UNIVERSITATEA DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
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No._____of _____ **USAMV form 0701030220**

SUBJECT OUTLINE

1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Food science and technology
1.3. Department	Food science
1.4. Field of study	Agri-food engineering
1.5.Education level	Bachelor / Master
1.6.Specialization/ Study programme	Technology of Agricultural Products Processing
1.7. Form of education	Full time

2. Information on the discipline

2.1. Name of the discipline	Genetically modified organisms							
2.2. Course coordinator				SL. dr. Lucian Cuibus				
2.3. Seminar/ laboratory/ project coordinator				SL. dr. Lucian Cuibus				
2.4. Year of study	3	2.5. Semester	**VI**	2.6. Type of evaluation	continuous	2.7. Discipline status	Content[2]	DC
							Compulsoriness [3]	DO

3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	2	out of which: 3.2. lecture	1	3.3. seminar/ laboratory/ project	1
3.4.Total number of hours in the curriculum	28	Out of which: 3.5.lecture	14	3.6.seminar/laboratory	14
Distribution of the time allotted					hours
3.4.1. Study based on book, textbook, bibliography and notes					6
3.4.2. Additional documentation in the library, specialized electronic platforms and field					5
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					5
3.4.4.Tutorials					2
3.4.5.Examinations					4
3.4.6. Other activities					
3.7. Total hours of individual study	22				
3.8. Total hours per semester	50				
3.9. Number of credits[4]	2				

4. Prerequisites (is applicable)

4.1. curriculum-related	
4.2. skills-related	The student must have knowledge of genetically modified organisms.

5. Conditions (if applicable)

5.1. for the lecture	Internet connection required to access the platform, course media support

	In the case of the didactic activity carried out online, the teaching methods are adapted. The course is interactive, students can ask questions regarding the content of lecture. Academic discipline requires compliance with the start and end of the course. We do not allow any other activities during the lecture, mobile phones will be turned off.
5.2. for the seminar/ laboratory/ project	Seminar room. In the case of the didactic activity carried out online, the teaching methods are adapted.

6. Specific competences acquired

Professional competences	C1 Identification, description and appropriate use of notions specific to food science and food safety. Development of the capacity for a multidisciplinary approach (biology, philosophy, anthropology, food engineering, etc.) of bioethical aspects resulting from biotechnological applications; Cognitive skills: knowledge and appropriate use of notions specific to biochemistry, food microbiology; Action skills: documentation; team work; Description and use of basic concepts, theories and methods used in food quality control and expertise, related to the chemistry of compounds that determine the quality and traceability of food, the transformations they undergo during processing, transport and storage, apparatus and methods of determination and analysis of these compounds and related legislation. ABILITIES: C2 Explain and interpret the concepts, methods and models used in food control and expertise, using basic knowledge of the chemistry of compounds that determine quality and traceability foodstuffs, the processing which they undergo during processing, transport and storage, the methods of determining and analyzing these compounds and the relevant legislation C3 Apply basic principles and methods to solve the problem of food quality control and expertise.
Transversal competences	CT1 Applying strategies of perseverance, rigor, efficiency and responsibility at work, punctuality and taking responsibility for the results of personal activity, creativity, common sense, analytical and critical thinking, problem solving, etc., based on the principles, norms and values of the code of ethics professional in the food field. CT2. Applying interrelation techniques within a team; amplifying and refining the empathic capacities of interpersonal communication and of assuming specific attributions in carrying out the group activity in order to treat / resolve individual / group conflicts, as well as the optimal time management. Critical approach of some case studies on the approached topic; Clarification and analysis of their own ethical and bioethical opinions regarding the applications of biotechnology in bioindustry, medicine, agriculture, environment, based on bioethical principles and risk-benefit analysis.

7. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	Familiarizing students with the fundamental concepts of methods and principles that guide research in the field of food biotechnology and genetically modified organisms Knowledge of the concept of "genetically modified food"

	Knowledge of the advantages and disadvantages induced by obtaining and using genetically modified foods Knowledge of the main methods for detecting genetically modified foods
7.2. Specific objectives	Problematizing the conflicting aspects of scientific progress and cutting-edge technologies in relation to established ethical values Sensitizing future specialists to comply with the rules of commercial, legal or self-regulatory communication

8. Content

8.1.LECTURE **Number of hours –**	Teaching methods Lecture	Notes 1 lecture = 2 hours
Introduction. Definitions. History of genetically modified foods	Lecture	2
Methods of genetic modification. Recombinant DNA technology. Free DNA technology. Types of applications of genetic modifications to obtain products of plant and animal origin.	Lecture	2
Arguments for and against the use of genetic modification. The benefits of using genetic modifications: on crop plants, on the quantity and quality of food, on the food and biotechnology industry, on animals, on the environment.	Lecture	2
Attitudes towards obtaining and consuming genetically modified foods: impact on the environment, spread of genetically modified organisms through pollen, allergenicity, resistance to the action of viruses, transfer of antibiotic resistance, the emergence of new natural toxins.	Lecture	2
The impact of genetically modified foods on living organisms: the impact on the immune, digestive, respiratory, metabolism	Lecture	2
Legislative provisions at national, European and international level regarding genetically modified foods. Labeling of genetically modified foods.	Lecture	2
Genetically modified foods versus organic foods. Map of genetically modified foods in the world, Europe, Romania.	Lecture	2

8.2. PRACTICAL WORK **Number of hours –**	Theoretical presentation of practical works	1 lab work (2 hours / work)

Introduction and presentation of the object Bioethics vs. Ethics. Presentation of the topics for the essay Information resources. Database. Professional bodies and organizations The relations between ethics, bioethics, politics and economics.	Presentation, explanation, demonstration, case study	2
Assessment of students' general knowledge about genetically modified organisms and genetically modified foods. Watch the movie: "From Seed to the Supermarket" and discussing the aspects viewed.	Case studies. Interactive discussions	1
Genetically modified organisms in agri-food research	Interactive discussions	1
Companies with activity: production of genetically modified organisms (Montsanto). Genetically modified foods versus organic foods	Interactive discussions	1
Case study: labeling of genetically modified foods. Monitoring the existence of inscriptions on food labels regarding the inclusion of modified plant / animal products genetically in the composition of that food. Reporting on national, European and international labeling legislation.	Interactive discussions	1
Debate: genetically modified foods. Students will present pros and cons from the point of view view of biotechnology companies, farmers, consumers, traders.	Interactive discussions	1
Slow Food vs Fast food	Interactive discussions	1
Food sovereignty. Fair Trade	Interactive discussions	1
Production of local organic food	Interactive discussions	1
Thematic seminar at the proposal of the students (essay established in the first meeting).	Interactive discussions	2
Final colloquium		2

Compulsory bibliography:

Ion Copoeru, 2007, Societatea românească post-totalitară: resemnificarea autonomiei individuale şi a practicilor morale în profesii (with Nicoleta Szabo), in : Ion Copoeru, Nicoleta Szabo (coord.), *Dileme morale şi autonomie în contextul democratizării şi al integrării europene* [*Moral Dilemmas and Autonomy in the Contxt of Democratization and of the Access to EU*], Casa Cărţii de Stiinţă, Cluj-Napoca, pp. 15-25.
Ion Copoeru, 2007, *Despre anonimitate. Încercare de explicare ontologic-fenomenologică a teoriei blagiene a Marelui Anonim*, in : Meridian Blaga II, CCS, Cluj-Napoca, 2002, p. 47-53.
Fraslin J.M., 2007, *Bioethics in life and environmental sciences*, Brumar, Timisoara, România;
Glenn, McGee, 2003, Pragmatic Bioethics Basic Bioethics, MIT Press;
Jamieson D., 2002, *Morality's Progress*. *Essays on Humans, Other Animals, and the Rest of Nature*. Oxford, Oxford University Press.
G.M. Costin – Alimente ecologice, Editura Academica, Galati, 2008
C. Banu – Suveranitate, securitate si siguranta alimentara, Editura Asab, Bucuresti, 2007
https://www.youtube.com/results?search_query=From+Seed+to+the+Supermarket
Alte lucrări bibliografice

Optional bibliography:

* http://bioethics.od.nih.gov;
*. G.M. Costin – Alimente ecologice, Editura Academica, Galati, 2008
*. C. Banu – Suveranitate, securitate si siguranta alimentara, Editura Asab, Bucuresti, 2007
* Bio-Science Law Review
* Ethical Theory and Moral Practice: An International Forum
* http://ec.europa.eu/european_group_ethics/index_en.htm;
* REVISTA ROMANA DE BIOETICA http://www.bioetica.ro.

9. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field

The content of the discipline is in line with what is done in other university centers in the country and abroad.

10. Assessment

Type of activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
10.4. Lecture	To understand the evolution of bioethical concepts reflected in national and international regulations specific to the field of biotechnology; To identify the legislative requirements and the limits of the current regulations; To develop specific skills as opinion formers in the issue of bioethics and biotechnology;	Evaluation (min 2)	80%
10.5. Seminar/Laboratory	Development of critical thinking.	Final colloquium	20%
10.6. Minimum performance standards			
Minimum grade 5. Mastery of scientific information transmitted through lectures at an acceptable level and completion of an essay. Obtaining the passing grade for the ongoing checks is a condition of passability.			

[1] Level of study- to be chosen one of the following - Bachelor/Post graduate/Doctoral

[2] Course regime (content) – for bachelor level it will be chosen one of the following - **DF** (fundamental subject), **DD** (subject in the domain), **DS** (specific subject), **DC** (complementary subject).

[3] Course regime (compulsory level) - to be chosen one of the following - **DI** (compulsory subject), **DO** (optional subject), **DFac** (facultative subject)

[4] One ECTS is equivalent with 25-30 de hours of study (didactical and individual study).

Filled in on
8.09.2021

Course coordinator
Sl.Dr. Lucian Cuibus

Laboratory work/seminar coordinator
Sl.Dr. Lucian Cuibus

Subject coordinator
Prof. dr. Dan Vodnar

Approved by the Department on
22.09.2021

Head of the Department
Prof. Dr. Ramona Suharoschi

Approved by the Faculty Council on
28.09.2021

Dean
Prof. Dr. Elena Mudura