Diploma in Veterinary Dermatology

Enrolment for this Diploma is no longer available. The following information is for reference for currently enrolled candidates who have not yet passed the examination.

Please view the general documents to obtain copies of:

- **The stages of enrolment information.**

  - **B1:** Guidance Notes for candidates on general requirements.
  - **B3:** General Guidance Notes on preparation for a Dissertation.
  - **E1:** Application form E1 - for enrolment and initial approval of experience.
  - **H:** Role of Advisers to Certificate Candidates.

The following papers are attached:

- **B2:** Specific requirements for the Diplomas.
- **B.2 Annex 1:** Description of the Clinical Training Programme
- **C:** Syllabus and Commentary for the Diplomas.
- **D:** Reading List
- **E:** Application forms E1A, E2
  - **E1A** - for specific details of practice/centre
  - **E.2** - for final approval of experience and for permission to submit an entry to the examination
- **F:** List of Advisers.

A copy of the most recent Examination Question Paper is enclosed for your information.
THE ROYAL COLLEGE OF VETERINARY SURGEONS
SPECIALISATION AND FURTHER EDUCATION

THE DIPLOMA IN VETERINARY DERMATOLOGY

SPECIFIC GUIDANCE NOTES FOR CANDIDATES
[These notes must be read in conjunction with the B1 General Guidance Notes to Candidates]

MEMBERSHIP OF THE ROYAL COLLEGE OF VETERINARY SURGEONS

1. It is a requirement of the Veterinary Dermatology Board that ALL Candidates entering for the Diploma are Members of the Royal College of Veterinary Surgeons (MsRCVS).

SPECIFIC EXPERIENCE

2. The Board has discretion to increase the requirements for experience for any candidate above the minimum specified if it is considered to benefit the candidate.

3. Experience accepted for the Certificate will count towards the experience required for the Diploma, at the discretion of the Board, whether the candidate is at an approved centre or an approved practice.

4. CPD Records cards must be submitted with an application for final approval of experience and must cover the period of experience being offered. Course material relevant to Veterinary Dermatology should be highlighted and the Board expects that at least 75% of CPD undertaken will be directed towards Veterinary Dermatology.

5. The subject proposed by the candidate must receive prior approval by the Board (either at the time of initial or final approval of experience) and each application must be accompanied by an outline not exceeding two sides of A4 paper, preferred in the form of a grant proposal and including the following sections:
   - Background;
   - Aims and justification; and
   - Materials and methods.
Approved Centre Route

6. Candidates following a clinical training programme at an approved centre will not be permitted to enter for the examination until they have been Members of the College, or held an approved veterinary qualification for at least four years and have gained experience in the subject over at least four years.

7. Applications for approval of a Centre must be made directly by the Centre to the RCVS and not by the candidate. An application form can be obtained from the RCVS.

Approved Practice Route

8. Candidates following a clinical training programme at an approved practice will not be permitted to enter for the examination until they have been Members of the College, or held an approved veterinary qualification for at least five years and have gained experience in the subject over at least five years including 200 days of clinical training spent under direct supervision at an approved centre.

9. There is no separate application form other than the candidate applications forms included with this Information Pack. Practices are approved for each individual candidate.

THE EXAMINATION

10. The examination consists of three Sections:
   (a) A Dissertation
   (b) TWO x 3 hour written papers, and
   (c) a clinical, oral, and practical examination.

SUBMITTED WORK FOR EXAMINATION

Dissertation

11. Candidates are required to submit three copies of their dissertation as part of the Diploma examination. Candidates are also asked to submit an electronic version of their dissertation together with their hard copies. This will be retained at RCVS unless requested by the examiners for purposes such as checking the word count. The electronic version should be Microsoft Office 2000 or XP compatible and should be submitted either on CD or floppy disk/s. Please ensure that the disks are easily identifiable by placing them in an envelope with your name and ‘Electronic version of submitted work for Diploma in Veterinary Dermatology Examination’ marked clearly on the front.
12. Candidates may **not** use all or part of the work prepared and submitted for another postgraduate qualification including Diploma of Fellowship, as all or part of their dissertation for an RCVS Diploma.

13. The subject should be relatively narrow to allow detailed and in-depth assessment within the word-limit. The work should be clinically relevant and contain original work or thought and include a concise but well-researched literature review.

14. The dissertation should be in a similar format to that required for other postgraduate qualifications and **three copies**, typed and bound, are required. It must include an abstract and standardised format of reference citation. If the candidate is successful in the examination, one copy may be retained in the RCVS Library.

15. Candidates should insert the declaration (template in B1 Guidance Notes) loosely in the front of each copy of the dissertation.

**Word Count**

16. A word count must be shown on the front cover of the Dissertation. This **should not exceed 5000 words** not including references and figures. If it exceeds this amount of words, it will be disqualified and returned to the candidate unmarked. The candidate would then not be able to proceed to the remaining sections of the examination for the year in question.

**Grading Scheme**

17. The submitted work will be graded “Good Pass”, “Pass”, or “Fail”.

   - **Good Pass**—(60% or over) - the work will be lodged in the RCVS Library as a suitable example for future candidates.

   - **Pass** *(defined as 50%)*—The work is adequate to enable the candidate to proceed to the remaining sections of the examination, but the submitted work may need to be revised by the date of the clinical, oral, and practical for lodging in the Library if the candidate is successful in the examination as a whole.

   - **Fail** *(below 50%)*—the work is not adequate to enable a candidate to proceed to the remaining sections of the examination for the year in question.
WRITTEN EXAMINATION

18. Candidates are warned that answers should be given specifically and that illegible handwriting may result in examiners being unable to award marks for information which candidates intended to convey. In addition, the examiners will take into consideration spelling and whether or not the question has been answered in the form requested.

19. Candidates should be prepared and willing to demonstrate a good knowledge of current literature.

Format

16. The written examination will consist of two 3-hour papers, each containing five questions requiring essay-type answers. Four questions on each paper should be answered. Paper I will contain questions on the basic sciences (including the clinical application of relevant areas) and Paper 2 will be on the clinical sciences.

Marks Scheme

17. Paper I will be marked out of 50 marks
   Paper II will be marked out of 50 marks
   Total Mark for this Section (b) = 100 marks

CLINICAL, ORAL, AND PRACTICAL EXAMINATION

18. The clinical, oral, and practical examination is in four sections:

19. Histopathology examination—candidates will be expected to examine, describe, and interpret a set of eight slides in three hours (22.5 minutes per slide). Candidates should write their answers in the form of a histopathological report, similar to that obtained from dermatopathology laboratories. This should include a morphological diagnosis and if possible, an aetiological diagnosis. A binocular microscope possessing the usual objectives will be provided (X4, X10, X40 and X100) along with lens tissues and immersion oil (usually not required). A short period will be allowed before the examination commences to allow candidates to become familiar with the operation of the microscope. Candidates should be aware that they may use their own microscope for the part of the examination if preferred.
20. **Kodachrome slide examination**—this part of the examination comprises a series of kodachrome slides with accompanying questions. There is no set number of slides or questions and this may vary from year to year. Candidates will be allowed to examine the slides for each question for an appropriate period of time, during which they must write their answers. At the end of the slide series, candidates will be allowed fifteen minutes to return to any slides and questions they were unsure of. The maximum time limit for the whole examination is **three hours**.

21. **Clinical examination**—this part of the examination comprises an evaluation of up to four clinical cases of any species in **three hours**. Candidates are expected to attend with a white coat and a stethoscope. Other diagnostic equipment will be made available if necessary. Candidates will be given some preliminary history but may be asked to obtain further historical details by questioning the examiners. Candidates will then be expected to examine the animals and to describe their findings, including the presence of any skin lesions using accurate dermatological terminology. The candidates will then be asked questions about the case such as possible differential diagnoses, investigative procedures that would be indicated, or the therapeutic protocols that could be used to manage the case. The cases may also be used as a basis for a more general discussion in which questions may be asked about related topics or pertinent literature. This part of the examination must be passed if the candidates is to pass the examination overall.

22. **Oral examination**—this part of the examination lasts for **one hour** and is a verbal interaction between the candidate and the examiners. Candidates may be asked any questions related to veterinary dermatology, including topics that were covered in previous parts of the examination such as the dissertation or written papers. Candidates may also be questioned on their knowledge of dermatological literature.

23. Candidates should be aware that there is no set order in which the above components of the whole examination are given (apart from the oral which comes at the end). Furthermore, if there is more than one candidate, the order may be different for each candidate. For example, one candidate may be undertaking the clinical examination whilst the other is undertaking the histopathology examination.

24. **Histopathology slide show** will be marked out of 100 marks  
**Kodachrome slide examination** will be marked out of 100 marks  
**Clinical examination** will be marked out of 100 marks  
(Candidates must gain 50 marks in this part of the examination in order to pass overall.)  
**Oral examination** will be marked out of 100 marks

An overall percentage will then be awarded and the TOTAL Mark for this Section (c) = 100 marks
25. Candidates are warned that if they are unsure of the answer, it would be preferable to say so as wrong answers could carry a greater penalty in the examination.

**ABBREVIATION FOR QUALIFICATION**

26. Successful candidates are permitted to use the abbreviation "**DVD**" after their names, in the RCVS Register of Members, and on practice plates and stationery, etc.

Originated 1988
Description of the Clinical Training Programme

Objectives

1. A clinical training programme should provide in—depth training in veterinary dermatology and related basic and applied sciences such that the clinical trainee develops a comprehensive knowledge of the dermatologic conditions of domestic animals and the management thereof. At the end of the clinical training programme the candidate should be eligible to take and be capable of passing the RCVS Diploma in Veterinary Dermatology.

The Clinical Training Programme

2. All clinical training programmes must be under the direct supervision of a Diplomate of the RCVS, ACVD or ECVD or a RCVS Specialist in veterinary dermatology. However, for the next five years the RCVS Veterinary Dermatology Board will consider applications from people with equivalent experience and qualifications.

3. Clinical training programmes can be conducted at a veterinary school or college, other institution of higher learning, or private veterinary dermatology clinic. Clinical training programmes can be (a) formalised at an approved centre or (b) individualised at an approved practice. All programmes must be approved by the Board and are subject to the current RCVS requirements.

4. The approved centre or approved practice must supply the necessary space, facilities and monies to support the programme and have a sufficient and stable supply of patients for adequate clinical training.

5. A diplomat or specialist who is training a clinical trainee is referred to as a ‘supervisor’. At any one time, a supervisor can be responsible for a maximum of two clinical trainees. Supervisors who wish to train more than two clinical trainees simultaneously should apply to the Board with details of how he/she has the ability and resources to train more than two.

Types of Clinical Training Programme available

Formalised programmes

6. These are equivalent to a residency and we offered in an approved centre on a routine and regular basis with no programme modifications for any one applicant. Formalised programmes are designed and approved for a specific number of clinical
trainees at any one time. Once the programme is approved, the approved centre can advertise and fill the position(s) without prior approval of the RCVS Veterinary Dermatology Board but each trainee must apply to the Board for enrolment as a Diploma candidate.

7. Approved centres must apply to the Board for approval of their clinical training programme providing the information required on the application form available from the RCVS.

A review of approved centres will take place 3 years after first approval and thereafter applications for re-approval will be considered every 5 years.

However, approved centres would be required to notify the Board if there were any significant changes in their application details in the intervening years. Co-operative affiliation with other institutions or clinics is permitted.

8. The standard formalised clinical training for a Diploma is a full—time 36 month programme. The clinical trainee must receive training in clinical dermatology, dermatohistopathology, and the basic and applied sciences applicable to dermatology. The majority of the clinical training must be supervised.

9. If another postgraduate qualification is to be combined with the clinical training programme the overall length of the programme may need to be increased depending upon the degree with which the research is integrated with the clinical work. Every effort must be made to ensure that study for other qualifications does not interfere with the clinical training.

**Individualised programmes**

10. These are conducted on a part—time basis in an approved practice. For individualised programmes, a complete and detailed programme description must be prepared and approved by the Board with each Diploma enrolment application before the programme is started. During an individualised programme the clinical trainee must have a minimum of 200 8—hour days of clinical training in an approved centre under direct supervision.

**Application for Clinical Training**

11. Applications to enrol as clinical trainees will be refused unless the applicant can demonstrate that they are able, or will be able at the end of their clinical training, to fulfil the conditions of eligibility to enter the RCVS Diploma examination in Veterinary Dermatology. These conditions are detailed in the RCVS Certificate and Diploma Subject Byelaws and in the guidance notes for candidates.

12. Individuals interested in a formalised clinical training programme at an approved centre should apply directly to the centre offering the programme. It is the responsibility of the supervisor to ensure that both the candidate and the course
offered fulfil the criteria detailed in this document and that the candidate enrols with
the RCVS.

13. Persons interested in an *individualised* programme in an approved practice must find
a suitably qualified person who agrees to act as their supervisor. A formal description
of the clinical training must be submitted to the Board for approval along with the
trainee’s enrolment application.

**Training Requirements**

14. In order to achieve the objectives of a clinical training programme the clinical trainee
must receive in—depth training in clinical dermatology and the basic and applied
sciences related to dermatology. All clinical trainees, whether in a formalised or
individualised programme must satisfy all of the requirements discussed below.

**Clinical Training**

15. Training in clinical dermatology is of paramount importance. During a programme
the clinical trainee must have a minimum of 200 8—hour days of clinical training,
under direct supervision, whether gaining experience at an approved centre or an
approved practice.
   All clinical trainees are required to have case responsibility although the supervisor
   should be immediately available to the clinical trainee (i.e. with access to the clinical
   area).

16. The timing of this clinical training is flexible but ideally it should be divided equally
between each year of the programme. In any one year, the schedule can also be
flexible but blocks of time in the clinic (i.e. 30 days) are recommended. A block
system allows case follow—up by re-examination and makes off—clinic time more
productive because the clinical trainee’s research, writing or study can proceed in an
uninterrupted fashion.

17. All clinical trainees are expected to have art in—depth knowledge of all dermatologic
conditions of domestic animals found in current veterinary textbooks and widely
circulated UK Journals (See RCVS Diploma syllabus).

**Basic and Applied Science Training**

18. The clinical trainee must have a structured programme of study in the basic and
applied sciences related to dermatology. Areas of study must include allergy,
anatomy, bacteriology, biochemistry, clinical pathology, dermatopathology,
embryology, genetics, immunology, internal medicine, mycology, nutrition,
oncology, parasitology, pharmacology, physiology, surgery and virology. These are
detailed in the RCVS Diploma syllabus.
19. The clinical trainee’s study in each area must be supervised. Independent study by the clinical trainee is valuable in strengthening the clinical trainee’s understanding of an area but cannot be the sole method of instruction. Acceptable teaching/learning methods include lectures, conferences, colour transparency and histologic slide review, book and journal reviews and directed readings. For the directed readings, the supervisor must supply an appropriate reading list and monitor the clinical trainee’s progress in and understanding of the material. The timing and organisation of these studies is left to the discretion of the supervisor but weekly contact is strongly suggested.

Other requirements

Dissertation

20. All clinical trainees are required to initiate and complete a research project during the course of their clinical training. The clinical trainee must be the principal investigator in the project. The project must conform to current RCVS guidelines regarding Diploma dissertations but the subject and scope of the project is left to the discretion of the candidate and supervisor. Basic research, original clinical investigations and retrospective studies of scientific value are acceptable.

21. The project must be completed during the clinical training and written up as a dissertation for the RCVS examination. The subject proposed by the candidate and an outline of the project must receive prior approval by the Board and applications for final approval of experience and to sit the Diploma examination must be made as detailed in the RCVS guidelines.

Continuing Education

22. Attendance at national and international dermatology meetings, continuing education lectures and courses, is extremely valuable for clinical trainees. The Board has no specific requirement for clinical trainees. However, the Board strongly supports this form of training and suggests that every effort be made to ensure the clinical trainee attends as many as possible.

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EXPLANATORY NOTE

1. The syllabus is presented as a guide to candidates and should not be considered exhaustive. It outlines the major areas of dermatology on which the Diploma examination will be based and cites additional areas of study to those required for the Certificate examination. It is recommended that the Diploma and Certificate syllabuses are read in conjunction.

2. In addition to a wider and deeper knowledge of the subject as is contained in the Certificate syllabus, Diploma candidates will be expected to possess knowledge of the important skin diseases of all animals kept as pets, or in commercial enterprises.

3. Candidates will be expected to be familiar with the current literature and have a sound grasp of the principles of physiology, pathology and medicine.

4. A detailed knowledge of the theory and practice of clinical veterinary dermatology will be required, together with a wide experience of all relevant diagnostic techniques and therapeutic modalities.

Guidelines for Candidates taking the Diploma in Veterinary Dermatology

The Diploma in Veterinary Dermatology examination covers skin structure and function, and skin diseases of all animals. Candidates should be familiar with skin diseases of species of veterinary importance. Candidates should also have a comparative knowledge of those diseases that are seen in man that also occur in animals.

SKIN STRUCTURE AND FUNCTION

The candidate should have a detailed knowledge of the cells and extracellular support matrix of the epidermis, dermis, and subcutis. Candidates should know basic cell biology such as the structure of a typical cell and the plasma membrane; the structure and function of the cytoskeleton; the ways that cells can interact with each other using adhesion molecules and signaling proteins; the basic mechanisms of signal transduction and cell activation; and the concept of the cell cycle.

Epidermis—the candidate should know what cells make up the epidermis; their embryological derivation; their appearance in histological sections; their ultrastructural appearance; the markers that can be used to identify them on immunohistochemistry; and the function of these cells in normal and diseased skin.

Specifically:
For the keratinocyte, candidates should know:
The changes that occur as the cells move from the basal layer to the stratum corneum (morphology, keratin expression, lipid production, enzymes involved in cornification) and how these processes are affected by disease. The process of keratinocyte proliferation and the factors that control it, including how this is influenced by inflammation. The immunological function of keratinocytes. The structure of desmosomes and how these structures may be affected by disease. The structure of the stratum corneum and how this relates to barrier function.

For the melanocyte, candidates should know: The appearance of the cells in light and electron microscopy. The enzymatic or immunohistochemical markers that may be used to identify the cells. The process of melanin synthesis and the different types of melanin that may be produced. The mechanism by which melanins are transferred from the melanocyte to the keratinocytes or hair.

For the Langerhans cell, candidates should know: The appearance of the cells in light and electron microscopy. The enzymatic or immunohistochemical markers that can be used to identify the cells in histological sections. The function of the cell in antigen processing and presentation.

**Dermo-epidermal junction and basement membrane zone**—candidates should know in detail the components that make up this region; the proposed function of the structural proteins; and how diseases may affect this region.

**Dermis**—Candidates should know in detail the structure and functions of the cells that reside in the dermis and the extracellular matrix.

Specifically, candidates should know: The function of fibroblasts in normal skin, diseased skin and wound healing. The types of collagen that may be found in the skin and how they are synthesised. The structure and synthesis of elastin. The structure and function of extracellular matrix proteins such as fibronectin. The structure and function of glycosaminoglycans. How these various components may be affected by skin disease.

**Subcutis**—candidates should know the structure of the panniculus; the structure and function of lipocytes; and how this region may be affected by disease.

**Hair follicles**—Candidates should know the structure of hair follicles in different species; the process of hair follicle cycling and what controls it; the changes in follicle structure that can occur throughout life; how the hair follicle may be affected by hormones, nutrition and disease.
Sweat glands and sebaceous glands—candidates should know the structure and function of the cells that make up these glands; the morphology of the glands in different species; the chemical constituents of sweat and sebum; how secretion occurs and is regulated; and how these glands may be affected by disease. Candidates should also know how these glands are modified in certain body regions such as the ear canal or eyelids.

Blood supply and innervation of the skin—candidates should know how the skin is vascularised and innervated, and the structure and function of the specific neuroreceptors that are present in the skin.

Basic Immunology
Candidates should have a good working knowledge of immunology as it relates to the skin, including the concept of the skin immune system.
Specifically, candidates should know in detail:

- The concepts of innate and adaptive immunity
- The structure and function of organs and tissues that are involved in the immune system
- The structure and function of cells that are involved in immune responses, including neutrophils, eosinophils, basophils, macrophages, lymphocytes, and mast cells. For each cell type know its origin, the factors that are involved in its proliferation and regulation, the factors that can activate the cell, the cellular response that occurs and any mediators that can be produced.
- The various receptors that the immune system uses to recognise antigens
- The process of antigen processing and presentation, including the various receptor-ligand interactions that take place and the subsequent intracellular events (the major histocompatibility complex, T cell receptors, CD4 and CD8 etc.)
- The process of T cell proliferation into various subsets (helper and cytotoxic T cells) and the concepts of T helper subsets (TH1 and TH2).
- The process of B cell activation and antibody production
- The basic structure and function of the immunoglobulin classes
- The basic functions of the cytokines
- The basic structure and function of adhesion molecules and how they are involved in cell trafficking
- A basic knowledge of the chemokines and the role they play in chemotaxis
- The complement system and how it is involved in disease
- The classification and mechanisms underlying hypersensitivity reactions
- The basic concepts underlying tolerance and how these may be altered in autoimmune diseases

Candidates should be able to integrate the above information into a full understanding of the process of inflammation including the cell types that are involved, how they get to the site of inflammation, the mediators that they produce and how the process is regulated.
The function of the skin as an organ
Candidates should be able to integrate all the above information concerning structure, function and immunology in order to understand the many functions of the skin. Specifically, candidates should know the structures and mechanisms underlying:
• Barrier function
• The provision of motion and shape
• The production of adnexal structures such as hair, claws and hooves
• Temperature regulation and how this varies between species
• Storage of water, electrolytes, vitamins, and fat etc.
• Indicator of internal disease (how does the condition of the skin reflect internal health and disease?)
• Immunoregulation (the skin immune system)
• Pigmentation and its function
• Sensory perception
• Secretion and excretion
• Blood pressure control
• Vitamin D production

Wound healing
Candidates should have a detailed knowledge of the process of wound healing, including the cells that are involved, the substances they produce, the various stages of wound healing and factors that can influence it.

Pruritus
Candidates should have a detailed knowledge of the mechanisms underlying pruritus including the mediators that might elicit this sensation, the nerves that may transmit the information to the CNS and any therapeutic strategies that are available to reduce or eliminate pruritus.

CLINICAL DERMATOLOGY
Candidates should have a detailed knowledge of the skin diseases of dogs, cats, horses, cattle, sheep, pigs, goats, small rodents, birds, reptiles and fish. Candidates should also have a comparative knowledge of those diseases that are seen in man that also occur in animals.

Parasitology – Candidates should know the appearance, life cycles, disease pathogenesis, clinical signs, diagnostic tests, and treatment of infestations with mites, insects and ticks that cause skin disease in the above animals. Candidates should also know how endoparasites and intracellular parasites such as Leishmania cause skin disease.

Bacteriology – Candidates should know the normal bacterial flora of the above species (if known). They should know the species of bacteria that may be associated with skin disease, the source of these organisms, the way the organisms gain access to the skin, the factors that influence whether infection will be established, the lesions and clinical signs the bacteria produce, the pathogenesis of such lesions, the diagnostic tests that
may be used to diagnose bacterial skin diseases and the treatment of bacterial skin
diseases.

**Mycology** – Candidates should have a detailed knowledge of the species of fungi that
cause skin disease. For the dermatophytes, candidates should know the species of
organism that are known to infect animals and man, their reservoir and host spectrum,
the factors that influence establishment of infection, the pathogenesis of the various skin
lesions that may be formed (follicular, epidermal, claw, kerion, pseudomycetoma), the
clinical signs of infection, the diagnostic tests that may be used to diagnose fungal
infections (including the principles of fungal culture and colony identification for the
most important organisms), and the various strategies that are used to treat
dermatophytosis.

For Malassezia, candidates should know the classification of this genus in animals and
man, the distribution of the organism on normal skin, the reported methods for
quantifying the presence of this organism, the factors that may lead to the development
of Malassezia overgrowth, the pathogenesis of lesions associated with Malassezia
overgrowth, the clinical signs of infection, the diagnostic tests that may be used to
confirm Malassezia overgrowth and the treatment of Malassezia dermatitis.

Candidates should also have a general knowledge of the fungi that cause subcutaneous
or deep fungal infections such as sporotrichosis, eumycotic mycetoma,
phaeohyphomycosis, blastomycosis, histoplasmosis, cryptococcosis and
coccidiomycosis.

**Virology** – Candidates should know the viruses that are known to cause skin disease in
animals and man. This should include the type of virus involved (herpes, pox etc.), the
reservoir of the virus and its mode of transmission, the pathogenesis of the skin lesions
produced, the immunological reactions that are known to occur in response to the virus,
the clinical signs and course of the viral infections, the tests that can be used to diagnose
viral infections (including serology, virus isolation, electron microscopy, histopathology,
immunohistochemistry) and any measures that can be used to control or prevent viral
infections.

**Clinical immunology** – Candidates should have a detailed knowledge of skin diseases
that are associated with abnormalities of the immune system. These include
immunodeficiencies, hypersensitivities, immune-mediated skin diseases and auto-
immune diseases.

For immunodeficiencies, candidates should know the specific molecular or
immunological abnormalities that have been reported to occur in animals and the
specific clinical signs that are associated with these deficiencies.
For hypersensitivities, candidates should know the basic classification of hypersensitivity
reactions. For each type of hypersensitivity, candidates should know in detail the
mechanisms that are involved. This should include the genetic predispositions that may
lead to these reactions, the type of antigens that produce each type of reaction, the cell
types that are involved, the cellular interactions that take place, the factors and
mediators that are produced and the type of inflammation that results. Candidates should also know the clinical signs of these diseases, the diagnostic tests that can be used to confirm them and treatment strategies that are used to control them. For example, for atopic dermatitis, candidates should know:

- what mechanisms might underlie the genetic predispositions that are seen in animals and man
- what functional abnormalities might be present other than excessive IgE production
- the nature and distribution of the antigens that are involved in the pathogenesis of the disease
- the mechanisms by which the antigens are taken into the body and presented to the immune system
- the process by which IgE synthesis is initiated and regulated, and the factors that may affect this process
- the ways in which mast cells get to the skin and are activated
- the process of mast cell degranulation
- the inflammatory mediators that can be produced by mast cells
- the types of inflammatory cells that are seen in histological sections from the disease and the sequence of cellular infiltration following intradermal injection of clinically relevant antigens
- the clinical signs of the disease and how it is diagnosed
- the various strategies that are used to treat the disease
- the comparative features of the disease in dogs and man

For immune-mediated and auto-immune diseases, candidates should understand the factors that may lead to auto-immune disease (such as breakdown of tolerance, molecular mimicry, superantigens etc.). The mechanisms involved in the pathogenesis of the diseases should be known. For pemphigus and bullous pemphigoid, candidates should know the specific structural proteins in the skin that may be targeted by auto-antibodies, and the mechanisms underlying acantholysis or cleft formation. For lupus, candidates should know the immunological abnormalities that occur and the effect this has on the various targeted tissues. The clinical signs of these diseases should be known, along with the diagnostic tests that have been used to confirm them. Candidates should have a detailed knowledge of the treatment of these diseases.

**Endocrinology**—Candidates should have a detailed knowledge of the endocrine system and how abnormalities in these organs can affect the skin. Specifically, candidates should know:

- The location and structure of the endocrine glands
- The pathways involved in the synthesis of thyroid hormones, glucocorticoids, sex steroids and growth hormone
- The factors that may influence these pathways in health and disease
- The effect that these hormones have on the skin and how deficiencies or excess may cause skin abnormalities
- The cellular mechanisms by which hormones exert their effects
- The techniques that are available for measuring hormone concentrations
• The various methods (including dynamic function tests) that are used for diagnosing endocrine diseases
• The clinical signs (both cutaneous and systemic) that occur with diseases of the endocrine system
• The effects these diseases have routine haematology and biochemistry
• The various treatment protocols that have been reported for hypothyroidism, hyperadrenocorticism, gonadal and adrenal sex hormone abnormalities, pituitary dwarfism, and acromegaly

Hair follicle defects – Candidates should know the diseases that specifically affect the hair follicle such as the follicular dysplasias. This should include the defects that occur, the mechanism by which alopecia is induced, and the morphological abnormalities visible on histopathology.

Oncology—Candidates should be very familiar with the skin tumours that affect animals. For each tumour, the candidate should know the cell and tissue of origin, any factors that are known to induce tumour formation, the clinical appearance and typical distribution associated with the tumour, its expected biological behaviour, the methods that can be used for diagnosis, and any treatment strategies that have been described. Candidates should know what systemic effects might be associated with various tumours and what specific paraneoplastic syndromes have been reported with skin tumours. Candidates should also be aware of the principles of tumour staging and grading.

Congenital and hereditary diseases—Candidates should know the congenital and hereditary skin diseases that have been described in the above species, including the molecular abnormalities that have been recognised in these diseases. For example, candidates should know what proteins are affected in the various forms of epidermolysis bullosa and at what point the defect occurs within the epidermis, or what abnormalities of collagen have been reported in cutaneous asthenia. Candidates should know the clinical signs, diagnosis, prognosis and treatment of these diseases.

Keratinisation defects—Candidates should know about the defects in epidermopoiesis that have been described in animals and be aware of research that has been carried out in this area. The mechanisms by which the defects result in clinical signs should be known, as well the treatments that have been used for these conditions.

Pigmentary abnormalities—Candidates should know the skin diseases that result from abnormalities of the pigmentary system, and the mechanisms by which these abnormalities result in either hyperpigmentation or hypopigmentation.

Nutritional skin diseases – Candidates should know how the skin is supplied with nutrients and how deficiencies in nutrients can lead to skin disease. Candidates should know what skin diseases are known to be associated with nutritional deficiency in small and large animals, and how these diseases can be diagnosed and treated.
**Environmental skin diseases**—Candidates should know the mechanisms by which various environmental insults can damage the skin, including ultraviolet light, excessive temperature, excessive cold, irritants, pressure, and toxins.

**Internal medicine**—Candidates should have a fundamental knowledge of systemic diseases that can have cutaneous manifestations. This should include a detailed knowledge of those conditions in which the skin can act as a cutaneous marker for internal disease. Candidates should also be able to interpret haematological and biochemical tests and state the mechanisms underlying the changes that can be seen.

**Otitis**—Candidates should have a detailed knowledge of the anatomy of the pinna, external ear canal and bullae. This should include the specialised glands that are present in the ear canal and the composition of cerumen. Candidates should know the normal microbial flora that may be found in the ear canal and the factors that may lead to the development of otitis externa, media or interna. A detailed knowledge of the diagnosis and treatment of otitis is required.

**DIAGNOSTIC TESTING**
Candidates should have a detailed knowledge of the various tests that can be used to diagnose skin diseases. For the following tests, candidates should know the indications for and principles underlying the test, how the test works, its sensitivity and specificity, and how it is interpreted: coat brushing, skin scraping, scabies ELISA, cytology, bacterial culture and sensitivity testing, mycobacterial assays, Wood’s lamp examination, trichogram, fungal culture, intradermal skin testing, assays for allergen-specific IgE, haematology, biochemistry, urine analysis, basal thyroxine, free thyroxine, TSH stimulation test, endogenous TSH, T4 and T3 autoantibodies, ACTH stimulation test, low dose dexamethasone suppression test, high dose dexamethasone suppression test, ACTH assay, urine cortisol:creatinine ratio, steroid-induced isoenzyme of alkaline phosphatase. Candidates should develop a similar level of knowledge for any new tests that are introduced to veterinary dermatology.

**Histopathology**
Candidates should be familiar with the histological appearance of normal skin in the species described above. Candidates should know any key species differences that allow differentiation at the histological level. In addition, candidates should be able to recognise certain specific features such as the nasal planum, footpad, claws, whiskers, scrotum, tail gland etc.

Candidates should be able to describe and interpret the changes that occur histologically with any of the skin diseases that occur in animals. Although the candidate would be expected to be able to diagnose some of the common skin tumours (lipoma, mast cell tumour, sebaceous gland tumours, epitheliotropic lymphoma, squamous cell carcinoma etc.), a comprehensive ability to diagnose all skin tumours is not required.

For the Diploma examination, candidates will be expected to describe the histological features of a series of slides. This should include any changes seen in the epidermis,
dermis, panniculus or adnexae. The candidate should be familiar with the concept of histological pattern analysis (or similar schemes that have been reported). Following the pathological description, candidates should make a morphological diagnosis and, if possible, an aetiological diagnosis. If an aetiological diagnosis is not possible, the candidate should provide a list of differential diagnoses and provide some comment as to how these conditions could be further differentiated. For example, special stains or tissue culture could be recommended, or evaluation of the animal’s endocrine system.

The histopathological description should take the form of a written report, similar to that obtained from dermatopathology laboratories.

PHARMACOLOGY AND THERAPEUTICS
Candidates should have a detailed knowledge of the drugs and treatments that are used to treat skin diseases in animals. The following list is not intended to be all-inclusive but provides an idea as to the breadth and depth of knowledge required. In addition, candidates should expand their knowledge to include new drugs as they become available. Candidates should know in detail the mode of action, routes of administration, indications and contraindications, possible drug interactions, potential adverse effects, and efficacy of the following drugs and treatments:

- **Anti-parasitic agents**—pyrethrins, pyrethroids, piperonyl butoxide, organophosphates, carbamates, botanicals, fipronil, imidocloprid, ivermectins, avermectins, milbemycins, amitraz, sulphur, insect growth regulators, chitin synthetase inhibitors.

- **Antibacterial agents**—penicillins, potentiated sulphonamides, macrolides, lincosamides, cephalosporins, chloramphenicol, clavulanic acid, fluoroquinolones, aminoglycosides, metronidazole, rifampin, tetracyclines, alcohol, phenols, iodine, chlorhexidine, benzoyl peroxide, ethyl lactate, hexitidine, mupirocin, polymyxin B, bacitracin, silver sulphadiazine, fusidic acid. Candidates should also know the organisms that may be sensitive to these agents and the mechanisms by which resistance may occur.

- **Antifungal agents**—griseofulvin, ketoconazole, fluconazole, itraconazole, amphotericin B, iodides, terbinafine, miconazole, enilconazole, nystatin, selenium sulphide.

- **Anti-inflammatory and immunosuppressive drugs**—glucocorticoids, antihistamines, essential fatty acids, azathioprine, cyclophosphamide, chlorambucil, cyclosporine, chrysotherapy, tetracycline/niacinamide, pentoxifylline, dapsone, danazol. Candidates should have a detailed knowledge of the various protocols in which these drugs can be combined, and the patient monitoring that should accompany the use of some of these drugs.

- **Immunomodulation**—allergen immunotherapy, autogenous bacterins, staphage lysate therapy, immunostimulation.
• Therapies for endocrine diseases—thyroxine, mitotane, growth hormone, androgens, oestrogens, progestogens.

• Nutritional supplements and drugs—retinoids, zinc, vitamin A, vitamin E.

• Anti-seborrhoeic agents—sulphur, salicylic acid, tar

• Miscellaneous therapies—topical antipruritic agents, hydrotherapy, photodynamic therapy, sunscreens, laser surgery, cryosurgery, electrosurgery. Candidates should also have a detailed knowledge of the principles of topical therapy including the role and type of various vehicles, and the formulations of topical products

**PREPARING FOR THE EXAMINATION**

Candidates studying for the Diploma in Veterinary Dermatology should use a combination of textbooks and journals to cover the syllabus. Useful textbooks can be found in the reading list.

In addition to information derived from textbooks, candidates taking the Diploma in Veterinary Dermatology are expected to be conversant with a great deal of dermatological literature. Although it would be impossible to be familiar with every paper that has ever been published in the field of veterinary dermatology, the following guidelines provide some indication as to the expected level.

Candidates should have read any paper relating to veterinary dermatology in the following journals over the last five to ten years (candidates may be asked questions on material from these journals during the examination):

- Veterinary Dermatology
- Journal of Small Animal Practice
- Veterinary Record and In Practice
- Research in Veterinary Science
- Journal of the American Veterinary Medical Association
- Journal of the American Animal Hospital Association
- American Journal of Veterinary Research
- Compendium of Continuing Education
- Veterinary Pathology
- Veterinary Immunology and Immunopathology
- Advances in Veterinary Dermatology Vols 1, 2 and 3
- Veterinary Clinics of North America

The candidate should also be aware of key papers that have been published in these and other journals before this date that are still relevant to veterinary dermatology today.

In addition, in order to be familiar with current concepts on skin structure, function and immunology, the candidate should refer to relevant material published in certain human journals such as Journal of Investigative Dermatology, Journal of Allergy and Clinical
Immunology, Allergy, Journal of the American Academy of Dermatology and Immunology Today (especially the review articles).

November 1999
CERTIFICATE & DIPLOMA IN VETERINARY DERMATOLOGY

READING LIST

Candidates should note that the reading list for the Certificate and Diploma in Veterinary Dermatology was frozen in 2002 and will eventually be withdrawn. Candidates are expected to research the literature for themselves and are recommended to make use of the RCVS Library and Information Service for this purpose (http://www.rcvslibrary.org.uk, e-mail library@rcvs.org.uk or telephone 020 7222 2021). Candidates should also seek advice on suitable reading matter from their advisers.


A Colour Handbook of Ear Diseases of the Dog and Cat R Harvey; A Delauche; J Harari, Manson Publishing ISBN: 1840760036

Equine


Large animal and exotics:


CD-ROMs published by Blackwells (£49.50 plus VAT):

*Canine Pyoderma - Diagnosis and Treatment.* REW Halliwell & DH Lloyd ISBN 1901872 11 4


*Otitis in Dogs and Cats* CE Griffin, DN Carlotti, REW Halliwell & DH Lloyd. ISBN 1901872122.

International Veterinary Dermatology Listserv:

This is an email distribution list that allows exchange of ideas and discussion between dermatologists from around the world. Certificate candidates would be advised to subscribe to this list so that they are aware of current topics of interest. For instructions on how to subscribe, contact the listserv manager on: vetderm-owner@lists.ncsu.edu
DIPLOMA PUBLICATION LIST:

Structure and function


Histopathology and Cytology


Journals

Veterinary Dermatology; Veterinary Record; JSAP; JAVMA; JAAHA; EVE; Veterinary Clinics of North America – Large & Small Animals (Edns.).

THE ROYAL COLLEGE OF VETERINARY SURGEONS

Specialisation and Further Education

DIPLOMA IN VETERINARY DERMATOLOGY

Details of the veterinary centre for which approval is sought in terms of byelaw 5(4)—in which the applicant has spent periods of time amounting to or equivalent to at least four years, or modules equivalent to four years taken over a maximum period of eight years

(if more than one centre please photocopy this form and complete in respect of each such centre.

1. NAME of veterinary centre and address: ______________________________________________

2. Periods of time spent at centre (from/to): ____________________________________________

3. Description of post (i.e. title) if in full-time employment at centre: ______________________

4. Approx. total dermatology caseload at the centre (or the appropriate department of section), number of veterinary surgeons involved, and your own percentage involvement:

<table>
<thead>
<tr>
<th>Case load per month of centre/dept/section (delete as appropriate)</th>
<th>Total number of vet. surgeons</th>
<th>Proportion of case load which you personally undertake</th>
</tr>
</thead>
<tbody>
<tr>
<td>All cases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All derm. cases</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Proportion of your time spent on work related to the Diploma syllabus during normal working hours:
6. Do you have regular use of a University/College/Institute Library with a veterinary section? YES/NO

7. The main items of equipment and facilities available for the examination and treatment of cases of a dermatological nature are as follows:

____________________________________________________________

____________________________________________________________

____________________________________________________________

____________________________________________________________

____________________________________________________________

Signature: ___________________________ Date: ______________________

PLEASE RETURN ORIGINAL FORM PLUS FOUR COPIES
Details of the veterinary practice or other branch of the profession in which experience is being gained over at least five years including 200 days of clinical training spent under direct supervision at an approved centre

Diploma in Veterinary Dermatology

1. NAME of practice and address: ________________________________
   ________________________________

2. Date of joining practice: ________________________________

3. Numbers of veterinary surgeons usually working at the practice: ______________

4. Approx. total practice caseload:
   per month: ________________________________
   of which ________________________________ are cases
   of ________________________________ a dermatological nature

5. Proportion of above caseload, which you personally undertake:
   Total cases: ________________________________
   Dermatology cases: ________________________________

6. Proportion of your time spent on work related to the Diploma syllabus: ______________

7. Equipment and facilities available for the examination and treatment of cases of a dermatological nature:
   ________________________________
   ________________________________
   ________________________________
   ________________________________
   ________________________________
   ________________________________
   ________________________________
   ________________________________
   ________________________________
Signature: ___________________________ Date: ___________________________

PLEASE RETURN ORIGINAL FORM PLUS FOUR COPIES
DIPLOMA IN VETERINARY DERMATOLOGY

Application for FINAL approval of experience and for permission to submit an entry to the next examination

to be completed and returned to the RCVS, Belgravia House, 62–64 Horseferry Road, London, SW1P 2AF by 1 November preceding the year in which you wish to enter the examination. NO LATE APPLICATIONS WILL BE ACCEPTED

1. NAME in full (block letters): ____________________________________________

2. DEGREES/DIPLOMAS/CERTIFICATES: ____________________________________
   (in abbrev. form)

3. ADDRESS for all correspondence (block letters): ____________________________

4. (a) TELEPHONE No(s): (for contact during day) ___________________________
   (b) FAX No: (for contact during day) ______________________________________

5. DATE OF ENROLMENT ___________________ (MONTH/YEAR)

If application for enrolment is being submitted concurrently with this application, please state ‘concurrent’.

6. PERIODS OF EXPERIENCE BEING OFFERED to meet the requirements of the byelaws:

A: Approved Centre

<table>
<thead>
<tr>
<th>Name and address of approved centre</th>
<th>Period(s) of employment</th>
<th>Date when approval given (unless this is currently being sought)</th>
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</table>


B: Approved practice or other branch of the profession (if applicable)

<table>
<thead>
<tr>
<th>Name and address of practice</th>
<th>Period(s) of employment</th>
<th>Date when approval given (unless this is currently being sought)</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

If there has been any change in the work-load of the practice or centre, and/or in your personal work-load, since the practice or centre was approved in relation to your enrolment, please give details below:

7. ATTENDANCE AT RELEVANT SHORT COURSES

Candidates must fill in and attach copies of their CPD Record Cards, for each year in which they are applying for approval of experience. Details of all relevant short courses, conferences and meetings attended should be recorded. Candidates must comply with the annual recommended minimum hours (35) of CPD otherwise final approval of experience and permission to sit the next examination will not be granted.

8. OTHER INVOLVEMENT IN RELATION TO VETERINARY DERMATOLOGY

List any attendances at relevant congresses, conferences, meetings, symposia, etc., with dates:

9. PUBLICATIONS/ARTICLES/PAPERS/LECTURES

Give details below (including any involvement in the instruction of others):
10. **OTHER POSTGRADUATE STUDIES**

During the period of experience being offered, have you been or are you studying for any other postgraduate qualification? **YES/NO**

If yes, please give brief details: __________________________________________________________

11. **SUBMITTED WORK**

The title of the dissertation which I intend to submit for the examination is as follows:

____________________________________________________________________________________

12. **I HEREBY APPLY FOR FINAL APPROVAL OF EXPERIENCE AND FOR PERMISSION TO SUBMIT AN ENTRY TO THE NEXT DIPLOMA EXAMINATION IN VETERINARY DERMATOLOGY**

I certify that the period of experience being offered has not been/is not being offered to meet the requirements of the byelaws for any other RCVS Certificate or Diploma.

13. **CONFIRMATION OF INTENT TO SIT THE EXAMINATION**

If approval of experience is granted, I do / do not (delete as appropriate) intend to submit an entry to the next examination (closing date for receipt of entries is 1 March).

Signature: ___________________________ Date: ___________________________

**PLEASE RETURN ORIGINAL FORM PLUS FOUR COPIES**

_The following section should be completed by your Adviser_

I confirm that I am acting as this candidate's Adviser.

Name (block capitals): __________________________________________________________

Signature: ___________________________ Date: ___________________________
DIPLOMA IN VETERINARY DERMATOLOGY

Candidates should refer to the lists of Specialists and Diploma holders published in Section 3 of the RCVS Register of Members

April 2008
THE ROYAL COLLEGE OF VETERINARY SURGEONS

DIPLOMA IN VETERINARY DERMATOLOGY

THURSDAY 17 JULY 2003

PAPER I

(3 hours)

Candidates are required to answer FOUR of the following five questions.

Allow 45 minutes per question.

Illegible handwriting or failure to answer the question in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

1. **Describe** in detail the innate (natural) immune response that may occur when canine skin is invaded by *Staphylococcus intermedius*.

2. **List** the main mediators of itch and describe the neuronal pathways that are thought to be involved in itch.

3. Give an account of the cellular and non-cellular components of the dermis. Include their origin and their function within the dermis.

4. **Describe in detail the origin, structure and function of epidermal melanocytes and the factors influencing melanisation**,.

5. Give a detailed account of the biology of *Ctenocephalides felis*. Discuss the epidemiological factors influencing exposure of pets to fleas in an urban environment.

________________
1. Write short notes on:
   a. Caseous lymphadenitis in sheep.
   b. Pityriasis rosea (Porcine juvenile pustular psoriasiform dermatitis, pseudo-ringworm).
   c. Photosensitisation in cattle.

2. Discuss the role of the mast cell, eosinophil and lymphocyte in canine and human atopic dermatitis.

3. Compare and contrast the use of prednisolone and cyclosporin in canine dermatology. Describe their mode of action, administration protocols and monitoring requirements.

4. Review the current evidence for and against a hypersensitivity-mediated mechanism for “food allergy” in the dog. Quote references where appropriate.

5. Describe the dermatological syndromes that may be associated with endocrinologically functional neoplasms.