COURSE OUTLINE

1. GENERAL

SCHOOL	SCHOOL OF SCIENCE		
DEPARTMENT	COMPUTER SCIENCE		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	813SKOE	**SEMESTER**	8th
COURSE TITLE	DATA MINING		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	2	5
Tutorial Exercises	1	
Laboratory Exercises	2	
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	Scientific Area
PREREQUISITES:	No
TEACHING & EXAMINATION LANGUAGE:	Greek
COURSE OFFERED TO ERASMUS STUDENTS:	No
COURSE URL:	-

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Students are taught the basic principles of search engine operation, as well as data mining techniques. Through laboratory exercises and assignments, they come into direct contact with open-source search engines (e.g. Lemur/Indri, Terrier, etc.) by running retrieval quality optimization experiments, as well as with open-source libraries for data mining (e.g. Clustering, Categorization, Machine Learning) by running mining experiments from real data collections.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information, ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information, using the necessary technologies
- Decision making
- Teamwork
- Working in an international environment
- Production of new research ideas
- Promotion of free, creative, and inductive thinking

3. COURSE CONTENT

Set-theoretic models. Text processing, Zipf's and Heaps' laws. Index construction. Vector space model, term weighting, score calculation. Quality assessment. Relevance feedback and query

expansion. Probabilistic models. Natural language processing. Classification, filtering, and clustering. World Wide Web search: search engines, crawling techniques, link-based techniques. Multimedia information retrieval.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	Face to face
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in Teaching Use of ICT in Laboratory Education Use of ICT in Communication with Students
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	

Activity	*Workload/semester*
Lectures	39 hours
Laboratory Exercises	26 hours
Elaboration of a Study	18 hours
Literature Study and Analysis	17 hours
Total	**100 hours**

STUDENT EVALUATION

Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others

Please indicate all relevant information about the course assessment and how students are informed

Student assessment languages

Greek

Method (Formative or Concluding)

Formative

Student evaluation	**Percent**
Written Exam with Problem Solving	65
Laboratory Report	35

5. SUGGESTED BIBLIOGRAPHY

- ΕΙΣΑΓΩΓΗ ΣΤΗΝ ΑΝΑΚΤΗΣΗ ΤΩΝ ΠΛΗΡΟΦΟΡΙΩΝ, Christopher D. Manning, Prabhakar Raghavan, Henrich Schutze, ΚΛΕΙΔΑΡΙΘΜΟΣ ΕΠΕ

- ΕΞΟΡΥΞΗ ΓΝΩΣΗΣ ΑΠΟ ΒΑΣΕΙΣ ΔΕΔΟΜΕΝΩΝ, Μ. Βαζιργιάννης, Μ. Χαλκίδη, Τυπωθήτω-(Διαθέτης Γ. ΔΑΡΔΑΝΟΣ - Κ. ΔΑΡΔΑΝΟΣ Ο.Ε)