ROMANIA
MINISTRY OF NATIONAL EDUCATION

UNIVERSITY OF CRAIOVA
FACULTY OF HORTICULTURE

A.I.Cuza Street, no.13, cod 200585, CRAIOVA, DOLJ, Romania
Phone.: 0251/414541
Fax: 0251/414541; e-mail: fh_secretariat@yahoo.com

PACKAGE OF COURSES

Master's degree programme: BIODIVERSITY AND CONSERVATION OF ECOSYSTEMS

This is the package of course of master's degree programme of Biodiversity and conservation of ecosystems from the University of Craiova/ the Faculty of Horticulture/The Department of Biology and Environmental Engineering.

1ST YEAR OF STUDY

ELEMENTS OF SYSTEMS ECOLOGY

CODE: D30BCEM101
CREDITS: 7
COURSE HOLDER: Senior Lecturer, PhD, Dragoş Mihail ŞTEFĂNESCU
YEAR/SEMESTER: 1st year/ 1st semester
NUMBER OF HOURS PER WEEK: 2 hours course, 1 hour practical course
NUMBER OF WEEKS: 14
COURSE TYPE: Deepening study
COURSE OBJECTIVES: The aim of the course is to know the structural and functional aspects of ecological systems as an essential condition for understanding how these systems work to develop rules of rational exploitation and protection of them.
THEMES: Systemic organization of the living world, types of systems, general attributes of biological systems and the hierarchy of biological systems; hierarchical organization of nature and human society; the relationships between the taxonomic hierarchy and the hierarchy of supra-individual biological systems; homomorphic models; organizational evolution of the population, intraspecific relations - the main processes involved in the realization of the essential strategy of the populations; structure of socio-ecological complexes.
LANGUAGE OF INSTRUCTION: romanian
KNOWLEDGE ASSESSMENT: exam answers 80% + 20% practical course
ASSESSMENT TYPE: exam
BIBLIOGRAPHY:
Begon M.; Harper J.L.; Townsend C.R.- *Ecology*, Blackwell Science, 2000
Botnariuc N.; Vădineanu A. - *Ecologie*, Ed. Did. şi Ped., Bucureşti, 1982
Damian Carmen-Gabriela - *Analiza functionala a sistemelor ecologice din zona inundabila a sectorului inferior al Dunarii* , Bucuresti : Universitatea din Bucuresti, Facultatea de Biologie, Departamentul de Ecologie Sistemica si Dezvoltare Durabila, 2007
Dediu I. - *Ecologie sistemica*, Chisinau : Editura Phoenix, 2007
Vadineanu A. - *Managementul dezvoltarii* : O abordare ecosistemica / - Bucuresti : Ars Docendi, 2004
Popescu Cristina-Maria-*Contributii la cunoasterea interdependentelor dintre diversitatea modulelor trofodinamice si procesele eclogice din sistemele naturale*, Bucuresti, Facultatea de Biologie. Departamentul de Ecologie Sistemia si Sustenabilitate, 2007

BIODIVERSITY OF THE LIVING WORLD

CODE: D30BCEM102
CREDITS: 8
COURSE HOLDER: Lecturer PhD. Luminița Mariana OLARU

YEAR/SEMESTER: 1st year/ 1st semester
NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours seminary
NUMBER OF WEEKS: 14
COURSE TYPE: Synthesis study
COURSE OBJECTIVES: The course provides information on plant and animal biodiversity, the value and utility of biodiversity, the dynamics of biodiversity and the consequences of human activities on it.
THEMES: Diversity of species, genetic diversity, community diversity and ecosystem diversity. Measuring biological diversity. Geographical distribution of biodiversity. Mechanisms that determine the diversity of life. Biodiversity at community level. Biodiversity and the functioning of ecological systems. Dynamics of biodiversity and consequences of human activities. Value and usefulness of biodiversity.
LANGUAGE OF INSTRUCTION: Romanian
KNOWLEDGE ASSESSMENT: Final theoretical exam 60%, papers, essays, participation in debates 40%.
ASSESSMENT TYPE: Exam
BIBLIOGRAPHY:
Bălteanu, D., Şerban, Mihaela, 2005. Changes in the environment. An interdisciplinary assessment of uncertainties. Academia Publishing House, Bucharest.
Botnariuc N., Vădineanu A., 1982. Ecology. Didactic and Pedagogical Publishing House, Bucharest.
Botnariuc, N., 1992. Evolution where. Ed., Romanian Academy, Bucharest.
Ciulache S., 1985. Climate of the Earth. Scientific and Encyclopedic Publishing House, Bucharest.
Cristea D. M., 2006. Biodiversity. Ed. Ceres, Bucharest.
Gaston, K.J., Spicer, J.I., 1998. Biodiversity. An Introduction. Oxford: Blackwell Ltd.
Lupaşcu A., 2001. Biogeography. Romanian Tomorrow Publishing House, Bucharest.
Mănescu S., Cucu M., Diaconescu M., 1994. Sanitary environmental chemistry. Medical Publishing House, Bucharest.
Richard B. Primack, Păroşescu M., Rozylowicz L., Iojă C., 2002. Conservation of biological diversity. Technical Publishing House, Bucharest.

GRASSLANDS AND FORESTRY HABITATS

CODE: D30BCEM103
CREDITS: 8
COURSE HOLDER: Lecturer, PhD, Daniel RĂDUȚOIU
YEAR/SEMESTER: 1 st year/ 1 st semester
NUMBER OF HOURS PER WEEK: 2 hours course, 2 hour practical course
NUMBER OF WEEKS: 14
COURSE TYPE: deepening study
COURSE OBJECTIVES: Approaching the complex study of the structure and functions of pratice and forest phytocenoses, their relations with the abiotic and biotic environment, their spreading, type and classification, as well as the elaboration of principles and procedures of rational use and preservation.
THEMES: General aspects of Romanian habitats. Correspondence between the types of pratical and forest habitats in Romania and those of the international habitats classification systems. The geographical and ecological ambience in which the pratical habitats in Romania develop. Presentation of the main zonal units on latitude and altitude. Presentation of pratice

habitats from xeric, calcofile and silicic, mesophilic, wetlands and high herb communities (weeds) as well as those from the alpine and subalpine regions. Types of habitats in temperate forests of deciduous, coniferous, or meadow and marshland shrubs. Of the many habitats described, they will be characterized as the most significant.
LANGUAGE OF INSTRUCTION: Romanian
KNOWLEDGE ASSESSMENT: Final theoretical exam 70%, final practical exam 30%.
ASSESSMENT TYPE: exam
BIBLIOGRAPHY:
Ciocârlan V. 2009. *Flora ilustrată a României*. *Pteridophyta et Spermatophyta*. Edit. Ceres, Bucureşti,
CRISTEA V., GAFTA D. & PEDROTTI F. 2004. *Fitosociologie*. 360 pag. Edit. Presa Universitară Clujeană. Cluj-Napoca.
Doniţă N., Popescu A., Mihaela Paucă-Comănescu, Simona Mihăilescu, Biriş I-A. 2005. *Habitatele din România*. Edit. Tehnică Silvică Bucureşti: 177-256 pag.
Georgescu C. & Constantinescu N. 1943. *Tipurile naturale de pădure din regiunile şesurilor joase şi înalte ale Olteniei.* Revista pădurilor, nr. 12.
Sanda V., Răduţoiu D., Barabaş N., Claudia Biţă-Nicolae, Irina Blaj-Irimia. 2007. *Breviar fitocenologic* (partea III-a). 286 pag. Edit. Sitech. Craiova.

AQUATIC ECOLOGY

CODE: D30BCEM104
CREDITS: 7
COURSE HOLDER: Senior Lecturer, PhD. Bălescu Carmen Daniela
YEAR / SEMESTER: 2nd year / 1st semester
NUMBER OF HOURS PER WEEK: 2 course hours, 2 seminar hours
NUMBER OF WEEKS: 14
TYPE OF DISCIPLINE: deepening study
COURSE OBJECTIVES: Forming an overview on the knowledge of aquatic ecosystems, the understanding of the complex phenomena occurring in the aquatic basins and the interdependence of these phenomena. Learning the main physical, chemical and biological properties of aquatic ecosystems, as well as the complex relationships established between the different categories of aquatic organisms. Gaining knowledge about the main measures for preventing and combating water pollution. Developing skills to search for and select scientific information, to write a report on a given topic, to present it in front of an assistant, to have discussions on a scientific topic.
THEMES: Introduction to the Aquatic Ecosystem. Physical, chemical and biological characteristics of water. Freatology concepts: General characteristics of groundwater. Limnology concepts. The lotic ecosystem. Types of springs, streams, rivers: ecological characteristics of lotic biotopes and biocenosis. Lentic ecosystem: types of lentic ecosystems; General characteristics of lentic biotopes and biocenoses. Palustrian ecosystem: types of palustrian ecosystems; Ecological characteristics of biotopes and palustrian biocenosis. Ecosystem of marshes: types of marshes; Associations of aquatic organisms from a marshy ecosystem. Deltaic ecosystem. Notions of oceanology. Marine and oceanic ecosystem: the general structure of the marine and oceanic basin; Physical and chemical properties; Classification of seas and oceans; Diversity and organization of life forms from seas and oceans. Water pollution. Pollution sources and types of water pollutants. Strategies in the field of water quality protection.
TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESMENT: 60% answers from course notions + 40% practical notions (30% making papers and delivering a PP presentation in front of the colleagues + 10% overall activity in practical works: direct participation in discussions, interest, attendance)
ASSESMET TYPE: oral exam
SELECTIVE BIBLIOGRAPHY:
Botnariuc N., Vădineanu Al**.**, 1982. *Ecologie*. Editura Didactică şi Pedagogică, Bucureşti.
Gavrilescu Elena, 2008. *Poluarea mediului acvatic*. Editura Sitech, Craiova.
Gavrilescu Elena, 2009. *Evaluarea ecosistemelor acvatice*. Editura Sitech, Craiova.
Gâştescu P., 1971. *Lacurile din România*, Editura Academiei, Bucureşti
Gâştescu P., Ştiucă R., 2008. *Delta Dunării. Rezervaţie a Biosferei*.. Editura CD Press, Bucureşti.
Nikolski G. V., 1962. *Ecologia peştilor*. Editura Academiei a R.P.R., Bucureşti.
Pârvu C-tin., 2001. *Ecologie generală*. Editura Tehnică, Bucureşti.
Pişota I., Buta I., 1975. *Hidrologie*. Editura Didactică şi Pedagogică Bucureşti.
Pora E., Oros I., 1974. *Limnologie şi Oceanologie*. Editura Didactică şi Pedagogică, Bucureşti.
Rogoz I**.,** 1979. *Ecologia faunei acvatice din Câmpia Olteniei*. Editura Academiei R.S.R., Bucureşti.
Savin C., 2005. *Hidrologie şi protecţia calităţii apelor*. Editura Sitech, Craiova.

ENVIRONMENTAL LEGISLATION

CODE: D30BCEM205
CREDITS: 5
COURSE HOLDER: Lecturer PhD. Simona Mariana POPESCU
YEAR/SEMESTER: 1st year/ 2nd semester
NUMBER OF HOURS PER WEEK: 2 hours course, 1 hour practical course
NUMBER OF WEEKS: 14
COURSE TYPE: synthesis study
COURSE OBJECTIVES: Knowledge of legislation on the legal protection of environmental factors and national and international structures with environmental attributions. Developing the skills to obtain and process environmental data in order to reduce the impact of pollutants on the environment.
THEMES: Introduction to the environment. General environmental considerations. European Union and Romanian Environmental Legislation. Authorization of activities with environmental impact. Environmental permits. Legal liability in the field of environmental protection. The notion of environmental liability. Legal protection of air. Legal protection of waters. Legal protection of soil. Hazardous waste and waste regime. Regime of protected areas and natural monuments. Conservation of biodiversity.
LANGUAGE OF INSTRUCTION: Romanian
KNOWLEDGE ASSESSMENT: exam answers 70%, final answers for workshops 10%, periodical assessment through practical tests 10%, activities such as homework/ essays/ papers/ projects 10%.
ASSESSMENT TYPE: exam
BIBLIOGRAPHY:
Ciurea A., Cartas V., Stanciu C., Popescu M., 2005- Environmental management, vol.I., Didactica si Pedagogica Publishing, Bucuresti;

Ciolpan, O., 2005 - Integrated monitoring of ecological systems, Ars Docendi Publishing, Bucureşti;
Carmen Teodosiu, 2004 - Integrated environmental management -Ecozone Publishing Iasi;
Rojanschi, V., Bran, Florina, Diaconu, Gheorghiţa, 2002 - Environmental protection and engineering, Economică Publishing, Bucureşti;
Nicoara M., 2003 - Environmental legislation. Universitatii "Al. IOan Cuza" Publishing, Iasi;
Duţu, M., 2007 - Environmental Law. C. H. Publishing, Bucureşti.

QUANTITATIVE METHODS FOR MONITORING PLANTS AND ANIMALS

CODE: D30BCEM206
CREDITS: 7
COURSE HOLDER: Senior Lecturer, PhD, Dragoş Mihail ŞTEFĂNESCU
YEAR/SEMESTER: 1st year/ second semester
NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours practical course
NUMBER OF WEEKS: 14
COURSE TYPE: Deepening study
COURSE OBJECTIVES: This course provides information regarding the stages of building a sampling and monitoring program for organisms. Monitoring of plant and animal species is an integral part of conservation programs, this course being indispensable for future environmental specialists.
THEMES: Sampling design; the principles of sampling; ensuring representativeness of evidence; sampling, precision and reality; sample size and repetition; defining sample units; shape and size of sample units; replication; representativeness; the mathematical bases of sampling; random sampling General methods for assessing the abundance of organisms.
LANGUAGE OF INSTRUCTION: romanian
KNOWLEDGE ASSESSMENT: exam answers 80% + 20% practical course
ASSESSMENT TYPE: exam
BIBLIOGRAPHY:
Borchers, D. L., Buckland, S.T. and Zucchini,W. (2002). *Estimating Animal Abundance: Closed Populations*. London, Springer-Verlag.
Buckland, S. T., Anderson, D. R., Burnham, K. P. *et al*. (2004). *Advanced Distance Sampling – Estimating Abundance of Biological Populations*. Oxford, Oxford University Press.
Cochran, W. G. (1977). *Sampling Techniques*, 3rd edn. New York, John Wiley & Sons
Southwood, T. R. E. (1978). *Ecological Methods.* 2nd edn. London, Chapman & Hall.
Thompson, S. K. (2002). *Sampling*, 2nd edn. New York, John Wiley & Sons

PRINCIPLES OF BIOLOGICAL CONSERVATION

CODE: D30BCEM207
CREDITS: 7
COURSE HOLDER: Lecturer, PhD, Luminita Buse Dragomir
YEAR/SEMESTER: I nd year/ II st semester
NUMBER OF HOURS PER WEEK: 2 hours course, 1 hour seminar
NUMBER OF WEEKS: 14
COURSE TYPE: Knowledge study
COURSE OBJECTIVES:

Understanding the effects of human activities on species / populations, communities and ecosystems;
Developing methodologies for preserving biodiversity, estimating the evolution of long-term systems
THEMES:
-Red lists of species
- Strategies for biodiversity conservation
- Research and conservation modeling
-Methods used to conserve biodiversity
- Criteria for determining the size of protected natural areas
- Classification of protected entities worldwide
LANGUAGE OF INSTRUCTION: Romanian
KNOWLEDGE ASSESSMENT: answers to exam course 70 % and answers to seminars 30 %.
ASSESSMENT TYPE: exam
BIBLIOGRAPHY:
Botnariuc, N.,1992, *Evoluţia încotro*, Ed. Academia Română, Bucureşti, 1992
Botu,I., Botu, M., 2000, *Protecţia şi conservarea biodiversităţii*, Ed. Conphys, Rm. Vâlcea
Cristea D. M, 2006, *Biodiversitatea,* Ed. Ceres,Bucureşti
Cristea, M.,1981, *Resurse genetice vegetale*, Ed. Academia Română, Bucureşti
Wilson, E.O.,1992, *The diversity of life*, Penguin, London
Wolf , E., *Conservarea diversităţii biologice.* Probleme globale ale omenirii- Worldwatch Institute(SUA), Ed. Tehnică, Bucureşti

STATISTICAL ECOLOGY

CODE: D30BCEM208
CREDITS: 7
COURSE COORDINATOR: Prof. Dr. Mihai BOTU
YEAR/SEMESTER: 1st/ 2nd
HOURS PER WEEK: 2 hours of course, 2 hours of laboratory
NUMBER OF WEEKS: 14
TYPE OF COURSE: Deepening study
COURSE OBJECTIVES: Knowledge of the role, importance and pecularities of biostatistics and research in ecology. Knowledge and defining research objectives, design and organization of research, main elements of the experiment, research methods and tehniques in ecology. Design and setting up of experiments, data collection, calculus and inference. Evaluation and capitalization of experimental results.
TOPICS: Role, importance, objectives and pecularities of statistics in ecology research. Objectives of scientific research in ecology. Design and organization of research in ecology. Descriptive statistics. Probability and distributions. Extraction of samples for analysis. Measurement errors in environmental experiments. Statistical hypothesis testing. Component elements of one experiment. Single and multi - factor experimental designs. Analysis of variance (ANOVA). Correlations and regressions. Interpretation and use of experimental results in ecology. Statistical softwares.
TEACHING LANGUAGE: Romanian
KNOWLEDGE ASSESSMENT 75% of the final grade represent the response to the written theoretical questions and 25% of the final grade the answers to laboratory tests.
ASSESSMENT FORM: Verification

REFERENCES:

Botu I., Botu M. 1994. *Metode şi tehnici de cercetare în pomicultură*. Ed. Conphys. Rm. Vâlcea.
Botu I., Botu M. 2003. *Biostatistică şi design experimental în agricultură şi biologie*. Ed. Conphys. Rm.Vâlcea.
Botu I., Botu M. 2010. *Tehnică experimentală în horticultură şi ecologie (Elemente de bază)*. Ed. Conphys, Rm.Vâlcea.
Ceapoiu N. 1968. *Metode statistice în experienţele agricole şi biologice*. Edit. Agrosilvică. Bucureşti.
Sokal, R.R., Rohlf, F.J. 1994. *Biometry: The Principles and Practices of Statistics in Biological Research*. 3rd Edition. W. H. Freeman.
Zar, J.H, 1998. *Biostatistical Analysis*. 4th Edition. Prentice Hall.

2ST YEAR OF STUDY

GIS APPLICATIONS IN ENVIRONMENTAL MANAGEMENT

CODE: D30BCEM310
CREDITS: 7
COURSE HOLDER: Senior Lecturer, PhD, Dragoş Mihail ŞTEFĂNESCU
YEAR/SEMESTER: second year/ 1st semester
NUMBER OF HOURS PER WEEK: 2 hours course, 1 hour practical course
NUMBER OF WEEKS: 14
COURSE TYPE: Knowledge study
COURSE OBJECTIVES: The general objective of the course is to familiarize students with GIS terminology in environmental management, as well as the development of practical skills for carrying out specific tasks.
THEMES: GIS components; raster and vector data; statistical modeling of GIS data; management of natural populations using GIS techniques; the role of GIS in the management of natural protected areas; GIS modeling and landscape ecology; analysis of habitat fragmentation.
LANGUAGE OF INSTRUCTION: romanian
KNOWLEDGE ASSESSMENT: exam answers 80% + 20% practical course
ASSESSMENT TYPE: exam
BIBLIOGRAPHY:

Eastman J., R. (2010): IDRISI Tutorial. Clark Univesrity, Graduate School of Geography, Worcester, Masachusetts.
Hengl, T. (2007): A Practical Guide to Geostatistical Mapping of Environmental Variables. Scientific and Technical Research series, EUR 22904 EN, Luxembourg: Office for Official Publications of the European Communities, 143 pp., http://geostat-course.org.
Longley P. A., Goodchild M., Maguire D. J., Rhind D. W. (2010): Geographic Information Systems and Science 3e, Wiley and Sons Publisher.
Tudose C., Ovejanu I. (2011): Elemente de GIS, Editura Academică, Bucureşti.

STRATEGIES FOR THE CONSERVATION OF PROTECTED AREAS

CODE: D30BCEM311
CREDITS: 8
COURSE HOLDER: Lecturer, PhD, Daniel RĂDUȚOIU
YEAR/SEMESTER: 2nd year/ 1st semester
NUMBER OF HOURS PER WEEK: 2 hours course, 2 hour practical course
NUMBER OF WEEKS: 14
COURSE TYPE: Knowledge study
COURSE OBJECTIVES: Familiarization of master students with the current and varied problems related to the potential of protected areas, with emphasis on the "protection and preservation of the environment" aspects.
THEMES: Conservation of plant diversity at global and regional level (Global Plant Conservation Strategy & European Plant Conservation Strategy). Important areas of protection: the conceptual framework; The European program to identify the most important areas of protection; Identifying the most important areas of protection in Romania. Conservation of Plant Diversity: European and Global Coordinates. Plant diversity in the general context of biodiversity conservation. International instruments created for the purpose of biodiversity conservation. International organizations. Implementation of international standards on biodiversity conservation, infrastructure creation and access to programs. Botanical garden involvement in the overall biodiversity conservation process, strategic directions for the development of scientific research aimed at plant preservation. Classification systems and protected area categories. List of threatened species at global, European, endemic and subendemic level. Special areas for the protection and conservation of plants in Romania. Protected areas from other regions of the globe.
LANGUAGE OF INSTRUCTION: Romanian
KNOWLEDGE ASSESSMENT: Final theoretical exam 70%, final practical exam 30%.
ASSESSMENT TYPE: exam
BIBLIOGRAPHY:
Cristea V. et al. 1996. *Ocrotirea naturii şi protecţia mediului în România*. Edit. Cluj University Pres, Cluj-Napoca.
Ionescu Maria, Condurăteanu-Fesci Simona 1985. *Parcuri şi rezervaţii naturale pe glob*. Edit. Albatros Bucureşti.
Mohan Gh., Ielenicz M., Pătroescu Maria 1986. *Rezervaţii şi monumente ale naturii din Muntenia*. Edit. Sport-Turism, Bucureşti.
Mohan Gh., Ardelean A. 1993. *Ecologia şi protecţia mediului*. Edit. "Scaiul" Bucureşti.
Mohan Gh., Ardelean A., Georgescu M. 1993. *Rezervaţii şi monumente ale naturii din România*. Casa de Editură şi Comerţ "Scaiul", Bucureşti.
**Legea nr. 9/1973 privind Protecţia naturii în România
**Legea nr. 137/ 1995 privind Protecţia naturii în România.

GENETICS OF POPULATIONS

CODE: D30BCEM312
CREDITS: 7
COURSE HOLDER: Senior Lecturer, PhD, Daniel Alin OLIMID

YEAR/SEMESTER: 2 year/2nd semester
NUMBER OF HOURS PER WEEK: 2 hours course / 2 hours practical activities
NUMBER OF WEEKS: 14
COURSE TYPE: Deepening study
COURSE OBJECTIVES: The knowledge of the notions of the types of transmission of normal and pathological traits, genetic diseases and the prophylaxis of genetic diseases.
THEMES: DETERMINATION OF SEX. Genetic Sex. Postgenetic sex. The biological significance of the sexes. DNA DAMAGE REPAIR MECHANISM. Nuclear excision repair system - NER. MITOCONDRIAL GENOME. The mitochondrial genome. Replication of DNA. Transcription and mitochondrial translation. Mutations and mitochondrial pathology. GENETIC ANALYZES AND PRENATAL DIAGNOSIS. Autosomal diseases: Down Syndrome (trisomy 21), Patau syndrome (trisomy 13), Edwards syndrome (trisomy 18). Diseases of sexual chromosomes: Turner Syndrome (Monosomy X), Trisomy XXX, Trisomy XYY. MULTIFUNCTIONAL DISEASES. Diabetes mellitus. Coronary disease. High blood pressure. Parkinson's disease. BIOETICS AND FUNCTION TECHNOLOGIES. EUGENIA IN THE CONTEXT OF MODERN GENETICS. DISEASES OF SEXUAL DIFFERENCES. Hermaphroditism. MANIPULATION OF GENETIC MATERIAL. Genetic engineering. Biotechnologies, cloning, amelioration. Oncogenesis. Proto-oncogene, tumor suppressor gene, cytogenetic abnormalities in cancer. CYTOGENETIC AND MOLECULAR DIAGNOSIS OF GENETIC DISEASES. Cytogenetic diagnosis: standard cytogenetic analysis, in situ fluorescence hybridization, comparative genomic hybridization, spectral karyotyping; Molecular diagnosis: PCR technique, real-time PCR, sequencing.
LANGUAGE OF INSTRUCTION: Romanian.
KNOWLEDGE ASSESSMENT: Final theoretical exam 60%, final practical exam 20%, continuous evaluation during the semester 20%.
ASSESSMENT TYPE: Exam
BIBLIOGRAPHY:
Buteică E., Burada F. – Genetică umană - Caiet de lucrări practice, Ed. Sitech, 2007.
Hertzog Zorica Ileana – Genetică umană., Ed. Sitech, Craiova, 1998.
Covic M., Ștefănescu D., Sandovici I. – Genetică medicală, Polirom, Iași, 2011
Rogoz I. – Genetică medicală, Ed. Medicală Universitară, Craiova, 2005

PROJECT MANAGEMENT

CODE: D30BCEM313
CREDITS: 8
COURSE COORDINATOR: Professor Dr. Sina Cosmulescu
YEAR / SEMESTER: Year II / Ist Semester
HOURS PER WEEK: Course – 2 hours / Seminar - 1 hours
NUMBER OF WEEKS: 14
COURSE TYPE: Synthesis stdy
COURSE OBJECTIVES: Understanding the basic notions, the main knowledge base that makes the content of the project management.
Creating the necessary skills to carry out projects in economic, cultural, political, non-governmental organizations etc.
TOPICS: Introduction. Project cycle management. Quality management. Management of human resources. Time management. Financial management. Other management activities (management of communication, conflict management in projects, risk management in projects, management of public acquisitions, management of the objectives). Control and

evaluation. Monitoring. The management of the project cycle. Fundamental principles. Analysis tools. Impact study. Feasibility study. Business Plan. The selection of projects.
TEACHING LANGUAGE: Romanian
ASSESSMENT FORM: Exam (60% written examination, 40% periodic evaluation)
REFERENCES:
Bonghez S. 2013. Managementul proiectelor – adevăr sau provocare. Ed. Universul Juridic.
Dennis L. 2009. Managementul proiectului. Ed. Monitorul Oficial.
Florescu D. 2012. Managementul proiectelor cu finanţare europeană. Ed. CH Beck.
Grigorescu A. 2008. Managementul proiectelor. Ed. Uranus
Iliescu V., Gherghinescu O. 2005. Managementul proiectelor, Ed. Didactică şi Pedagogică, Bucuresti
Mocanu M., Schuster C. 2001. Managementul proiectelor: Calea spre creşterea competitivităţii. Editura All Beck, Bucureşti.
Mochal T., Mochal J. 2006. Lecţii de management de proiect. Ed. Codecs Bucureşti.
Postavaru N. 2002. Managementul proiectelor. Editura Matrix Rom, Bucuresti.

ECOLOGICAL RECONSTRUCTION OF DEGRADED LANDS

CODE: D30BCEM414
CREDITS: 7
TITULAR OF THE COURSE: Associate Professor PhD. Ana Maria DODOCIOIU
YEAR / SEMESTER: II/ II MASTER
HOURS PER WEEK: 2 hours course, 2 hours practical works
NUMBER OF WEEKS: 10
COURSE TYPE: Synthesis study
COURSE OBJECTIVES: Knowledge of the main causes and processes of soil degradation, The evolution of degraded areas at national and regional level, Establishment of ecological reconstruction methods depending on the system of soil degradation.
THEMES: Soil. General composition of the soil. Soil functions, Soil degradation phenomena in the world and in our country, Need for ecological reconstruction, surface mining impacts on soils, ecological reconstruction methods of waste dumps, Land degradation due to petroleum extraction, land degradation through flue dusts from power plants, ecological reconstruction of degraded land through erosion, ecological reconstruction of desertified areas, ecological reconstruction of degraded lands by different wastes, ecological reconstruction of land polluted with nitrates and heavy metals.
LANGUAGE OF INSTRUCTION: Romanian
KNOWLEDGE EVALUATION: answers to colocviu 100%
EVALUATION FORMS: Oral examination
BIBLIOGRAPHY
Avarvarei I., Velicica Davidescu, Mocanu R., Goian M., Rusu M. – 1977, Agrochimie (pp. 163-189), Editura Sitech, Craiova.
Blaga Ghe., Dumitru M., Răuţă C., - 1989 – 20 annes des reches scientifiqe dans la domain de la recultivation des terrens degrades par la exploatasion miniere superficialles de Transilvania, Scientific Bulletin USACNA 11.48.1.
Burger A., Tarbert L., 1992 – Restoring forests and surface – minedland Guidelines for Surface Minen Land Virginia Pub. 460 – 123.
Creangă I., 2006 – Reconstructia ecologica a solurilor poluate cu petrol si apa sarata, Editura Sitech, Craiova.

Constantinescu Emilia 1998 –Cercetari privind recultivarea haldelor de cenusa Researches regarding recultivation of ash dumps from the power plant Isalnita - PhD Thesis Craiova.
R. Mocanu, Osiceanu N., Susinski M., Roşculete C., Iagăru Ghe, 2007-Reconstructia ecologica a haldelor de steril din cariera Husnicioara, Mehedinti, Editura Sitech, Craiova.
Dumitru M., Popescu I., 2002- Recultivarea terenurilor degradate de extractia lignitului, Editura Sitech, Craiova.

EVALUATION OF ANTROPIC IMPACT AND ENVIRONMENTAL BALANCE

CODE: D30BCEM415
CREDITS: 6
COURSE HOLDER: Senior Lecturer, PhD, Ovidiu Andrei ȚUCĂ
YEAR/SEMESTER: 4 st year/ 1st semester
NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours seminar
NUMBER OF WEEKS: 14
COURSE TYPE: Synthesis study
COURSE OBJECTIVES: In this course, the master students will have the opportunity to learn how to assess the anthropic impact on the environment and the environmental balance taking into account: the intensity and size of the impact, the duration of the effects, the irreversibility of the induced changes, the interdependence of the processes and phenomena, the costs involved, Economic and political presentation of the data obtained.
THEMES: Environment protection; Environmental management system, Impact of anthropogenic activities on the environment, Environmental balance sheet level 0; Legislative provisions; Content of the Environmental Balance Sheet Level 0 cf. MMGA Order 184/1997, Level I environmental balance sheet; Legislative provisions; Content of the Environmental Balance Sheet Level I, according to Order MMGA 184/1997; Content of the Report on the Level I environmental balance, Level II environmental balance sheet; Legislative provisions; Content of the Environmental Balance Sheet Level II, according to Order MMGA 184/1997; Content of the Report on the Level I environmental balance.
LANGUAGE OF INSTRUCTION: Romanian
KNOWLEDGE ASSESSMENT: Examination 70%, activities such as papers/ projects 30%.
ASSESSMENT TYPE: Examen
BIBLIOGRAPHY:
Arcadie Capcelea. 2005. Evaluarea impactului de mediu., (10 ex).
Rojanschi V., Bran F., Diaconu Gh.. Protectia si ingineria mediulu. Ed. a II, Ed. Economoca, 2002 (2 ex).
Rojanschi, V., - Politici şi strategii de mediu, editura Economică, Bucureşti, 2002.â

SYMBIOSIS IN THE LIVING WORLD

CODE: D30BCEM416
CREDITS: 6
COURSE HOLDER: Professor dr. Rodi MITREA
YEAR/SEMESTER: 2 nd year/ 2 nd semester
NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours practical course
NUMBER OF WEEKS: 10
COURSE TYPE: Synthesis study

COURSE OBJECTIVES: Knowledge of the symbiosis concept in the evolution of organisms and the understanding of some aspects of the interrelations between the vegetal organisms and the animal organisms in correlation with the environmental factors.
THEMES: The concept of symbiosis in the evolution of organisms. Interrelations of microorganisms - plants. Nitrogen fixation in microorganism-plant associations. Associations with nitrogen-binding cyanobacteria. Rhizobium symbiosis - leguminous plants. Symbiosis between fungi and plants (mycorrhiza). Symbiotic relationships in the world of carnivorous plants. Antagonism and symbiosis in nature: fungi like plant parasitic symbiosis. Symbiosis relationships of organisms (microscopic and macroscopic) with herbivorous animals and aspects of interrelations between plant organisms and animal organisms.
LANGUAGE OF INSTRUCTION: Romanian
KNOWLEDGE ASSESSMENT: answers to exam 70 % and answers to Laboratory works 30 %
ASSESSMENT TYPE: exam
BIBLIOGRAPHY:
Barbu Valeria, 1979. Simbiosis and parasitism. Scientific and Encyclopaedic Publishing House. Bucharest.
Mititiuc M., 1995. Mycology. University Publishing House. Iasi.
Zamfirache Maria - Magdalena, Toma C., Niță Mihaela, 1997. Organic meanings of symbiotic relationships in the vegetable world. Bulletin of the Botanical Garden. 7. Iaşi.
Zamfirache Maria - Magdalena, Toma C. 2000. Symbiosis in the living world. Publishing house of "Alexandru Ioan Cuza" University of Iasi.
Zarnea, G., 1994. Treated general microbiology. Romanian Academy Publishing House. Bucharest..

MICROORGANISMS INVOLVED IN THE DEVELOPMENT AND CONSERVATION OF ECOSYSTEMS

CODE: D30BCEM417
CREDITS: 6
COURSE HOLDER: Assistant prof. PhD, Daniela Eleonora CIUPEANU
YEAR/SEMESTER: 2nd year/ 2 nd semester
NUMBER OF HOURS PER WEEK: 2 hours course, 2 hour practical course
NUMBER OF WEEKS: 10
COURSE TYPE: Deepening study
COURSE OBJECTIVES: Familiarization of master students with the current and varied problems of microorganisms with impact on ecological reconstruction; Utilization and use of natural resources and microorganisms involved in ecological reconstruction; Accumulating advanced knowledge of ecological reconstruction using biotic factors and microorganisms, in the context of ensuring sustainable development of life.
THEMES: Complexity of ecological reconstruction technology of degraded sites. The role of plants and edaphic microorganisms in ecological reconstruction. The issue of bioremediation technologies. Bioremediation through biodegradation and biodegradation of organic substances. Biological indicators of pollution. Bio indicators in the aquatic environment. Bio indicators in the terrestrial environment Biological methods for soil toxicity determination and assessment of bioremediation technologies. Soil as substrate for microorganisms. Biotechnologies and de-pollution of biological and ecological systems. Biodegradation of pollutants from soils contaminated by the action of microorganisms and plants. Use of

microorganisms in conventional water rehabilitation. Methods of bioremediation of ecosystems. Microorganisms for ecological reconstruction.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: Final theoretical exam 70%, continuous assessment during the semester 30%.

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Cristea, V., Simone Denaeyer, 2004. From Biodiversity to OGMs? UNIVERSITAS BIOLOGY series, Eikon Edition, Cluj-Napoca.

Gavrilescu Elena, 2006 Evaluation of aquatic ecosystems. SITECH Publishing House, Craiova.

Ghidra V. 2004. Ecotoxicology and monitoring of the main pollutants. Studia Publishing House. Cluj-Napoca

Kiss Şt., Dragan-Bularda M., Daniela Paşca, 1993. Enzymology of the environment. Technique Soil Enzymology. Vol. II, CERES Publishing House, Bucharest

Oros V. 2002. Ecological rehabilitation of industrially degraded sites. Publishing House of the University of Transilvania, Brasov.

Malschi Dana, 2009. Biotechnologies and Decontamination of Organic Systems. (Biological Decontamination Technologies, Bioremediation Technologies, Ecological Reconstruction). Electronic Handbook Faculty of Environmental Science, Babes-Bolyai University of Cluj-Napoca. Bioflux Publishing House, Cluj-Napoca.