|  |  |
| --- | --- |
| **ΜΑΘΗΜΑ “KNOWLEDGE DISCOVERY FROM DATABASES”** | |
| **code** | AIE701 |
| **title** | KNOWLEDGE DISCOVERY FROM DATABASES |
| **type (compulsory/optional)** | **optional** |
| **cycle (first/second/third)** | first |
| **year of study when the component is delivered (if applicable)** | 2022-2023 |
| **semester/trimester when the component is delivered** | winter |
| **number of ECTS credits allocated** | 5 |
| **name of lecturer(s), with information about how, when and where to contact them.** | Georgios Evangelidis ([gevan@uom.edu.gr](mailto:gevan@uom.edu.gr))  Georgia Koloniari ([gkoloniari@uom.edu.gr](mailto:gkoloniari@uom.edu.gr)) |
| **learning outcomes** | Upon completion of the course, the student will be able to:  (a) understand the concept of knowledge discovery from databases, (b) understand the value of exploratory data analysis and visualization as a preprocessing step;  (c) understand and apply data reduction techniques;  (d) understand and apply knowledge mining techniques from data such as classification, clustering, association rules using common tools (e.g., WEKA, R, Python),  (e) understand and apply knowledge mining techniques on the World Wide Web. |
| **mode of delivery (face-to-face/distance learning etc.)** | face-to-face |
| **prerequisites and co-requisites (if applicable)** | Databases, Programming |
| **course content** | Knowledge Discovery from Databases Concepts  Exploratory Data Analysis and Visualization  Classification  Clustering  Association Rules  Introduction to Web Mining  Mining Text and Text Classification  Opinion Mining  Link Analysis  Graph Mining  Web Usage Mining |
| **recommended or required reading and other learning resources/tools** | P.-N. Tan, M. Steinbach, A. Karpatne and V. Kumar, Introduction to Data Mining, 2nd Edition, Addison Wesley, 2018.  J. Leskovec, A. Rajaraman and J.D. Ullman, Mining of Massive Datasets, 3rd Edition, Cambridge University Press, 2020.  Mohammed J. Zaki, Wagner Meira Jr., Data Mining and Analysis: Fundamental Concepts and Algorithms, Cambridge University Press, 2014. |
| **planned learning activities and teaching methods** | Weekly lectures |
| **assessment methods and criteria** | Written examination at the end of the semester including problem solving, multiple choice test and short answer questions (50%)  Homework assignments (20%)  Code development assignments (30%) |
| **language of instruction** | English |