

### **IDENTIFICATION DETAILS**

Degree:	Biotechnology				
Scope	Biology and Genetics				
Faculty/School:	Experimental Sciences				
Course:	ADVANCED BIOETHICS				
Туре:	Optional		ECTS credits:	3	
Year:	4		Code:	20	052
		-			
Teaching period:	Seventh semester				
Subject:	Social Aspects of Biotechnology				
Module:	Social, Historical and Economic Aspects of Biotechnology				
Teaching type:	Classroom-based				
Language:	Spanish				
Total number of student study hours:	75				

### SUBJECT DESCRIPTION

The course of Advanced Bioethics aims to deepen the social and moral dilemmas that Biotechnology as a discipline faces and whose analysis began through the subject of Ethics and Bioethics. The scientist cannot remain oblivious to the social and moral implications that his work generates. Although the resolution of these dilemmas must be generated from a multidisciplinary team of professionals, including philosophers, jurists, sociologists, psychologists, etc., the biotechnologist must also be part of this team. To do this, he must be able to remain sensitive to the implications of all kinds (and, therefore, beyond the purely scientific-experimental) that his work poses and be able to enter into a common dialogue with professionals from other areas with whom he will have to work closely. This common dialogue will only be possible from the biotechnologist's side if he has minimal tools in his training background in areas such as bioethics or law.

The Advanced Bioethics course is designed as an optional subject for all those students who wish to focus their

future professional activity on this particular area and who, therefore, require an in-depth analysis of issues that were raised in a relatively basic way in the subject of Ethics and Bioethics.

### GOAL

The objective of the course of Advanced Bioethics is to be able to provide a detailed picture of the main current bioethical issues under the triple scientific, philosophical/ethical and social/legal perspectives. As mentioned, based on the basic knowledge acquired in the subject of Ethics and Bioethics, the analysis of the relevant issues will be deepened so that the student develops a deeper knowledge of Bioethics and in this way:

The specific aims of the subject are:

To train a biotechnologist in a more comprehensive way.

Put him in a better position if he wishes to direct his future professional activity to this area.

### PRIOR KNOWLEDGE

It would be advisable (although it is not a requirement as such for enrollment in this subject) if the student had successfully passed the subject of Ethics and Bioethics. In addition, a basic knowledge of molecular biology, classical and molecular genetics and philosophical anthropology must be the basic framework from which to build the intellectual discourse of the subject.

### **COURSE SYLLABUS**

TOPIC 1: THE PRINCIPLES OF BIOETHICS. Epistemological basis of bioethics. Classical approaches in Aristotelian/Thomist/Personalist ethics. Alternative approaches.

TOPIC 2: BIOETHICAL MODELS. Analysis of the main schools of bioethics in the world (anthropological and moral vision). Descriptive ethics. Sociobiological model. Subjectivist or liberal-radical model. Pragmatico-utilitarian model. Contractualist model. Phenomenological model. Principalist model.

TOPIC 3: BIOETHICS COMMITTEES. The reason for bioethics committees. Budgets necessary for the formation of bioethics committees. The problem of criteria and reference values. Parameters for the preparation of an ethical judgment in a bioethics committee. Functions and characteristics of bioethics committees. Bioethics committees around the world.

TOPIC 4: ENVIRONMENTAL BIOETHICS. Impact of man on the environment. The question of transgenic crops. Market for transgenic crops. Impact on local markets. Impact of transgenic crops on the environment. Impact of transgenic crops on men's health.

TOPIC 5: ANIMAL EXPERIMENTATION. Origins and history of animal experimentation. Advantages and disadvantages. Analysis of social perception surrounding animal experimentation. The issue of animal rights. The 3 R's: Reduction, Refinement, Replacement.

TOPIC 6: HUMAN GENOME. Human Genome and Genetic Determinism. The discussion surrounding eugenics and its supposed justification based on genetics. Use of genetic information. Informed consent and confidentiality. Gene patents: legal status in the world's main biotechnological scenarios and ethical implications.

TOPIC 7: GENE THERAPY. Gene therapy: types, backgrounds, successes and failures. Major Genome

Modification Technologies. Use of CRISPR/Cas9 technology for the modification of the human genome (adul	ts
and embryos). Ethical implications.	

## **EDUCATION ACTIVITIES**

The course will follow a methodology articulated in several elements:

Participatory exhibition class. Seminars, round tables, workshops, tutorials, debates, etc. Practical classes: exercises and case studies. Autonomous study: theoretical study and preparation of face-to-face activities. - Evaluation.

# DISTRIBUTION OF WORK TIME

TEACHER-LED TRAINING ACTIVITIES	INDIVIDUAL WORK		
32 Horas	43 Horas		

### SKILLS

### **Basic Skills**

Students must have demonstrated knowledge and understanding in an area of study that is founded on general secondary education. Moreover, the area of study is typically at a level that includes certain aspects implying knowledge at the forefront of its field of study, albeit supported by advanced textbooks

Students must be able to apply their knowledge to their work or vocation in a professional manner and possess skills that can typically be demonstrated by coming up with and sustaining arguments and solving problems within their field of study.

Students must have the ability to gather and interpret relevant data (usually within their field of study) in order to make judgments that include reflections on pertinent social, scientific or ethical issues

Students must be able to convey information, ideas, problems and solutions to both an expert and non-expert audience

Students must have developed the learning skills needed to undertake further study with a high degree of independence

To acquire firm theoretical, practical, technological and humanistic training needed to develop professional activity.

To understand the social, economic and environmental implications of professional activity.

To understand the ethical implications of professional and personal activity.

To have acquired the ability for analytical, synthetic, reflective, critical, theoretical and practical thought.

Capacity for problem-solving and decision-making.

To recognize the mutual influence existing between science, society and technological development in order to strive for a sustainable future.

#### **General Skills**

To acquire firm theoretical, practical, technological and humanistic training needed to develop professional activity.

To understand the social, economic and environmental implications of professional activity.

To understand the ethical implications of professional and personal activity.

To have acquired the ability for analytical, synthetic, reflective, critical, theoretical and practical thought.

Capacity for problem-solving and decision-making.

To recognize the mutual influence existing between science, society and technological development in order to strive for a sustainable future.

#### Specific skills

Identify the basic principles of ethics and bioethics and apply them in personal and professional life.

Develop habits of rigorous thinking.

Analyze and synthesize the main ideas and contents of all types of texts; discover the theses contained in them and the issues they raise, and critically judge their form and content.

### LEARNING RESULTS

Dialogue, confronting the various personal moral positions, to find a solution to the various problems analyzed that

is agreed upon but that does not renounce being based on an ultimate horizon of reality.

Apply the methodology followed by bioethics committees when dealing with the study of social and moral problems generated by sciences in the area of nature and health.

Identify the social and moral problems that advances in the area of life sciences generate.

Analyze the problems identified in the light of the moral principles specific to the various schools of bioethical thought.

## LEARNING APPRAISAL SYSTEM

Ordinary evaluation system.

The subject will be evaluated by dividing the grade between:

Theory exams, 50%

Preparation and presentation of papers, proposed cases, exercises and other complementary activities, 40% Participation in class development and debates, 10%

In order to be considered successful the subject, a minimum score of 5 must be obtained in the first two points of the evaluation. If the minimum grade is obtained in one of the points but not in the other, the subject will be considered not passed. For the extraordinary call within the corresponding course, the grades of those parts of the evaluation that are passed will be saved. If the regular call does not pass the evaluation of the second point, in the face of the extraordinary one, students must prepare a new case even if it is not going to be presented in public. This new case will be evaluated in writing and orally by the subject teacher.

Alternative evaluation system.

For students in second enrollment and in a situation of academic dispensation, they will be evaluated with the same criteria described above, with the same percentages for the qualification of each of the components of the evaluation. Students who are in this situation should contact the teacher to request to take advantage of this system.

Plagiarism, as well as the use of illegitimate means in evaluation tests, will be sanctioned to those established in the Evaluation Regulations and the University's Coexistence Regulations.

# ETHICAL AND RESPONSIBLE USE OF ARTIFICIAL INTELLIGENCE

1.- The use of any Artificial Intelligence (AI) system or service shall be determined by the lecturer, and may only be used in the manner and under the conditions indicated by them. In all cases, its use must comply with the following principles:

a) The use of AI systems or services must be accompanied by critical reflection on the part of the student regarding their impact and/or limitations in the development of the assigned task or project.

b) The selection of AI systems or services must be justified, explaining their advantages over other tools or methods of obtaining information. The chosen model and the version of AI used must be described in as much detail as possible.

c) The student must appropriately cite the use of AI systems or services, specifying the parts of the work where they were used and describing the creative process followed. The use of citation formats and usage examples may be

consulted on the Library website(<u>https://www.ufv.es/gestion-de-la-informacion\_biblioteca/</u>). d) The results obtained through AI systems or services must always be verified. As the author, the student is responsible for their work and for the legitimacy of the sources used.

2.- In all cases, the use of AI systems or services must always respect the principles of responsible and ethical use upheld by the university, as outlined in the <u>Guide for the Responsible Use of Artificial Intelligence in Studies at UFV</u>. Additionally, the lecturer may request other types of individual commitments from the student when deemed necessary.

3.- Without prejudice to the above, in cases of doubt regarding the ethical and responsible use of any AI system or service, the lecturer may require an oral presentation of any assignment or partial submission. This oral evaluation shall take precedence over any other form of assessment outlined in the Teaching Guide. In this oral defense, the student must demonstrate knowledge of the subject, justify their decisions, and explain the development of their work.

# **BIBLIOGRAPHY AND OTHER RESOURCES**

### Basic

Elio Sgrecia. Bioethics Manual.1,: Foundations and Biomedical Ethics/Madrid:Library of Christian Authors, 2009.

Elio Sgrecia. Bioethics Manual.II, medical-social aspects/Madrid: Library of Christian Authors, 2014.