

## Laboratory Animal Science: Design and Ethics in Animal Experiments (I002873)

**Course size** *(nominal values; actual values may depend on programme)*

**Credits 3.0** **Study time 84 h**

**Course offerings in academic year 2024-2025**

A (semester 2) English Gent

**Lecturers in academic year 2024-2025**

Kranenbarg-Stolte, Ellen	WAGENI01	lecturer-in-charge
Arts, Janneke	WAGENI01	co-lecturer
Bakker, Evert Jan	WAGENI01	co-lecturer
Bosch, Guido	WAGENI01	co-lecturer
Kranenbarg, Sander	WAGENI01	co-lecturer
Reimert, Inonge	WAGENI01	co-lecturer
Thate, Fuus M	WAGENI01	co-lecturer

**Offered in the following programmes in 2024-2025**

	<b>crdts</b>	<b>offering</b>
<a href="#">International Master of Science in Health Management in Aquaculture</a>	3	A

**Teaching languages**

English

**Keywords**

**Position of the course**

**Contents**

The objective of this course is to present basic facts and principles that are essential for the humane use and care of laboratory animals and for the quality of research. Technical and methodological aspects of the design and implementation of animal experiments will be discussed, with ethics, animal welfare and alternatives to the use of laboratory animals as central themes in this course. Only basic skills and expertise may be expected from this course, due to its restricted size and scope.

Dutch law requires that animal experimentation is carried out by properly trained people. For researchers this implies that in addition to this basic course they have to take an animal species specific course. After this you will be competent to design procedures and projects and to execute simple procedures on these animals (so called 'art 9 qualified'). The course has a maximum of 40 participants, including a maximum of 5 PhD or post doc students.

If the participant has met all legal requirements (knowledge in biology and physiology, and 100 % attendance in all lectures and practical's) and has successfully passed the exam at the end of the course, the participant will receive the basic course certificate.

**Initial competences**

**Assumed knowledge on**

The applicant shall have acquired knowledge on the basic subjects of biology up to 18.75 credits (= 500 study hours) including at least 7.5 credits on anatomy/zoology and 7.5 credits on physiology. These terms of admission are in accordance with the formal requirements of the Dutch responsible authority.

Successfully passing e.g. EZ010306 Human and Animal Biology I, EZ010806 Human and Animal Biology 1 - English and HAP20306 Human and Animal Biology,

part 2 and EZ031306 Vertebrate Structure and Function meets these requirements. Students from other non-WUR educations have to make an entry test to qualify for the certificate. Only master students can enroll.

### **Mandatory knowledge**

ZSS06100 Laboratory Safety

### **Final competences**

- 1 After successful completion of this course students are expected to be able to:
  - demonstrate a critical and analytical attitude towards the scientific knowledge underlying Laboratory Animal Science related activities;
- 2 • understand legislation concerning the use of laboratory animals;
- 3 • understand basic principles, which guide towards the ethical judgment of animal experiments;
- 4 • understand the possibilities and limitations of alternative techniques;
- 5 • understand the requirements of laboratory animals with respect to housing, nutrition and care;
- 6 • take note of the different methods for the collection of body fluids, and some other frequently used experimental techniques;
- 7 • recognize pain as well as discomfort in laboratory animals and to define humane end points;
- 8 • understand the most important methods of anesthesia, analgesia and euthanasia, which can be used in various laboratory animal species;
- 9 • understand the possible impact of environmental and procedural factors on experimental results;
- 10 • understand the importance of hygienic measures and barrier systems;
- 11 • understand the impact of diseases in laboratory animals on the experimental approach and knows about possible health monitoring;
  
- 12 • understand the specific demands that are necessary for a correct preparation and performance of animal experimental techniques and research;
  
- 13 • understand the possibilities that statistics can offer to optimize the use of laboratory animals;
- 14 • understand literature search methods, a.o. meta-analysis and synthesis of evidence, for example systematic reviews

### **Conditions for credit contract**

This course unit cannot be taken via a credit contract

### **Conditions for exam contract**

This course unit cannot be taken via an exam contract

### **Teaching methods**

Lecture, Practical, Independent work

### **Extra information on the teaching methods**

- compulsory participation to lectures and practical class
  
- active participation to project learning and literature study

### **Study material**

None

### **References**

A study guide, synopsis of lecturers, handouts of recent papers and handouts for laboratory class work.

The course textbook in Dutch (less expensive than English copy):  
Zutphen, L.F.M. van, V. Baumans & F.OhL. (2009). Handboek Proefdierkunde. proefdieren, dierproeven, alternatieven en ethiek. Uitgeverij Elsevier gezondheidszorg, Maarssen. Vijfde druk. ISBN 9789035229815.

The course textbook in English:  
Zutphen, L.F.M. van, Baumans, V. & Beynen, A.C. (2001). Principles of Laboratory Animal Science: A contribution to the humane use and care of animals and the

quality of experimental results. Elsevier Science Publishers, Amsterdam, 2nd ed. revised. ISBN-13: 978-0444506122.

or

Hau and Schapiro (2021). Handbook of Laboratory Animal Science, available as e-book in the WUR library and <https://doi.org/10.1201/9780429439964>

### **Course content-related study coaching**

A study guide, synopsis of lecturers, handouts of recent papers and handouts for laboratory class work.

The course textbook in Dutch (less expensive than English copy):

Zutphen, L.F.M. van, V. Baumans & F.OhL. (2009). Handboek Proefdierkunde. proefdieren, dierproeven, alternatieven en ethiek. Uitgeverij Elsevier gezondheidszorg, Maarssen. Vijfde druk. ISBN 9789035229815.

The course textbook in English:

Zutphen, L.F.M. van, Baumans, V. & Beynen, A.C. (2001). Principles of Laboratory Animal Science: A contribution to the humane use and care of animals and the quality of experimental results. Elsevier Science Publishers, Amsterdam, 2nd ed. revised. ISBN-13: 978-0444506122.

or

Hau and Schapiro (2021). Handbook of Laboratory Animal Science, available as e-book in the WUR library and <https://doi.org/10.1201/9780429439964>

### **Assessment moments**

end-of-term and continuous assessment

### **Examination methods in case of periodic assessment during the first examination period**

Professional practice, Participation, Written assessment with multiple-choice questions, Written assessment with open-ended questions, Assignment

### **Examination methods in case of periodic assessment during the second examination period**

Written assessment with multiple-choice questions, Written assessment with open-ended questions

### **Examination methods in case of permanent assessment**

Professional practice, Participation, Assignment

### **Possibilities of retake in case of permanent assessment**

examination during the second examination period is possible

### **Extra information on the examination methods**

- written test with 7-9 open questions with several sub questions, and 4-14 multiple choice questions (50 %);
- two group assignments (30% and 20%).

### **Calculation of the examination mark**

The minimum mark for the written test is 5.5 and for the assignments 5.0.