**MSc in Artificial Intelligence and Data Analytics**

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| **ΜΑΘΗΜΑ “**Machine learning & Computer vision**.”AIDA…….** | |
| **code** |  |
| **title** | Machine learning & Computer vision |
| **type (compulsory/optional)** | Compulsory |
| **cycle (first/second/third)** | First |
| **year of study when the component is delivered (if applicable)** | 2023-2024 |
| **semester/trimester when the component is delivered** | Winter |
| **number of ECTS credits allocated** | 7.5 |
| **name of lecturer(s), with information about how, when and where to contact them.** | Eftychios Protopapadakis (eftprot@uom.edu.gr) |
| **learning outcomes** | Upon completion of the course, the student will be able to:  a) Implement machine learning algorithms: Students should be able to implement various machine learning algorithms from scratch and apply them to real-world datasets.  b) Develop deep learning models: Students should have hands-on experience in building and training deep learning models using popular frameworks like TensorFlow and PyTorch.  c) Apply computer vision techniques: Students should be capable of developing computer vision applications for tasks such as image classification, object detection, and image segmentation. |
| **mode of delivery (face-to-face/distance learning etc.)** | Face-to-face |
| **prerequisites and co-requisites (if applicable)** | Programming, Statistics, Linnear algebra |
| **course content** | Feature Extraction Techniques  Supervised Learning Algorithms  Neural Networks and Deep Learning  Unsupervised Learning and Dimensionality Reduction  Convolutional Neural Networks  Object Detection Techniques  Semantic Segmentation  Generative adversarial networks  Object tracking  Interpretability and Adversarial Robustness in Computer Vision |
| **recommended or required reading and other learning resources/tools** | "Machine Learning Yearning" by Andrew Ng  Deep Learning for Computer Vision by Rajalingappaa Shanmugamani. Released January 2018. Publisher(s): Packt Publishing. ISBN: 9781788295628 |
| **planned learning activities and teaching methods** | Weekly lectures |
| **assessment methods and criteria** | Homework assignments (3) 50%  Final project 50% |
| **language of instruction** | English |