COURSE LAYOUT

1. GENERAL

SCHOOL	Animal Biosciences		
DEPARTMENT	ANIMAL SCIENCE		
STUDY LEVEL	*Undergraduate*		
COURSE CODE	**239**	**SEMESTER**	9th
COURSE TITLE	INTELLIGENT SYSTEMS AND DATA MINING IN ANIMAL SCIENCE (SELECTIVE)		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**ECTS**
Theory: Lectures	1	1
Laboratory: Use of Software Tools	1	1

COURSE TYPE	Skills development
PREREQUISITES	
LANGUAGE	Greek
IS THE COURSE OFFERED forERASMUS STUDENTS?	Yes (in Greek)
COURSE WEB PAGE	https://openeclass.aua.gr/eclass/courses/AOA198/

2. LEARNING OUTCOMES

Learning Outcomes

Upon successful completion of this course, the student will

1. be aware of the possibilities and the individual branches of Artificial Intelligence that can be implemented in areas of Animal Science,
2. able to distinguish the concepts, data, information, knowledge,
3. understand the meaning and characteristics of an intelligent system,
4. understand the concept of an intelligent training system,
5. justify whether it is possible to develop a system based on Artificial Intelligence,
6. be able to distinguish and choose the most appropriate method for knowledge extraction through a large number of data,
7. acquire the necessary skills to exploit ready-made tools for data mining, in order to develop an intelligent system,
8. be able to organize his/her data in simple files or in Database to be ready for data mining processing

General Competences

1. Data retrieval, analysis and synthesis of data and information through the use of new information technologies.
2. Adapting to new situations.
3. Decision making.
4. Individual work.
5. Teamwork.
6. Work in a multidisciplinary environment.
7. production of new research ideas.

3. COURSE CONTENT

Theory

1. Introduction to Artificial Intelligence.
2. Introduction to Artificial Neural Networks (Model neuron, Principles, training, Evaluation, Categories of Artificial Neural Networks, Use of tools for the development of Artificial Neural Networks)
3. Introduction to Methods and techniques of data mining.

Laboratory

1. Exploitation and use of tools for data mining purpose (WEKA).
2. Exploitation and use Artificial Neural Networks development tools.
3. Development of Educational Applications of Intelligent Systems with emphasis in Biology and Animal Science.

4. TEACHING and LEARNING METHODS - Evaluation

TEACHING METHOD	In classroom and in laboratory (face-to-face)
USE OF INFORMATICS and COMMUNICATION TECHNOLOGIES	Exploitation of Information and Communication Technologies in teaching, in laboratory training and in the communication with students. Use of dedicated software. Use of integrated e-learning system. Communication with students via open eclass platform and e-mail.
TEACHING ORGANISATION	*Activity* / *Work Load* Lectures — 13 hours Laboratory work — 13 hours Individual Study — 26 hours ***Total contact hours and training*** — ***50 hours***
STUDENTS EVALUATION	**I.** Final Exam, written or oral, of increasing difficulty, which may include Multiple choice test, Questions of brief answer, Questions to develop a topic, Judgment questions and Exercise solving. (40%) **II.** Progress Laboratory exams. Hands on computer, of the software tools taught. (20%) III. Personal and team projects (40%). **The final Course mark is the sum of the above marks and it is common for Theory and Laboratory.** **Marking Scale:** 0-10. **Minimum Passing Mark:** 5.

5. BIBILIOGRAPHY

-***Related Literature:***

1. A. NANOPOULOS, I. MANOLOPOULOS, INTRODUCTION TO MINING AND DATA REPOSITORIES, NEW TECNOLOGIES PUB., ATHENS.
2. REMCO R. BOUCKAERT, EIBE FRANK, MARK HALL, RICHARD KIRKBY, PETER REUTEMANN ALEX SEEWALD, DAVID SCUSE. WEKA MANUAL FOR VERSION 3-6-9.THE UNIVERSITY OF WAIKATO, 2013. (THE MANUAL AND THE SOFTWARE AVAILABLE FREE FROM THE UNIVERSITY OF WAIKATO)

-Related Scientific Journals:

1. DATAMINE - Data Mining and Knowledge Discovery
2. IDA - Intelligent Data Analysis
3. IJDWM - International Journal of Data Warehousing and Mining
4. MLDM - Transactions on Machine Learning and Data Mining