



## **Animal Welfare Science, Ethics, and Law Sub-Specialty**

### **EXAMINATION BROCHURE**

March 2026

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## 1. JURISDICTION

All Animal Welfare Science, Ethics, and Law (AWSEL) sub-specialty examinations are within the jurisdiction of the AWSEL Examination Sub-Committee.

## 2. AIMS OF THE EXAMINATION

The aim of the AWSEL examination is for candidates to demonstrate that they have sufficient training, experience, and knowledge in Animal Welfare Science, Ethics, and Law to meet the criteria for a Diplomate status of the European College of Animal Welfare and Behaviour Medicine (ECAWBM). Successful candidates who fulfil all the requirements will become certified by the European Board of Veterinary Specialists (EBVS), as European Veterinary Specialists® in Animal Welfare Science, Ethics, and Law.

## 3. SCOPE OF THE EXAMINATION

The candidates are required to demonstrate knowledge of the ECAWBM syllabus in Animal Welfare Science, Ethics, and Law as detailed in the residency requirements (Appendix I). The candidates are also expected to have a detailed knowledge of relevant animal welfare literature, **including but not limited to** references in the reading list (Appendix II).

## 4. PROCEDURE FOR ENTERING THE EXAMINATION

To be eligible to sit the examination, candidates must have had their credentials approved by the AWSEL Credentials Committee and paid the relevant examination entry fee. The examination fee is non-refundable.

Candidates must notify the Credentials Committee of their intention to sit the examination and submit their portfolio demonstrating evidence of completing the expected activities, no later than the 31<sup>st</sup> of December of the year prior to the intended examination. Candidates will be notified of their eligibility to sit the examination by the Credentials Committee by March 1st.

After being accepted to sit the examination, the candidate has a total of four (4) attempts to pass all parts of the examination within eight (8) years of completion of the residency programme. Candidates who fail to pass all parts of the examination after four (4) attempts will not be able to reapply to re-sit the examination and therefore cannot become a Diplomate of the ECAWBM.

## 5. STRUCTURE OF THE EXAMINATION

The examination consists of a theoretical examination (3 components) and a practical examination (3 components). All the examinations are conducted in **English**.

The theoretical examination will include the following components:

- Multiple-choice questions

- Short-answer questions
- Long-answer questions

The practical examination will include the following components:

- Practical welfare assessments of animals (one assessment of an individual animal and one assessment of a group of animals)
- Policy brief
- Final discussion of the candidate's case exposures, exam components, and reports

Component	Type	Format
1. MCQs	Theoretical	Written
2. SEs	Theoretical	Written
3. LEs	Theoretical	Written
4a. WA Individual 4b. WA Group	Practical	Written
5. Policy Brief	Practical	Written + Oral
6. Final Discussion	Practical	Oral

## 6. DETAILS OF THE THEORETICAL EXAMINATION

- 6.1 MULTIPLE-CHOICE QUESTIONS -This section aims to assess core knowledge. The format will be a 90-minute examination consisting of 50 single-best-answer questions. Candidates are required to answer all questions. Marks will be awarded for the correct answer. Marks will not be deducted for incorrect answers (i.e., no negative marking).
- 6.2 Short-answer questions - This section assesses the candidate's broad knowledge base of AWSEL. The format is a 120-minute theoretical examination consisting of **12 open-ended questions**. Candidates are required to **answer 10 out of the 12 questions**. Responses should be succinct (bullet point style is also accepted), usually no more than 200 words per question. Answers will be scored using the standard marking criteria (see Section 8).
- 6.3 Long-essay questions - The focus of this section is to assess the application of knowledge in AWSEL using reasoned arguments. The format is a 3.5-hour examination consisting of three (3) open-ended questions from a possible choice of six (6) questions. The answers given by the candidates will be scored using standard marking criteria (section 8).

An example of questions is available in Appendix III.

## 7. DETAILS OF THE PRACTICAL EXAMINATION

7.1 Welfare assessment - The focus of this section is to assess the candidate's ability to **apply knowledge of Animal Welfare Science** through the use of structured reasoning and evidence-based arguments. Candidates will be required to conduct and present the findings of **two animal welfare assessments**. This component evaluates not only factual knowledge, but also the candidate's ability to critically analyse situations, justify conclusions, and demonstrate professional judgment in diverse animal welfare contexts. The two-welfare assessments will be constructed as follows:

**One assessment** will focus on a group of animals (e.g., chickens within a specific husbandry system).

**One assessment** will focus on an individual animal (e.g., a dog in a shelter).

To ensure coverage of a range of scenarios, the two assessments will involve **different species and different animal uses** (e.g., farm, companion, laboratory, zoo, wildlife, or working animals).

The assessments are based on **stimulus materials (documents, pictures, and videos) provided electronically by the examiners during the examination**. All candidates sitting the exam on the same day will receive the same stimulus materials.

Each candidate will have:

**20 minutes** to review the stimulus materials and perform the welfare assessments.

**40 minutes** to record their findings in **ExamSoft** (essay-style format).

The welfare assessment component will be evaluated using the standard marking criteria (see Section 8)

Elements of the welfare assessment	Proportion of assessment
Description of robust systematic welfare assessment	40%
Logical, critical analysis using appropriate frameworks	40%
External evidence to support analysis (e.g., literature, benchmarks)	20%

7.2 Policy brief - An animal welfare policy brief is a short, evidence-based document that summarizes a specific animal welfare issue and presents key research findings relevant to policymakers. Its purpose is to translate scientific knowledge into clear recommendations that can guide legislation, regulation, or practical decision-making. Policy briefs are typically concise, accessible, and focused on actionable solutions.

Candidates will receive a task description including the intended recipient of the policy brief (e.g., government department, retailer, large producer), and the scope and context of the policy brief (e.g., a specific proposal to regulate the depopulation of dogs in response to a media story). The specific task description will be sent to the

candidates no later than 8 weeks before the examination with format details. Candidates are asked to prepare a two-page evidence-based policy brief on the relevant welfare science, ethical analysis, and policy options (including legislation). The page count does not include the reference list. The candidate will submit their policy brief document no later than one week before the examination. The candidate will discuss the content of the policy brief during the final oral examination (see 7.3). They will have 10 minutes to present their policy brief (use of a PowerPoint file or other visual support is permitted), followed by a 20-minute discussion with the examiners.

Each of the following elements of the policy brief will be assessed using standard marking criteria (section 8).

<b>Elements of the policy brief Main grading parameters? Main elements of the grading?</b>	<b>Approximate proportion of grading assessment</b>
Description of relevant welfare science, ethics, and policy, including legislation	40%
Logical, critical analysis using appropriate frameworks & recommendations	40%
External evidence to support analysis (e.g., peer-reviewed & reliable non-peer-reviewed literature)	10%
Format (clear, relevant visual material, appropriate reference format)	10%

7.3 Final oral examination - Candidates will be required to attend a final oral examination with the Examination Committee. The Committee and the candidate will discuss the candidate's work experience, including one of five case studies the candidate has submitted in advance, publications, reports, and elements of the theoretical and practical examinations. This part of the examination will take approximately 20-30 minutes. Performance will be evaluated using the marking criteria described in section 8.

7.4 LANGUAGE - The exam will be conducted in English. As long as the speaking/writing of the Candidates is clear and the meaning is easily understood, the evaluation will be based on the content and structure of the answers, and English grammar will not be a penalizing factor. Candidates whose first language is not English may use a preferably new, standard hardcopy translation dictionary to translate between their language and English.

## **8. MARKING CRITERIA AND PROCESS**

8.1 In order to pass the exam, candidates must achieve a pass mark in each of the mentioned sections. As described in the constitution of ECAWBM, candidates who fail individual components of the Examination must retake only the failed components. However, candidates must re-take all the parts they have not yet passed each time they attempt to complete the examination. All parts must be completed within 8 years of completing the residency programme. The maximum number of reapplications to sit parts or all of the

- examination is 3 (this means that a candidate is allowed to sit the examination 4 times maximum).
- 8.2 The minimum score to pass each section of the exam is 70% of the maximum potential score for that section, as explained in the Marking Framework (Appendix IV). The 70% pass mark for each component is absolute; there is no opportunity to compensate in other components for one failed component.
  - 8.3 Candidates will pass the examination once they have achieved a pass mark in all components.
  - 8.4 If a candidate fails one or more components of the examination, they will be able to re-sit these components in the next examination according to EBVS procedures. Candidates are not required to re-sit components in which they have already scored 70% or above, but must re-sit all remaining components in the next examination year.
  - 8.5 For the theoretical parts of the exam, the evaluation will be performed on anonymized exam papers by using pre-established answer models. With the exception of MCQs, which are automatically graded, each section will be marked by a two-step process. First, each answer within the section is marked independently by two examiners, members of the AWSEL Examination Committee. Second, quality control of the marking is conducted by another member of the AWSEL Examination Committee.
  - 8.6 The examination team typically consists of at least three examiners from the ECAWBM (AWSEL) Examination Committee. For the grading of the practical component of the examination, at least two examiners will be present. The evaluation will be conducted using pre-established answer models. Relevant notes and justifications for the marks attributed will be recorded for each examination element. The supervision of all examinations will be conducted by external invigilators or by a designated member of the examination committee.
  - 8.7 Relevant notes and justifications for the marks attributed will be made for each element of the examination. A summary of these will be available for scrutiny on the request of the candidate or in case of an appeal against a negative decision
  - 8.8 Conflict of interest: in case one of the examiners has a conflict of interest with one or more of the Candidates, he/she will not take part in the exam formulation or grade any answers from the candidates with whom there is a conflict.

**Appeals:** for details of the Appeals process, please refer to the ECAWBM constitution at [AWSELChair@ecawbm.com](mailto:AWSELChair@ecawbm.com)

## 9. SPECIAL REQUESTS

- 9.1 The ECAWBM is committed to allowing all candidates for examinations access to equitable assessment procedures. If a candidate believes that the circumstances, locations, or systems of the examination procedures (including theoretical and practical) do not allow them to display their professional knowledge, skills, and behaviours fully, they are **strongly encouraged** to submit a request for variation of assessment procedures.
- 9.2 Requests for variation of assessment procedures should be made in the form of a draft plan, which must:

- 9.2.1 Be directed to the Chair of the AWSEL Examination Committee (AWSEL) and submitted with a candidate's notification of intention to sit the examinations.
- 9.2.2 Be supported by a letter from the candidate's health professional (*e.g.*, Doctor, Ophthalmologist, Psychiatrist, Psychologist, Optometrist, Audiologist, or Occupational Therapist) outlining the measures requested to enable the candidate to undertake the examinations fairly. This letter needs to include specific areas where changes to standard practices are requested. Some examples may include:
- Large-print examination papers.
  - Adjusted lighting.
  - Extra reading time.
  - Use of a scribe, keyboard, or other data entry device.
  - Use of a reader.
  - Extra toilet breaks or rest periods.
  - Wheelchair access.
  - Ergonomic furniture.
  - Measures to allow increased audibility.

9.3 A plan will be developed in consultation with the candidate. This plan will take into account:

- The contents of the professionals' letter of support.
- Costs, locations, and timeframes. Fairness to the other candidates in the examination system.

## 10. ORGANISATION OF THE EXAMINATION

- 10.1. The candidate will be sent written notification of:
- The exact dates and venue of the examination
  - The names of the examiners.
- 10.2. Once notified of the names of the examiners, candidates must not contact these examiners on matters relating to the content of the examinations, either before or after the examination. Any questions relating to the examination must be addressed to the Chair of the AWSEL Examination Committee or the designated person.
- 10.3. Should a candidate contact any member of the Examination Committee about the examination after their announcement as an examiner, the Chair of the Examination Committee may suspend the examination process for that candidate until satisfied that such contact was not an attempt to influence the conduct or outcome of the examination.
- 10.4. Candidates will be expected to make and fund their own travel and accommodation arrangements. If, under exceptional circumstances, any theoretical part of the exam should take place remotely, candidates must secure invigilators to supervise their exam (see also Section 12).

- 10.5. Candidates must complete all components of the examination and will not be informed of the outcome of any component until all 6 components are complete and results ratified by the examinations committee.
- 10.6. **Around six (6) weeks before the examination** (at the latest 2 weeks before), candidates will receive a complete information package containing the Honour Code, the Exam Notice, the Fit-to-Sit declaration, the minimal requirements of the hardware, an instruction on how to download and do a (mock) exam on ExamSoft, etc. The exam supervisor of the Examination Committee will help candidates in dealing with the technical needs.

## 11. MISCONDUCT

- 11.1. The highest standard of conduct is expected of candidates seeking Membership in the College. On their application for examinations, candidates are required to read and sign an agreement to be bound by the College's rules, regulations, and guidelines.
- 11.2. Participating in any improper conduct, such as cheating, attempting to cheat, or assisting others to cheat are serious violation and will result in the College disqualifying the candidate's paper and other disciplinary action as deemed appropriate, including, but not limited to, forfeiture of examination fees and/or exclusion from the College. This applies before, during, and after the examinations.
- 11.3. Candidates must not give or receive the assistance of any kind during the examination. During the examination, candidates are expected to behave with integrity and follow all proper and reasonable instructions, whether given in writing or by any College Officer, including examiners and invigilators.
- 11.4. Those parts of the exam that will be carried out remotely and cannot be proctored by members of the Examination Committee will be proctored by an invigilator. The exam committee must approve of the invigilator's suggestions made by the candidates. The invigilator must not have any conflict of interest with the candidate(s) and will be asked to sign a document to that effect. The invigilators approved by the examination committee will be responsible for invigilating the examination and must remain in the same room with the candidate for the entire duration of the exam sessions.
- 11.5. Examples of improper conduct include, but are not limited to:
- Attempting to gain an unfair advantage by ascertaining the content of the examination before the examination period;
  - Sharing information about the content of the examination;
  - Sharing or attempting to share answers with other candidates during the examination;
  - Attempting to obtain assistance with answering questions by any means, including the use of notes, electronic devices, or the internet, including AI-generated text (ChatGPT and similar instruments)
  - Presenting false information in the application or any other documentation;
  - Failing to follow the proper and reasonable instructions of College Officers.

- 11.6. The Examination Committee will investigate any irregularity or suspected violation of examination discipline. A determination by the Examination Committee will be made regarding the matter. This determination is final. The committee will submit the determination to the affected candidate, their mentor, and the Chair of the ECAWBM–AWSEL Board. In case of a dispute the candidate could appeal to the ECAWBM –AWSEL Board, and if still in dispute the candidate can appeal to the EBVS.

## **12. REPORTING OF RESULTS**

The Examination Committee will write an individual examination report for each Candidate detailing the final evaluation achieved in each of the components.

The Examination Committee will communicate the results of the examinations in theoretical form to the Chair of the AWSEL Executive Group. The Chair of the Executive Group will then contact the candidates and notify them of the results of their examinations.

Results of the examination will be reported within Six (6) weeks to all candidates. Results will indicate whether the candidate passed or failed each of the components of the examination.

The ECAWBM AWSEL Board will store the manuscripts of unsuccessful candidates for eight (8) years after the candidate's first examination attempt. No copies of failed papers or the exam questions will be sent to the candidate.

## APPENDIX I – SYLLABUS AWSEL

The residency program should include training in the following areas (the topics listed are intended to give the candidate a better understanding of the key aspects. These lists will be expanded with experience).

The following syllabus addresses the ‘core’ knowledge base in AWSEL. Diplomates will be expected to show a deep level of understanding of the scientific and ethical principles that underpin both our current approach to animal welfare and any interventions designed to improve it, or factors that are known to reduce welfare. Equally, it will not be sufficient for Diplomates simply to know the law as it relates to animal welfare but they should also be equipped to undertake an analysis of the strengths and weaknesses of current animal welfare legislation, to be able to apply legal frameworks for determining infringement e.g. negligence, unnecessary and avoidable suffering, and investigate opportunities for improvements of welfare through existing or new legislation. Similarly, in Ethics, candidates should be able to apply ethical frameworks to help assess welfare problems and solutions.

### 1. Animal Welfare Science

#### 1.1. The scientific basis of good husbandry

- Practical recognition and assessment of animal wellbeing based on the principles of the ‘Five Domains’ and ‘Freedoms’ and their incorporation into an assessment of the quality of life;
- Contemporary approaches to the scientific assessment of animal distress and positive and negative well-being based on an appropriate selection of assessment methods (toolbox concept for welfare indicators, e.g., resource, animal-based, and management factors), relevant scientific disciplines including ethology, physiology, pharmacology, anatomy, and neurobiology;
- Methods for assessing and enhancing animal environments and husbandry systems, such as those used for the purposes of quality assurance and promoting a good quality of life for animals, including formalised systems such as Welfare Quality<sup>®</sup> protocols;
- Methods used for risk assessment of welfare e.g., EFSA (European Food Safety Authority) reports;
- Methods used for labelling e.g. assurance schemes, production systems;
- Analysis of the economics of conventional and ‘high and low welfare’ systems of husbandry;
- Principles for assessing education, training and competence of stockpersons.

#### 1.2. The scientific basis of animal suffering and well-being

- Genetic, environmental, and evolutionary determinants of behaviour in animals including vertebrates and invertebrates;
- The nature of motivation and cognition in animals.
- Humane approaches to the manipulation of animal behaviour;
- The nature of pain, distress, fear, and other adverse states, e.g., frustration, boredom;

- The assessment of positive well-being/positive affective states, e.g., contentedness, pleasurable states;
- The assessment of the quality of a life;
- The nature of consciousness and self-awareness, instinct, and altruism.

### 1.3 The impact of scientific procedures on animal welfare

- Experimental procedures likely to cause 'pain, suffering, distress, and lasting harm', and their prospective and retrospective assessments;
- Positive welfare: e.g., the 3Rs, enrichment, comfort, Social bonding, positive emotional state.
- Commercial application of scientific procedures: e.g., embryo transfer, genetic modification, cloning.

### 1.4 Research methods: validation, experimental design, qualitative and quantitative analysis, and critical evaluation of data.

## 2. Ethics

### 2.1. The nature of scientific truth and moral value

- Understanding of objectivity and subjectivity in science and ethics;
- Understanding evolving societal views about animal welfare, and the impact of human behaviour on animal welfare.

### 2.2. The philosophical issues and concepts involved in animal use

- key ethical approaches and frameworks, including deontology, utilitarianism, virtue ethics, the ethical matrix
- Emerging ethical issues: e.g. patenting of animals, cloning, xenotransplantation, human-animal hybrids, stem cell research, minimum standards of welfare.

### 2.3 Ethics and human behaviour concerning animals and animal use

- The construction and use of ethical frameworks to evaluate animal welfare and benefit;
- The historical, social, and cultural foundations of human perception and treatment of other (non-human) animals, concepts of dignity, autonomy, and integrity as applied to humans and animals;
- Morality and sentiment (empathy, sympathy) as bases for concern regarding animal welfare;
- The ethical basis of professional conduct - the concepts of 'virtue' and etiquette, Veterinary Codes;
- Conflicts between human and animal needs (e.g., animals in sport, research, guide dogs, economics, and economic constraints);

- Potential conflicts between individual animal welfare and issues such as environmental concerns, pest control, wildlife, and public health, the conflict between the interests of the 'group' vs the individual, "harm-benefit analysis."

### 3. Law

The object of the law element of the Diploma is to enable candidates to demonstrate an advanced understanding of how legislation is created, applied, and monitored in practice, and case law. The object is to equip the candidate to:

- Play an informed role in public policy-making, including policy-making of the veterinary profession;
- Participate in statutory inspections and other administrative enforcement mechanisms;
- Advise commercial and other non-statutory bodies;
- Understand the role of an expert witness and be able to provide an expert opinion on matters relating to AWSEL.

In pursuing this syllabus, candidates are expected to demonstrate familiarity with, and an ability to use effectively, relevant primary materials such as the Official Journal of the European Communities; Council of Europe Conventions, EU legislation; WOH (World Organisation for Animal Health), EFSA Journal, and other official publications, and European Reference Centers for Animal Welfare (EURCAW).

Candidates will be required to demonstrate an understanding of

- The origin of legislation and the relationship between different types of rules:

WTO; Council of Europe Conventions; European Union Law, and the role of the courts in developing case law.

- The factors that influence the development of public policy and legislation:

Public opinion; advocacy and lobby groups; scientific evidence; recommendations of advisory bodies such as EFSA and the role of Risk Assessment and Risk Management in Risk Analysis; the impact of international legislation and guidance arising from the WTO-GATT (World Trade Organisation - General Agreement on Tariffs and Trade), WOHA, the European Union, FAO (Food and Agriculture Organization), USDA (United States Department of Agriculture), EFSA (European Food Safety Authority), Ministries of Agriculture and Forestry New Zealand and Australia, EURCAW, etc.

- The policy-making process:

How EU institutions, national government departments, the devolved executives, local authorities, and other relevant public bodies make policy and administrative decisions.

- The legislative process:

EU legislation; national primary and secondary legislation; legislation passed by the devolved bodies; the impact of the WTO, WOHA, FAO, and EU law.

- Enforcement through the courts:

WTO dispute resolution; European Court of Justice; judicial review; prosecutions

- Regulation of the veterinary profession:

Relevant European and domestic Law, Codes of Professional Conduct for veterinarians; the maintenance of professional standards, the roles and responsibilities of the national veterinary regulatory bodies, and supranational bodies, e.g., FVE, WOHA, WVA, EAEVE, EVBS

## APPENDIX II – READING LIST AWSEL

The reading list below is non-exhaustive and provides a general guide to work relevant to the AWSEL sub-specialty. Residents are expected to be up to date with the current literature and to participate in journal clubs or similar ventures. Relevant animal welfare organisations can also provide current sources. Candidates should be familiar with key animal welfare issues discussed in the public domain.

### CORE READING LIST

#### Animal welfare science

Appleby, M., Olsson, A. & Galindo, F. (eds) (2018) *Animal Welfare*, 2<sup>nd</sup> edition. Wallingford: CABI.

Blokhuis, H.J., Miele, M., Veisser, I. & Jones, B. (eds) (2013) *Improving farm animal welfare. Science and society working together: The Welfare Quality® approach*. Wageningen: Wageningen Academic Publishers.

Broom, D.M. (2014) *Sentience and Animal Welfare*. Wallingford: CABI. doi: [10.1079/9781780644035.0000](https://doi.org/10.1079/9781780644035.0000)

Dawkins, M.S. (2012) *Why Animals Matter: Animal consciousness, animal welfare, and human well-being*. Oxford: OUP.

Fraser, D. (2023) *Understanding Animal Welfare: The Science in its Cultural Context* (second edition) (UFAW Animal Welfare Series). Chichester: Wiley-Blackwell.

Fraser, D., Weary, D. M., Pajor, E. A., & Milligan, B. N. (1997) 'A scientific conception of animal welfare that reflects ethical concerns'. *Animal Welfare* 6: 187-205. <https://animalstudiesrepository.org/cgi/viewcontent.cgi?article=1000&context=ethawel>

Mellor, D.J. (2016) 'Updating animal welfare thinking: moving beyond The Five Freedoms towards A Life Worth Living.' *Animals* 6(3): 21. doi: 10.3390/ani6030021

Mellor DJ, Beausoleil NJ, Littlewood KE, McLean AN, McGreevy PD, Jones B, Wilkins C. The 2020 Five Domains Model: Including Human-Animal Interactions in Assessments of Animal Welfare. *Animals* (Basel). 2020 Oct 14;10(10):1870. doi: 10.3390/ani10101870.

Mendl, M., Burman, O., Parker, R. & Paul, E. (2009) 'Cognitive bias as an indicator of animal emotion and welfare: Emerging evidence and underlying mechanisms.' *Applied Animal Behaviour Science* 118 (3-4): 161-181. doi: 10.1016/j.applanim.2009.02.023

Walters, E. T. & Williams, A. C. de C. Evolution of mechanisms and behaviour important for pain. *Philos. Trans. R. Soc. B* **374**, 20190275 (2019). <http://dx.doi.org/10.1098/rstb.2019.0275>

#### Ethics

Armstrong, S.J. & Botzler, R. (eds) (2008) *The Animal Ethics Reader*, 2<sup>nd</sup> edition. Abingdon: Routledge.

Beauchamp, T.L. (2006). *The Human Use of Animals: case studies in ethical choice*, 2<sup>nd</sup> edition. New York: OUP.

Gruen, L. (2015) *Entangled Empathy: an alternative ethic for our relationship with animals*. New York: Lantern Books.

Mepham, B. (2008) *Bioethics: an introduction for the biosciences*, 2<sup>nd</sup> edition. Oxford: OUP.

Mullan, S. & Fawcett, A. (eds) (2017) *Veterinary Ethics: Navigating Tough Cases*. Sheffield: 5m Publishing.

Rollin, B.E. (2006) *An Introduction to Veterinary Medical Ethics: theory and cases*, 2<sup>nd</sup> edition. Oxford: Blackwell.

Singer, P. (ed) (2006) *In Defense of Animals: the second wave*. Oxford: Blackwell.

Veissier, I., Jensen, K. K., Botreau, R., & Sandøe, P. (2011). Highlighting ethical decisions underlying the scoring of animal welfare in the Welfare Quality® scheme. *Animal Welfare*, 20(1), 89-101.

## Law

Cao, D. *Animal Law in Australia*, 3<sup>rd</sup> edition. Thomson Reuters. <https://store.thomsonreuters.com.au/animal-law-in-australia-third-edition/productdetail/130161>

European animal welfare regulations and directives: transport (EC/1/2005), on farm (98/58/EC, 99/74/EC, 2008/119/EC, 2008/120/EC, 2007/43/EC), research (2010/63/EU), and killing (EC/1099/ 2009)

OIE (2017) *Aquatic Code*, 20<sup>th</sup> edition. <http://www.oie.int/standard-setting/aquatic-code/>

OIE (2017) *Terrestrial Animal Health Code*, 26<sup>th</sup> edition. <http://www.oie.int/standard-setting/terrestrial-code/>

Robertson, I.A. (2015) *Animals, Welfare and the Law: fundamental principles for critical assessment*. Abingdon: Routledge.

Sweeney, N. (2017) *A Practical Approach to Animal Welfare Law*, 2<sup>nd</sup> edition. Sheffield: 5m Publishing.

Wagman, W.A. & Leibman, M. (2011) *A Worldview of Animal Law*. Durham, NC: Carolina Academic Press.

## FURTHER READING

### Animal welfare science

Bayne, K. & Turner, P.V. (2013) *Laboratory Animal Welfare*. Amsterdam: Elsevier.

Botreau, R., Veissier, I., Butterworth, A., Bracke, M. B., & Keeling, L. J. (2007). Definition of criteria for overall assessment of animal welfare. *Animal welfare*, 16(2), 225-228.

Broom, D.M. & Fraser, A.F. (2015) *Domestic Animal Behaviour and Welfare*, 5<sup>th</sup> edition. Wallingford: CABI.

Broom, D.M. (1988) 'The scientific assessment of animal welfare'. *Applied Animal Behaviour Science* 20(1-2): 5-19. doi: 10.1016/0168-1591(88)90122-0

Broom, D.M. (2010) 'Cognitive ability and awareness in domestic animals and decisions about obligations to animals'. *Applied Animal Behaviour Science* 126(1-2): 1-11. doi: 10.1016/j.applanim.2010.05.001

de Waal, F. (2016) *Are We Smart Enough To Know How Smart Animals Are?* New York: W.W. Norton & Co.

Fraser, D. (2006) 'Animal welfare assurance programs in food production: a framework for assessing the options'. *Animal Welfare* 15(2): 93. <https://animalstudiesrepository.org/cgi/viewcontent.cgi?article=1001&context=farawel>

Grandin, T. (ed) (2015) *Improving Animal Welfare: A Practical Approach*, 2<sup>nd</sup> Edition. Wallingford: CABI.

Koolhaas, J.M. et al (2011) 'Stress revisited: a critical evaluation of the stress concept'. *Neuroscience and Biobehavioural Reviews* 35(5): 1291-1301. doi: 10.1016/j.neubiorev.2011.02.003

Paul, E.S., Harding, E.J. & Mendl, M. (2005) 'Measuring emotional processes in animals: the utility of a cognitive approach'. *Neuroscience and Biobehavioural Reviews* 29(3): 469-491. doi: 10.1016/j.neubiorev.2005.01.002

Scott, E.M., Nolan, A.M. & Fitzpatrick, J.L. (2010) 'Conceptual and methodological issues related to welfare assessment: a framework for measurement'. *Acta Agriculturae Scandinavica (Section A, Animal Science)* 51(30): 5-10. doi: 10.1080/090647001316922983

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**APPENDIX III – SAMPLE EXAMINATION QUESTIONS AWSEL**Multiple Choice Questions (single correct answer, no negative marking):

1. When one castrates a calf without providing analgesia or anesthesia, which principle of biomedical ethics is challenged?
  - A. Beneficence
  - B. Justice
  - C. Non-maleficence
  - D. Respect for autonomy
  
2. What approach may be more successful at reducing the incidence of tail biting in pigs?
  - A. Providing the pigs with more food.
  - B. Raising pigs together since weaning without mixing them.
  - C. Removal from the pen of the pig that bites the tail of their companions.
  - D. Providing the pigs with more opportunities to root, or providing them with straw
  
3. What are the Three Rs principles, first enunciated by Russell and Burch in 1959?
  - A. Reduction, Reuse, Replacement.
  - B. Refinement, Replacement, Release.
  - C. Reduction, Replacement, Refinement.
  - D. Reduction, Refinement, Rehoming
  
4. What factor is often viewed as the main obstacle to the successful implementation of the CITES convention?
  - A. Lack of enforcement
  - B. Proof of illegality
  - C. The illegal trade of wildlife
  - D. The reluctance to impinge on economic gain

Short Essay Questions (no more than 150-200 words):

1. In 1959, Russell and Burch published their 'Principles of Humane Experimental Technique'. What concepts, still in use today, were first described in their publication?
2. Define "quality of life" as it applies to animals.

Long Essay Questions (no more than 3000 words):

1. Your local veterinary school asks you to host a debate on animal welfare and ethics for senior veterinary students. The topic to be debated is: "Improvements in animal welfare are more likely to be achieved through attention to animal function rather than animal feelings".

Outline the arguments in favour of (a) a focus on animal function and (b) a focus on animal feelings, concerning animal welfare. In doing this, name some authors students could refer to if they wish to explore these issues further.

2. An animal-based indicator to be included in a welfare assessment protocol needs to be valid, reliable, and feasible. Focusing on the validity, provide a description of this attribute, including different types of validity. Provide 1 or 2 examples to explain the importance to check that an indicator is valid before including it in a welfare assessment protocol.

**APPENDIX IV – MARKING FRAMEWORK**

≥90 %	<p>Work would be worthy of dissemination under appropriate conditions.</p> <p>Mastery of advanced methods and techniques at a level beyond that explicitly taught.</p> <p>Ability to synthesize and employ in an original way ideas from across the subject.</p> <p>Excellent presentation.</p> <p>Outstanding command of critical analysis and judgment.</p>
80 - 89 %	<p>Excellent range and depth of attainment of intended learning outcomes.</p> <p>Mastery of a wide range of methods and techniques.</p> <p>Evidence of study and originality clearly beyond the bounds of what has been taught.</p> <p>Excellent presentation.</p> <p>Able to display a command of critical analysis and judgment.</p>
70 - 79 %	<p>Attained all the intended learning outcomes for a unit.</p> <p>Able to use well a range of methods and techniques to come to conclusions.</p> <p>Evidence of study, comprehension, and synthesis beyond the bounds of what has been explicitly taught.</p> <p>Good presentation of material.</p> <p>Able to employ critical analysis and judgment.</p>
60 – 69%%	<p>Some limitations in the attainment of learning objectives but has managed to grasp most of them.</p> <p>Able to use most of the methods and techniques taught.</p> <p>Evidence of study and comprehension of what has been taught.</p> <p>Adequate presentation of material.</p> <p>Some grasp of issues and concepts underlying the techniques and material taught.</p>
40 - 59 %	<p>Limited attainment of intended learning outcomes.</p> <p>Able to use a proportion of the basic methods and techniques taught.</p> <p>Evidence of study and comprehension of what has been taught but grasp insecure.</p> <p>Poorly presented.</p> <p>Some grasp of the issues and concepts underlying the techniques and material taught, but weak and incomplete.</p>
1 - 39 %	<p>Attainment of nearly all the intended learning outcomes is deficient.</p> <p>Lack of ability to use all or the right methods and techniques taught.</p> <p>Inadequately and incoherently presented.</p> <p>Wholly deficient grasp of what has been taught.</p> <p>Lack of understanding of the issues and concepts underlying the techniques and material taught.</p>
0 %	<p>No significant assessable material, absent, or assessment missing a "must pass" component.</p>