

COURSE LAYOUT

1. GENERAL

SCHOOL	AGRICULTURAL PRODUCTION INFRASTRUCTURES AND ENVIRONMENT		
DEPARTMENT	ANIMAL SCIENCE AND AQUACULTURE		
STUDY LEVEL	<i>Undergraduate</i>		
COURSE CODE	302	SEMESTER	9 th
COURSE TITLE	INTELLIGENT SYSTEMS AND DATA MINING IN ANIMAL SCIENCE (SELECTIVE)		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	ECTS
Theory: Lectures		1	
Laboratory: Use of Software Tools		1	
COURSE TYPE	General knowledge, Scientific Area, Skills development		
PREREQUISITES			
LANGUAGE	Greek		
IS THE COURSE OFFERED for ERASMUS STUDENTS?	Yes (in Greek)		
COURSE WEB PAGE	http://openeclass.aua.gr		

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 and Aquaculture,
2. understand the meaning and characteristics of an intelligent system,
3. understand the concept of an intelligent training system,
4. justify whether it is possible to develop a system based on Artificial Intelligence,
5. be able to distinguish and choose the most appropriate method for knowledge extraction through a large number of data,
6. acquire the necessary skills to exploit ready-made tools for data mining , in order to develop an intelligent system,
7. e able to organize his/her data in simple files or in Database to be ready for data mining processing,
8. combining results reached from data mining they will be able to reach new knowledge.
- 9.

General Competenses

- Data retrieval, analysis and synthesis of data and information through the use of new information technologies.
- Adapting to new situations.
- Decision making.
- Individual work.
- Teamwork.
- Work in a multidisciplinary environment.
- production of new research ideas.
- Design and project management.

- Promotion of the free, creative and inductive way of thinking.

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 and Aquaculture.

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	<i>Activity</i>	<i>Work Load</i>
	Lectures	13 hours
	Laboratory work	13 hours
	Individual Study	26 hours
	Total contact hours and training	
STUDENTS EVALUATION	<p>I. Theory 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. Assuming feasibility, Progress exams will take place during the semester whose marking will contribute to the determination of the final Theory mark. Marking Scale: 0-10. Minimum Passing Mark: 5.</p> <p>II. Laboratory Final Exam, hands on computer, of the software tools taught. Assuming feasibility,</p> <ul style="list-style-type: none"> • the performance of the trainees at the exercises assigned to them during the semester will be evaluated, • Progress exams will take place during the semester, and the mark of the above will contribute to the determination of the final Laboratory mark. <p>Marking Scale: 0-10. Minimum Passing Mark: 5.</p>	

	<p>The final Course mark is the average of the marks on Theory and Lab.</p> <p>If needed, the evaluation can be performed electronically through the eClass platform. The evaluation criteria are known in advance and uploaded into the electronic page of the course in eClass. The students are able to access their examination deliverables.</p>
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5. BIBLIOGRAPHY

-Related Literature:

1. Tan Pang - Ning, Steinbach Michael, Kumar Vipin, **Introduction to Data Mining**. 2nd Edition, ΕΚΔΟΣΕΙΣ Α. ΤΖΙΟΛΑ & ΥΙΟΙ Α.Ε., 2018, Athens.
2. Anand Rajaraman, Jeffrey David Ullman, Jure Leskovec, **Mining of Massive Datasets**. 3rd Edition, ΕΚΔΟΣΕΙΣ ΝΕΩΝ ΤΕΧΝΟΛΟΓΙΩΝ ΙΔΙΩΤΙΚΗ ΚΕΦΑΛΑΙΟΥΧΙΚΗ ΕΤΑΙΡΕΙΑ, 2020, Athens.
3. Νικόλαος Ματσατσίνης, **Επιχειρηματική Ευφυΐα, Αναλυτική και Ανάλυση Μεγάλων Δεδομένων για Λήψη Αποφάσεων**. ΕΚΔΟΣΕΙΣ ΝΕΩΝ ΤΕΧΝΟΛΟΓΙΩΝ ΙΔΙΩΤΙΚΗ ΚΕΦΑΛΑΙΟΥΧΙΚΗ ΕΤΑΙΡΕΙΑ, 2020, Αθήνα.
4. Κύρκος Ευστάθιος, **Επιχειρηματική Ευφυΐα και Εξόρυξη Δεδομένων** (Κωδικός Βιβλίου στον Εύδοξο: 320088) Έκδοση: 1/2016 ISBN: 978-960-603-109-0. Ηλεκτρονικό Βιβλίο. Διαθέτης (Εκδότης): Ελληνικά Ακαδημαϊκά Ηλεκτρονικά Συγγράμματα και Βοηθήματα - Αποθετήριο "Κάλλιπος".
5. Σταλίδης Γιώργος, Καρδάρας Δημήτρης, **Διαχείριση δεδομένων και επιχειρηματική ευφυΐα**. (Κωδικός Βιβλίου στον Εύδοξο: 320080). Έκδοση: 1/2016. ISBN: 978-960-603-398-8. Ηλεκτρονικό Βιβλίο Διαθέτης (Εκδότης): Ελληνικά Ακαδημαϊκά Ηλεκτρονικά Συγγράμματα και Βοηθήματα - Αποθετήριο "Κάλλιπος".

-Related Scientific Journals:

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