	+	+
	change in eating pattern	+	+	+	+	+	+	+	+
	sluggishness/ inactivity /general malaise	+	+	+	+	+	+	+	+
	reduced /poor stamina				+	+	+	+	+
	“fever”	+	+		+	+	+	+	+
	general pain, not specified	+	+		+	+	+	+	+
	blood loss	+	+	+	+	+	+	+	+
	shaking	+	+	+	+	+	+	+	+
	request for euthanasia	+	+	+	+	+	+	+	+
	(acute) death	+	+	+	+	+	+	+	+
	anxiety for serious illness /infection	+	+	+	+	+	+	+	+
	suspected poisoning	+	+	+	+	+	+	+	+
	preventive examination (purchase / sale / insurance)	+	+	+	+	+	+	+	+
	genetic test	+	+	+	+	+	+	+	+
	a suspicion of a genetic/congenital defect	+	+	+	+	+	+	+	+
	an aesthetic problem with the appearance of the animal				+	+	+	+	+
	a request for castration	+	+	+	+	+	+	+	+
	laws and regulations related to veterinary medicine	+	+	+	+	+	+	+	+
	the management, including in relation to animal health, animal welfare and public health	+	+	+	+	+	+	+	+
	the analysis of indicators, including in relation to animal health, animal welfare	+	+	+	+	+	+	+	+

		Pig	Ruminant	Poultry	Horse	Dog	Cat	Rodent Rabbit Ferret	Bird
10.2 Questions / problems relating to:									
	management systems (software), including in relation to animal health, animal welfare and public health	+	+	+				+	
	the farm economics bookkeeping, including in relation to animal health, animal welfare and public health	+	+	+	+	+	+	+	+
	the export and import of animals	+	+	+	+	+	+	+	+
	quality assurance systems, including in relation to animal health, animal welfare and public health	+	+	+	+	+	+	+	+
Respiration									
	nasal discharge	+	+	+	+	+	+	+	+
	nose bleed	+	+		+	+	+	+	+
	abnormalities of the external nose	+	+		+	+	+	+	
	nasal congestion				+	+	+	+	+
	coughing	+	+	+	+	+	+	+	+
	coughing up mucous or blood				+	+	+	+	+
	sneezing	+	+	+	+	+	+	+	+
	wheezy breathing and other background noises	+	+	+	+	+	+	+	+
	shortness of breath / tightness in the chest/ rapid breathing	+	+	+	+	+	+	+	+
Nutrition and digestion									
	nutrition of a young/ growing animal	+	+	+	+	+	+	+	+
	nutrition of an adult animal	+	+	+	+	+	+	+	+
	nutrition of the pregnant animal	+	+	+	+	+	+	+	
	nutrition of the highly productive animal	+	+	+	+	+			
	nutrition of the older animal	+	+	+	+	+	+	+	+
	(suspicion of) having eaten something wrong	+	+	+	+	+	+	+	+
	lockjaw (tetanus)		+	+	+	+	+	+	+
	open beak / mouth	+	+	+	+	+	+	+	+
	abnormalities of the lip / tongue / mouth		+	+	+	+	+	+	
	excessive salivation	+	+		+	+	+	+	
	breath /stinks / smells / foetor ex ore		+	+	+	+	+	+	
	injuries in mouth or throat region	+	+	+	+	+	+	+	+
	swelling on jaw, throat or neck, or other parts of head	+	+	+	+	+	+	+	+
	trauma / inflammations to the teeth (lost / fractures / loose)	+	+	+	+	+	+	+	
	too many / too few / misshapen teeth				+	+	+	+	
	problems with swallowing	+	+	+	+	+	+	+	+
	regurgitation/vomiting	+	+		+	+	+	+	+
	hiccups				+	+	+	+	
	abnormal shape of abdomen / bloating	+	+		+	+	+	+	+
	expressions of abdominal pain /colic	+	+		+	+	+	+	+

		Pig	Ruminant	Poultry	Horse	Dog	Cat	Rodent Rabbit Ferret	Bird
10.2 Questions / problems relating to:									
	swellings of or around the navel	+	+						
	swelling / trauma to or around the anus	+	+	+	+	+	+	+	+
	straining	+	+	+	+	+	+	+	+
	constipation / no stool	+	+	+	+	+	+	+	+
	acute diarrhoea	+	+	+	+	+	+	+	+
	chronic diarrhoea	+	+	+	+	+	+	+	+
	abnormal stool (colour / smell / aspect / inclusions)	+	+	+	+	+	+	+	+
	painful stool	+	+	+	+	+	+	+	+
	incontinence for faeces				+	+			
	itch of or around the anus				+	+	+	+	
	blood loss from rectum / cloaca	+	+		+	+	+	+	+
	flatulence				+	+	+	+	
Reproduction and care of the young animal									
	abnormality of the external genital organs ♀ and ♂	+	+		+	+	+	+	
	reduced fertility	+	+	+	+	+	+	+	+
	suspicion of infertility ♀ and ♂	+	+	+	+	+	+	+	+
	cycle disturbances	+	+		+	+	+	+	
	oestrus synchronisation	+	+		+	+	+	+	
	contraceptives- / wish for sterilisation	+	+		+	+	+	+	+
	embryo transplantation	+	+		+	+	+	+	
	pregnancy test	+	+		+	+	+	+	
	unwanted pregnancy	+	+		+	+	+	+	
	abortion / premature birth	+	+		+	+	+	+	
	veterinary support during extraction / birth	+	+		+	+	+	+	
	little / no live foetus to be felt (any more)				+	+			
	too long pregnancy / egg binding	+	+		+	+	+	+	+
	retained placenta	+	+		+	+	+	+	
	peripartal haemorrhages	+	+		+	+	+	+	
	swelling out of the vagina (vagina- / uterus- / bladder prolapse)	+	+		+	+	+	+	+
	(abnormal) vaginal discharge	+	+		+	+	+	+	
	death of the young animal around the birth	+	+	+	+	+	+	+	+
	the limp neonate	+	+	+	+	+	+	+	+
	an abnormal appearance of the young animal	+	+	+	+	+	+	+	+
	determination of sex		+	+	+	+	+	+	+
	an abnormal birth weight	+	+		+	+	+	+	+
	unwillingness to eat / drink in the young animal	+	+	+	+	+	+	+	+
	retardation of motoric development in the young animal	+	+	+	+	+	+	+	+
	the poorly developing young animal	+	+	+	+	+	+	+	+
	swelling of the scrotum	+	+		+	+	+	+	
	testicles that cannot be felt or that are too small	+	+		+	+	+	+	

		Pig	Ruminant	Poultry	Horse	Dog	Cat	Rodent Rabbit Ferret	Bird
10.2 Questions / problems relating to:									
	inability to expose the penis / penis remains exposed	+	+						
	does not want to service	+	+		+	+	+	+	
	trauma to the genital organs ♀ and ♂	+	+		+	+	+	+	
Urinary passages									
	impeded / no urination	+	+		+	+	+	+	
	excessive / frequent urination		+		+	+	+	+	+
	urine incontinence		+		+	+	+	+	
	abnormal urine	+	+		+	+	+	+	
	urethra discharge in male animal	+	+		+	+	+	+	
Skin									
	changed aspect of skin and/or horny structures	+	+	+	+	+	+	+	+
	colour changes in the mucous membranes / skin	+	+	+	+	+	+	+	+
	locally swollen skin (bump)	+	+	+	+	+	+	+	+
	itch	+	+	+	+	+	+	+	+
	(acute) painfulness of the skin	+	+		+	+	+	+	
	insect bite	+	+	+	+	+	+	+	+
	burns and frostbite	+	+	+	+	+	+	+	+
	wound(s)	+	+	+	+	+	+	+	+
	warts		+		+	+	+	+	+
	reduced hair- / feather growth / bald patches	+	+	+	+	+	+	+	+
	hot spot / abrasion / hair pulling / feather plucking	+	+	+	+	+	+	+	+
	nail- / hoof- / foot sole- / claw abnormalities	+	+	+	+	+	+	+	+
	abnormal number / form of toes						+	+	
	trauma / deformities of the horns / beak		+	+					+
	haemorrhages after de-horning		+						
Mammas									
	(subclinical or clinical) mastitis	+	+		+	+	+	+	
	changes in or abnormality of size / contour, symmetry of mammae	+	+		+	+	+	+	
	abnormal discharge from nipple		+		+	+	+	+	
	eczema on the udder- / mammary gland skin	+	+		+	+	+	+	
	trauma to udder / mammary glands and/or trauma to teat/nipple	+	+		+	+	+	+	
Senses, Nervous system and Locomotion									
	head squint / including painful ear	+	+	+	+	+	+	+	+
	squint face / reduced facial movement	+	+		+	+	+	+	
	itch on / in ear	+	+	+	+	+	+	+	+

