UNIVERSITATEA DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
Facultatea de Agricultură
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No._____of _____ **Form USAMV 0107030215**

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	Agriculture
1.3. Department	III Protection of the environment and plants
1.4. Field of study	Environmental Engineering
1.5. Cycle of study [1)]	Bachelor
1.6. Specialization/ Study programe	Environmental Engineering
1.7. Form of eduction	IF

2. Information on the discipline

2.1. Name of the discipline	Environmental global changes							
2.2. Holder of course activities				Lecturer Petru Burduhos PhD				
2.3. Holder of seminar / laboratory / project activities				Lecturer Petru Burduhos PhD				
2.4. Year of study	III	2.5. Semester	IV	2.6. Evaluatio type	Continue	2.7. Discipline status	Content[2]	DS
							Compulsoriness[3]	DO

3. Total estimated time(teaching hours per semester)

3.1. Number of hours per week - frequency form	4	Out of which: 3.2. lecture	2	3.3. seminar / laboratory / project	2
3.4. Total hours of the educational plan	56	Out of which: 3.5. lecture	28	3.6. seminar / laboratory	28

Distribution of the time fund	h
3.4.1. Study after manual, course support, bibliography and notes	10
3.4.2. Additional documentation in the library, on specialized electronic platforms and in the field	10
3.4.3. Preparation of seminars / laboratories / projects, topics, reports, portfolios and essays	5
3.4.4.Tutorials	4
3.4.5. Examinations	5
3.4.6. Other activities	

3.7. Total hours of individual study	34
3.8. Total hours per semester	90
3.9. Number of credits[4]	3

4. Preconditions (where applicable)

4.1. curriculum-related	Ecology; Natural resources; Ecological management.
4.2. of skills	Knowledge in the field of climatology.

5. Conditions (where applicable)

5.1. for the course	Classroom equipped with video projector and multi-media system.
5.2. for the seminar / laboratory / project	Room equipped with computer, video projector, Internet access, blackboard. Academic discipline is required for the entire duration of the work.

6. Specific skills acquired

Professional skills	Correct familiarization of future specialists with the current coordinates of the activities practical applications in this field, in order to eliminate the environmental dysfunctions and imbalances. Evaluation and analysis of natural and anthropic global changes; inventorying, ranking and differentiating the types of changes.
Transversal competences	Initiation of students in the analysis and interpretation of territorial relations, in the context of the framework legislative, normative and scientific of systemic evaluation and capitalization. Evaluation of the decision-making process and public debate on the environment.

7. The objectives of the discipline (based on the grid of specific skills acquired)

7.1. General objective	Realization of basic theoretical and methodological aspects in the knowledge of natural and anthropic environments, as a planetary component in interdependence.
7.2. Specific objective	Perception of natural and anthropic environmental problems.

8. Contents

8.1. .COURSE **NumBER OF HOURS – 28**	Teaching methods	Remarks
The terrestrial system. Perception Global changes	Lecture, interactive discussions	4 hours
Natural system. Anthropic system. Environment and landscape (natural and anthropic)	Lecture, interactive discussions	4 hours
Typology of changes: the problem Demographic changes	Lecture, interactive discussions	4 hours
Typology of changes: the problem Climate change	Lecture, interactive discussions	4 hours
Typology of changes: the ozone layer problem	Lecture, interactive discussions	4 hours
Typology of changes: the problem water sources and resources, land use change, deforestation, desertification, biodiversity, habitat degradation	Lecture, interactive discussions	4 hours
Typology of changes: urbanization and globalization	Lecture, interactive discussions	4 hours
8.2. PRACTICAL WORK **Number of hours - 28**		
Dynamics of climate change (I) - hydrosphere	Problematization,ppt presentations,	8 hour
Dynamics of climate change (II) - biosphere	Problematization,ppt presentations, Reports	6 hours
Dynamics of climate change (III) - agriculture		8 hour
Global hazards - global warming and extreme	Problematization,ppt presentations, Reports	6 hours

	Presentations regarding ppt	

Required bibliography:

1. Baciu, N. (2013), Gestionarea durabila a mediului urban si rural, note de curs, Ed. Bioflux, Cluj-Napoca
2. Baciu, N., (2006), Câmpia Transilvaniei. Studiu geoecologic, Ed. PUC, Cluj-Napoca.
3. Balteanu, D., Serban, Mihaela (2005), Modificarile globale ale mediului, Ed. Coresi, Buc.
4. Cândea, Melinda, Bran, Florina, Cimpoeru, Irina, (2006), Organizarea, amenajarea si dezvoltarea durabila a spatiului geografic, Ed. Universitara, Bucureşti

Optional bibliography:

1. Benedek, J., (2003), Dezvoltare regionala si amenajare teritoriala, PUC, Cluj-Napoca
2. Steffen, W., Sanderson, A. Tyson, P.D, Jager, J. (2004), Global Change and Earth System. A planet under pressure, Springer.

9. Corroborating the contents of the discipline with the expectations of the representatives of the epistemic communities, professional associations and representative employers in the field related to the program

The discipline integrates with areas of critical interest currently internationally, such as the detection and determination of chemical compounds at trace levels present in the mixture in various environmental factors. The studied discipline offers the graduates the ability to contribute to solving complex situations related to pollution and its effects.

10. Evaluare

Activity type	10.1. Evaluation criterias	10.2. Methods of evaluation	10.3. Weight in the final grade
10.4. Cours	Assessment during the course	C (continue)	70%
10.5. Seminar / Laboratory	During the evaluation of the acquisition of the practical activities	Ongoing evaluation, by means of oral verification tests	30%
10.6. Minimum standard of performance			
Knowledge of 70% of the information contained in the course and Knowledge of 60% of the information from the seminar.			

[1] The cycle of studies - one of the variants is chosen - Bachelor / Master / Doctorate

[2] The regime of the discipline (content) - for the license level one of the variants is chosen - DF (fundamental discipline), DD (discipline in the field), DS (specialty discipline), DC (complementary discipline).

[3] The regime of the discipline (compulsory) - one of the variants is chosen - DI (compulsory discipline) DO (optional discipline) DFac (optional discipline).

[4] The regime of the discipline (compulsory) - one of the variants is chosen - DI (compulsory discipline) DO (optional discipline) DFac (optional discipline).

Date completed
04.09.2019

Course holder
Lecturer Petru Bududos PhD

Holder of laboratory works / seminars
Lecturer Petru Bududos PhD

Date of approval in the department
05.09.2019

Department Director
Professor, PhD, Ioan OROIAN