

Program of Studies:	Master Program Bioinformatics
Name of the module:	Machine Learning
Abbreviation:	I-M-11
Subtitle:	Core Lecture
Modules:	Lecture: 4 h (weekly) Tutorial: 2 h (weekly)
Semester:	1 st -3 rd semester/at least every two years
Responsible lecturer:	Prof. Dr. Isabel Valera
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Language:	English
Level of the unit/ Mandatory or not:	Graduate course / mandatory elective
Total workload:	270 h = 90 h of classes and 180 h private study;
Credits:	9
Entrance requirements:	For graduate students: none
Aims/Competences to be developed:	The lecture gives a broad introduction into machine learning methods. After the lecture the students should be able to solve and analyze learning problems.
Content:	<ul style="list-style-type: none"> - Bayesian decision theory - Linear classification and regression - Kernel methods - Bayesian learning - Semi-supervised learning - Unsupervised learning - Model selection and evaluation of learning methods - Statistical learning theory - Other current research topics
Assessment/Exams:	<ul style="list-style-type: none"> - Regular attendance of classes and tutorials. - 50% of all points of the exercises have to be obtained in order to qualify for the exam. - Passing 1 out of 2 exams (final, re-exam).
Grade:	Determined from the results of the exams, exercises and potential projects. The exact grading modalities are announced at the beginning of the course.
Literature:	Will be announced before the start of the course on the course page on the Internet.