STUDYGUIDE

Species specific course:

Carnivores (cats, dogs and ferrets)

Introduction to Laboratory Animal Science

Universiteit Utrecht

Organisation:
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Contents

Objective of the course

The objective of this course is to present basic and appropriate biology, care, health and management of carnivores, recognition of pain, suffering and distress in these animals and minimally invasive procedures without anaesthesia to be applied on these animals. This course meets the standards for the species-specific education and training requirements for persons designing projects and procedures for carnivores.

Competence

For the function ‘designing procedures and projects’ the Dutch government requires competency.
On December 18, 2014 the new legislation regarding animal experimentation was implemented. Due to this implementation the course on Laboratory Science has been adapted. The course contains now two parts, a basic course (Introduction to laboratory animal science) and a species specific course. The basic course certificate and, at least, one species specific certificate will give the required competence.
From August 1, 2015 the competence is limited. You are not allowed to perform any procedure on animals, unless there is supplementary education. From now you are competent when you are skilled (competence profile, species and skill(s) stated).
After successful completion of the new basic course and after successful completion of the present course on carnivores, you will be competent to design procedures and projects and to execute simple procedures on these animals. Further skills have to be obtained by working under supervision until competence is demonstrated. Only then are you allowed to work with animals independently.

Workload

The number of credits that can be obtained after successful completion of the course is 1 ECTS (European Credit Transfer and Accumulation System). The length of the course is one week (fulltime, 09.00-17.30 hrs). Participation in all parts of the course is mandatory.

Course material

During the course the book Principles of Laboratory Animal Science, revised edition, 2001, L.F.M. van Zutphen, V. Baumans and F. Ohl (eds.) (ISBN 13: 978-0-444-50612-2) will be used. Further teaching material will be provided on a usb-stick.

Program

Introduction (general, assignments, exam)
Anatomy and Physiology
Behaviour
Reproduction
Husbandry and care taking
Nutrition
Animal handling
Clinical examination
Basic procedures (injections, blood sampling)
Preventing avoidable discomfort (assignment)
Anaesthesia, analgesia, and euthanasia
Post-mortem examination
Presentation
Exam
Evaluation

Teachers

L.C. Akkerdaas : anaesthesia, analgesia, and euthanasia
R.J. Corbee: introduction, clinical examination, nutrition
H.G.H van Engelen: animal handling, basic procedures (cats and dogs)
J. de Gier: reproduction
M.M.C. Heuvelmans: husbandry and care taking, animal handling, basic procedures
E. Hagen-Plantinga: nutrition
N.J. Schoemaker: introduction, clinical examination, basic procedures (blood sampling ferret)
C.M. Vinke: Behaviour and welfare
P.J. de Wit: husbandry and care taking, animal handling, basic procedures
C.F. Wolschrijn: Anatomy and Physiology
Y.R.A. van Zeeland: introduction, clinical examination, basic procedures (blood sampling ferret)

Final examination

As a group you have to analyze a given article with help of a questionnaire that is based on the ARRIVE guidelines: (Kilkenny C, Browne WJ, Cuthill IC, Emerson M, Altman DG (2010) Improving bioscience research reporting: the ARRIVE guidelines for reporting animal research). Based on every aspect you learned about during the course you have to describe in detail how the experiments described in the article are performed. You will report this in a small presentation (10-15 min) at the end of the course and discuss your choices with the critical audience- the other students.
Each student gets a mark ranging from 0-10 points (0= unsatisfactory, 10=very good) depending on the quality. The examination involves the handbook, the lectures, discussions, demonstrations and practical's.

Certificate

If the participant has met all legal requirements and has successfully passed the exam at the end of the course, the participant will receive a certificate for this species specific course on Carnivores.
If you do not meet all legal requirements, like not holding a Master degree (yet), you will receive a written confirmation stating that you followed the course and successfully passed

the exam. Together with the certificate for the basic course, after obtaining your Master degree, you can request the final certificate confirming that you meet all legal requirements of the Dutch legislation to be registered for the function “designing projects and procedures for carnivores”.

More information

Learning outcomes in accordance with the EC Training and Education Document relating to Directive EU/2010/63, and also see page 13.

http://ec.europa.eu/environment/chemicals/lab_animals/pdf/Endorsed_E-T.pdf

Schedule species specific course Carnivores
Modules art. 23.2.b function Species specific

Module 3.1: Basic and appropriate biology – species specific (theory)

This module provides an introduction to the basic principles of animal behaviour, care, biology and husbandry. It incorporates information in relation to anatomy and physiological features, including reproduction, behaviour and routine animal husbandry and enrichment practices. It is not intended to provide more than the minimum background information which is needed for someone to be able to begin work under supervision.
Following this module practical training, under supervision, should provide each individual with the expertise and skills needed for them to carry out their particular function. Practical training requirements will, inevitably, differ according to function.

Learning Outcomes
Trainees should be able to:
3.1.1. Describe basic anatomy, physiology, reproduction and behaviour of the relevant species.
3.1.5. Describe the dietary requirements of the relevant animal species and explain how these can be met.
3.1.6. Describe the importance of providing an enriched environment (appropriate to both the species and the science) including social housing and opportunities for exercise, resting and sleeping.
3.1.7. When relevant to the species, recognise that there are different strains, and that these can have different characteristics which can affect both welfare and science.
3.1.8. When relevant to the species, recognise that alterations to the genome can affect the phenotype in unexpected and subtle ways, and the importance of monitoring such animals very carefully.
3.1.9. Maintain and interpret accurate, comprehensive records of animals held in the animal facility, including the wellbeing of the animals

Module 4: Animal care, health and management – species specific (theory)

This module provides information on various aspects of animal health, care and management including, environmental controls, husbandry practices, diet, health status and disease. It also includes relevant basic learning outcomes relating to personal health and zoonosis.

Learning Outcomes
Trainees should be able to:
4.1. Describe suitable routines and husbandry practices for the maintenance, care and welfare for a range of animals used in research, to include small laboratory species and large animal species where appropriate.
4.2. Describe suitable housing conditions for laboratory animals, how conditions are monitored and identify the consequences for the animal resulting from inappropriate environmental conditions.
4.6. Describe how to provide water and an appropriate diet for laboratory animals including the sourcing, storage and presentation of suitable foodstuffs and water

4.7. List the methods, and demonstrate an understanding of appropriate, safe and humane handling, sexing and restraint of one or more named species for common scientific procedures.
4.8. Name different methods for marking individual animals and state an advantages and disadvantage for each method.

4.9. List potential disease risks in the animal facility, including specific predisposing factors which may be relevant. Name methods available for maintaining appropriate health status (including use of barriers, different containment levels use of sentinels as relevant to the species).
4.10. Describe appropriate breeding programmes
4.11. Describe how genetically altered animals can be used for scientific research and the importance of monitoring such animals very carefully.
4.12. List the correct procedures for ensuring health, welfare and care of animals during their transport.

Module 5: Recognition of pain, suffering and distress - species specific

This module prepares individuals to be able to identify normal condition and behaviour of experimental animals and enable them to differentiate between a normal animal and one which is showing signs of pain, suffering or distress which could be a result of factors including environment, husbandry or the effect of experimental protocols. It will also provide information regarding severity classifications, cumulative severity and the use of humane endpoints.

Learning Outcomes
Trainees should be able to:
5.1. Recognise normal or desirable behaviour and appearance of the individuals in the context of species, environment and physiological status.
5.2. Recognise and explain the origin of abnormal behaviour and signs of discomfort, pain, suffering, or distress, as well as signs of positive well-being and principles of how pain, suffering and distress can be managed.
5.3. Discuss factors to be considered and methods available for assessing and recording the welfare of animals e.g. score sheets.
5.4. Describe what a humane end point is. Identify criteria to be used to set humane endpoints. Define action to be taken when a humane endpoint is reached and consider possible options for refining methods to finish at an earlier endpoint.
5.5. Describe the severity classifications included in the Directive and give examples of each category; explain cumulative severity and the effect this may have on the severity classification.
5.6. Describe the circumstances when anaesthesia or analgesia may be necessary to minimise pain, suffering, distress or lasting harm

Module 7: Minimally invasive procedures without anaesthesia – species specific (theory) [Function Specific for Functions A and B]

This module provides an introduction to the theory relating to minor procedures. It provides information about appropriate methods of handling and restraint and describes appropriate techniques for injection, dosing and sampling relevant to the species. It should provide

information sufficient for individuals to understand what will be required of them before they go on to trained in the practical aspects of these skills whilst under supervision.

Learning Outcomes
Trainees should be able to:
7.1. Describe appropriate methods and principles to be followed when handling animals (including methods of manual restraint and use of restricted environments).
7.2. Describe the biological impact of procedures and restraint on physiology.
7.3. Describe refinement opportunities for procedures and restraint
7.4. Describe techniques/procedures including, for example, injection, sampling and dosing techniques (routes/volumes/frequency), dietary modification, gavage, tissue biopsy, behavioural tests, use of metabolic cages.
7.5. Describe how to perform minor techniques (without anaesthesia) and relate appropriate sample volumes and sampling frequencies for the relevant species.
7.6. Describe the need for rigour and consistency in conducting scientific procedures and the correct recording and handling of samples.
7.7. Describe appropriate methods for the assessment of the welfare of animals with respect to the severity of procedures and know what appropriate action to take.
7.8. Recognize that refinement is an on-going process and know where to find relevant, up-to-date, information.
7.9. Describe the biological consequences of transport, acclimatization, husbandry conditions and experimental procedures on the species concerned and describe how these can be minimised.

Module 8: Minimally invasive procedures without anaesthesia – species specific (skills) [Function Specific for Function A]

This module delivers practical elements of training relevant to Module 7. Practical training for minor procedures can be taught through a number of methods using different tools which are available and designed for the purpose (this is likely to include synthetic animal models and the use of cadavers). The module should be designed in such a way that it will enable the trainee to attain a level of proficiency such that, when commencing work under supervision, s/he should cause no pain, suffering, distress or lasting harm to the animal.

Learning Outcomes
Trainees should be able to:
8.1. Select and explain the best methods for common procedures (such as blood sampling and application of substances) including route/volume/ frequency as appropriate.
8.2. Demonstrate that s/he can handle and restrain the animal in the best position for the technique.
8.3. Perform minor techniques under supervision, in a manner that does not inflict unnecessary pain, suffering, distress or lasting harm.