



Universitat de Lleida

DEGREE CURRICULUM  
**BIOETHICS, LEGAL ASPECTS  
IN BIOMEDICAL SCIENCES AND  
ESSENTIALS OF ANIMAL  
MANIPULATION**

Coordination: PIÑOL FELIS, MARIA CARMEN

Academic year 2023-24

## Subject's general information

|   |   |        |             |                  |
|---|---|--------|-------------|------------------|
| <b>Subject name</b>   | BIOETHICS, LEGAL ASPECTS IN BIOMEDICAL SCIENCES AND ESSENTIALS OF ANIMAL MANIPULATION   |        |             |                  |
| <b>Code</b>   | 101517  |        |             |                  |
| <b>Semester</b>   | 2nd Q(SEMESTER) CONTINUED EVALUATION  |        |             |                  |
| <b>Typology</b>   | Degree  | Course | Character   | Modality         |
|   | Bachelor's Degree in Biomedical Sciences  | 2      | COMMON/CORE | Attendance-based |
| <b>Course number of credits (ECTS)</b>  | 6   |        |             |                  |
| <b>Type of activity, credits, and groups</b>                                    | <b>Activity type</b>  | PRALAB | PRAULA      | TEORIA           |
|   | <b>Number of credits</b>  | 1      | 2           | 3                |
|   | <b>Number of groups</b>   | 4      | 2           | 1                |
| <b>Coordination</b>   | PIÑOL FELIS, MARIA CARMEN   |        |             |                  |
| <b>Department</b>   | MEDICINE AND SURGERY  |        |             |                  |
| <b>Teaching load distribution between lectures and independent student work</b> | 60 face-to-face hours: theoretical classes, seminars and practices in the animal facility in groups of 6-7 students<br>60 non-contact hours: Elaboration of a memory of the practices with animals, carrying out works of the matter, preparation of the evaluation tests |        |             |                  |
| <b>Important information on data processing</b>                                 | Consult <a href="#">this link</a> for more information.   |        |             |                  |
| <b>Language</b>   | Catalan<br>Spanish<br>English (discussion of scientific articles)   |        |             |                  |
| <b>Distribution of credits</b>  | 3 theoretical class credits<br>2.6 seminar credits<br>0.4 internship credits  |        |             |                  |

| Teaching staff                  | E-mail addresses           | Credits taught by teacher | Office and hour of attention |
|---------------------------------|----------------------------|---------------------------|------------------------------|
| MORENO MARTINEZ, JOSE ANTONIO   | joseantonio.moreno@udl.cat | ,6                        |                              |
| PEREZ PEREZ, ROSA MARIA         | rosamaria.perez@udl.cat    | 2,4                       |                              |
| PIFARRE PAREDERO, JOSE FEDERICO | josep.pifarre@udl.cat      | 1,3                       |                              |
| PIÑOL FELIS, MARIA CARMEN       | carme.pinyol@udl.cat       | 5,4                       |                              |
| YUGUERO TORRES, ORIOL           | oriol.yuguero@udl.cat      | 1,3                       |                              |

## Learning objectives

- Obtain basic undergraduate knowledge of zoology, biology and animal anatomy that allows the qualification of Personnel with the function of Project Design and Procedures in postgraduate studies
- Provide the rationale for responsible animal use along with quality research
- Know and apply the general regulatory framework in Biomedical Sciences
- Deepen the content of Law 14/2007, on biomedical research
- Recognize and value the legal responsibilities in the actions of the professional practice in Biomedical Sciences
- Know and understand the main foundations of bioethics that give reason for their action
- Identify the different ethical values present in the background of professional decisions and actions
- Understand the different philosophical currents that configure the ethical values in force in our society
- Identify and analyze the norms, agreements, declarations and codes of conduct related to the ethical dimension of the investigation
- Evaluate the suitability of the protocol, the research team, the written information on the characteristics of the research and the possible compensations for the participants and researchers, in relation to the objectives of the study
- Evaluate the exposure of the subjects to possible risks and discomforts based on the expected benefits
- Know the functions of the different ethics committees

- Have the ability to use the methodology of solving bioethical problems and apply it in the most frequent cases

## Competences

CB1 That students have demonstrated possession and understanding of knowledge in an area of study that is based on general secondary education, and is usually found at a level that, although supported by advanced textbooks, also includes some aspects that involve knowledge from the forefront of their field of study CE52. Apply knowledge of animal biology necessary to be able to experiment with animals.

CB2 That students know how to apply their knowledge to their work or vocation in a professional way and possess the skills that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study.

CE52. Apply knowledge of animal biology necessary to be able to experiment with animals.

CE53. Correctly apply the legal bases and principles of bioethics related to the development and application of molecular and cellular methodologies in the practice of biomedical sciences and life sciences.

CE54 Recognize and apply measures to avoid ecological-environmental problems in the development and application of life sciences.

## Methodology

**To achieve the objectives and acquire the attributed competences, the following activities will be programmed:**

### **- Master classes. (CM)**

They will be carried out with all the students and are not compulsory. Exceptionally, to adapt to the restrictions imposed by the Covid19, the master classes will be held by synchronous videoconference or through slide presentations that incorporate voice recording, highlighting those aspects that will be useful in their training as biomedical researchers. Bibliographies, films, simulations and enlightening medical-legal documents will also be provided to complement the specific teaching.

Their purpose is to give an overview of the thematic content highlighting those aspects that will be useful in their training as researchers in biomedicine.

### **- Seminars. (Sem)**

They will be carried out with 1/2 of the students, they are compulsory and must be carried out with the corresponding group. Exceptionally, they will be done with the videoconferencing tool.

The seminars are intended for students to apply the theoretical concepts and delve into the most relevant and complex aspects of the topics.

The seminars include the activities of focus groups, case discussions, video - forums, etc. and simulations (roleplaying)

### **- Virtual activities. (Av)**

These activities will be carried out through Virtual Campus UdL (Sakai)

Taking advantage of this space, the students will do different activities related to the preparation of thematic contents, the application of concepts, teamwork and the completion of assignments.

### **-Tutorials. (Tut)**

They will be carried out with 1/2 of the students, they are compulsory and must be carried out with the assigned group. It is an activity that will be carried out as a closing of a thematic group. Its purpose will be to share the

thematic contents, guide learning avoiding dispersion, clarify doubts and establish a conceptual diagram.

### **-Practices in the animal facility (PAF).**

They will be carried out in a small group (1/8 of the students), they are compulsory and will take place in the morning at the facilities of the SCT-Estabulari de Rosegadors of the UdL

The practicals in the animal facility are intended for the students to know the housing conditions and the tasks that are carried out on a regular basis.

As a requirement, biosafety principles must be followed. The students cannot have contact with rodents, at least 1 week before. Also during the previous 48 hours, it may not have been in another animal facility or animal farm.

## **Development plan**

### **Animal experimentation:**

- Animal Models Seminar: The student will be able to recognize the different types of animal models from a bibliographic search in PubMed on a prevalent disease. In the seminar the instructions of the activity will be given and this must be presented within a week, through the Virtual Campus. (0.5 points)

- Ethics Seminar in Animal Experimentation. The students will delve into the ethical use of experimental animals, and the moral aspects of research (0.5 points).

- Severity of Procedures and Projects: As a group, students will analyze different examples of projects and procedures with experimental animals, to classify them according to their severity and the type of project, as a researcher would do in front of a research project . There will be a pooling and the divergences will be discussed, and finally the result of the group discussion (0.5 points) will be delivered through the Campus.

- Finally, the students will do Practices one morning at the animal facility. It is intended to know the basic and biosafety rules of access and use of protective clothing. The students will be able to visit the conventional level facilities and observe the activity of the technicians and researchers (0.5 points). The students must present before the exam of this part of the subject a report that collects the main aspects of the visit, as well as their personal assessment. (2 points)

It is **MANDATORY** to be able to do the practices at the SCT-Estabulari de Rosegadors, and for Biosafety reasons, that the students do not have contact with any type of animals 24 hours before carrying out the practices, and specifically with rodents (rats, mice, hamsters, gerbils, ...) 1 week before.

They cannot carry the mobile phone.

They will be provided a gown, shoe cover, hat, mask and gloves.

## **Evaluation**

The final note will be the sum of the different aspects evaluated and according to the following considerations:

1. Students must overcome the evaluation of each of the 3 parts of the subject (minimum note of each part 5 out of 10).
2. In order to approve the subject, you must obtain a note equal to or greater than 5 of each theoretical exam.
3. Global, provided that the required minimums of the theoretical evaluation of the 3 parts of the subject have been exceeded, to the resulting note, the note of the continued evaluation may be added.
4. Continuous evaluation is not recoverable.
5. There will be 2 period periods: In the first, the concepts of the basis for animal experimentation will be

assessed. In the second, the knowledge of legal and bioethical aspects will be evaluated.

**6. Legal Aspects** (33.3% of the total note):

- The theory exam will account for 60% of the final grade.
- The seminars and the presentation of the works are equivalent to 40% of the note. Group work and their oral defense in class will be evaluated. The individual contributions, the quality of the defense of the work and the activity carried out by each of the students will be valued.

| <b>Evaluation activity</b> | <b>Types of evaluation</b> | <b>Explanation</b>   | <b>Points</b> |
|----------------------------|----------------------------|--|---------------|
| 1                          | Theoretical evaluation     | Test and development questions   | 6             |
| 2                          | Formative evaluation       | Assistance and participation in seminars (100%)                          | 2             |
| 3                          | Group/ Individual Work     | Group work and oral defence development. Group and individual assessment | 1+1           |

**1. Bioethics** (33.3% of the total note)

| <b>Evaluation activity</b> | <b>Types of evaluation</b> | <b>Explanation</b>  | <b>Points</b> |
|----------------------------|----------------------------|---|---------------|
| 1                          | Theoretical evaluation     | Short questions   | 6             |
| 2                          | Formative evaluation       | Resolution of a case in which there is a bioethics dilemma  | 2             |
| 3                          | Individual Work            | Performing individual work and defence in class   |               |
| 4                          | Special participation      | Extraordinary contributions in the classroom or virtual space and adequate monitoring of the different deadlines for delivery of work and exercises. At the discretion of the faculty | 1+1           |

**1. Animal Experimentation** (33.3% of the total note)

| <b>Evaluation activity</b> | <b>Types of evaluation</b> | <b>Explanation</b>   | <b>Points</b> |
|----------------------------|----------------------------|--|---------------|
| 1                          | Theoretical evaluation     | Test questions (30)  | 6             |
| 2                          | Formative evaluation       | Attendance and participation in seminars and practices. Delivery of activities | 2             |

| Evaluation activity | Types of evaluation   | Explanation   | Points |
|---------------------|-----------------------|---|--------|
| 3                   | Individual Work       | Presentation of a memory of practices with animals  | 2      |
| 4                   | Special participation | Extraordinary contributions in the classroom or virtual space and adequate monitoring of the different deadlines for delivery of work and exercises. At the discretion of the faculty | 1      |

Alternative assessment:

According to the regulations current evaluation

The subject will be evaluated by means of a written test that will include the theoretical evaluation of each one of the parts of the subject (33% Legal Aspects, 33% Bioethics, 33% and Basis for handling animals 33%) (see above). and that will mean 100% of the total mark, and will be carried out in the second period of examination of the subject.

The recovery of the alternative evaluation will take place on the same day set in the exam period

It is mandatory to attend practices in the animal facility

1. Alternative assessment:

- a. According to the regulations current evaluation
- b. The subject will be evaluated by means of a written test that will include the theoretical evaluation of each one of the parts of the subject (33% Legal Aspects, 33% Bioethics, 33% and Basis for handling animals 33%) (see above). and that will mean 100% of the total mark, and will be carried out in the second period of examination of the subject.
- c. The second-chance alternativa examination will take place on the same day set in the exam period
- d. It is mandatory to attend practices in the animal facility

## Bibliography

### Ethical aspects

- BEAUCHAMP TL, CHILDRESS JF. Principios de ética biomédica. Masson, S.A, Barcelona, 1999
- COUCEIRO A. Bioética para clínicos. Editorial Triacastela, Madrid, 1999
- FERRER JJ, ALVAREZ JC. Para fundamentar la bioética. Desclée de Brouwer, Bilbao, 2003.

### OTHER ADDITIONAL BOOKS

- ABEL F. Bioética, orígenes, presente y futuro. Fundación Mapfre Medicina, Barcelona, 2001.
- AMOR PAN JR. Introducción a la bioética. PPC, Madrid, 2005
- ANTÓN ALMENARA P. Ética y legislación. Barcelona: Masson-Salvat; 2000.
- GRACIA D. Fundamentos de la bioética. Madrid: Eudema; 1989.
- GRACIA D. Como arqueros al blanco. Estudios de bioética. Editorial Triacastela, San Sebastián, 2004.
- MEDINA CASTELLANO D. Ética y legislación. Madrid: DAE; 2002.
- TOMAS GARRIDO GM (coord.). Manual de Bioética. Barcelona: Ariel Ciencia; 2001.

## JOURNALS

Revista electrònica bioètica i debat

<http://www.bioetica-debat.org/>

## Animal Experimentation

- P. FLECKNELL. Laboratory animal anesthesia. 4 th Edition. Academic Press Ltd: London. 2015.
- A.L. JOYNER (Editora) Gene Targeting. A practical approach. Oxford University Press. 2000.
- CC. PÉREZ GARCÍA, M.I. DÍEZ, P. GARCÍA. Introducción a la experimentación animal. Universidad de León: Ponferrada. 1999.
- R.M. TORRES, R. KÜHN. Laboratory protocols for conditional gene targeting. Oxford University Press. 1997.
- JM. ZÚÑIGA, J.A. TUR, S.N. MILOCCO, R. PIÑEIRO. Ciencia y Tecnología en protección y experimentación animal. McGraw-Hill Interamericana: Madrid. 2001.
- CARL A. PINKERT. Transgenic animal technology: a laboratory handbook 3r ed. Academic Press, cop. 2014: San Diego, Calif.
- J. RODRIGUEZ MARTINEZ, MD. HERNANDEZ LORENTE, J DE COSTA RUIZ. Introducción a la experimentación con animales Murcia. Universidad de Murcia. 2001.
- MA. SUCKOW, FA. DOUGLAS, RH. WEICHBROD. Management of Laboratory Animal Care and Use Programs. New York, National Research Council. Boca Raton CRC Press. 2002.
- JD FORTMAN, TA HEWETT, BT BENNETT, MA SUCKOW. The Laboratory Nonhuman Primate. Laboratory Animal Pocket References. CRC Press. 2001
- CK. AKINS; S PANICKER, CL. CUNNINGHAM. Laboratory Animals in Research and Teaching: Ethics, Care, and Methods. 2004
- C PACHARINSAK, JC SMITH. Handbook of Laboratory Animal Anesthesia and pain Management Rodents. CRC Press. 2017

## INTERESTING INTERNET ADDRESSES TO CONSULT

### Legal Aspects

[http://www.boe.es/aeboe/consultas/bases\\_datos/doc.php?id=BOE-A-2007-12945](http://www.boe.es/aeboe/consultas/bases_datos/doc.php?id=BOE-A-2007-12945)

### Ethical Aspects

Actualidad en derecho Sanitario:

[www.actualderechosanitario.com](http://www.actualderechosanitario.com)

Asociación Española de Derecho Sanitario:

[www.aeds.org](http://www.aeds.org)

Institut Borja de Bioètica – Universitat Ramon Llull

[http://www.ibbioetica.org/in\\_cat.html](http://www.ibbioetica.org/in_cat.html)

Observatori de Bioètica i Dret de la Universitat de Barcelona



<http://www.ub.edu/fildt/>

Comitè de Bioètica de Catalunya

<http://www.gencat.net/salut/depsan/units/sanitat/html/es/dir89/spbioe00.htm>

Declaración de Derchos Humanos

[www.unhchr.ch/udhr/lang/spn.htm](http://www.unhchr.ch/udhr/lang/spn.htm)

Ministerio de Sanidad

[www.msc.es](http://www.msc.es)

Organización mundial de la Salud

[www.who.es](http://www.who.es)

## **Animal Experimentation**

Ministerio de Agricultura, Pesca y Alimentación. Bienestar en las experimentación

(<https://www.mapa.gob.es/es/ganaderia/temas/produccion-y-mercados-ganaderos/bienestanimal/en-la-investigacion/default.aspx>)

Generalitat de Catalunya. Departament de Territori

([http://mediambient.gencat.cat/es/05\\_ambits\\_dactuacio/patrimoni\\_natural/](http://mediambient.gencat.cat/es/05_ambits_dactuacio/patrimoni_natural/))

Generalitat de Catalunya. Tràmits

(<https://canalempresa.gencat.cat/es/tramits-i-formularis/per-nom/?queryNat=experimentaci%C3%B3+animal>)

Animales de experimentación

(<http://www.anidex.com/>)

Laboratory Animal Sciences

(<http://www.labanimal.com/>)

Laboratory animals

(<http://www.LAL.ORG.UK/labanimal.htm>)

FELASA. Federation of european laboratory animal science associations

(<http://www.felasa.eu/>)

SECAL. Sociedad española para las ciencias del animal de laboratorio.

(<http://www.secal.es/>)

EURL ECVAM. European centre for the validation of alternative methods

(<https://ec.europa.eu/jrc/en/eurl/ecvam>)

NC3Rs. National Centre for the Replacement, Refinement & Redution of Animals in Research

(<https://www.nc3rs.org.uk/>)

