TURKISH REPUBLIC
FIRAT UNIVERSITY
COLLEGE OF TECHNOLOGY
DEPARTMENT OF SOFTWARE
ENGINEERING

COURSE SYLLABUS
YMT 566
Machine Learning

Fall 2015

Location: TBD

Class meeting times	**Instructor**	**E-mail**	**Phone:**
Friday 13:15 – 16:00	Dr. Bilal Alatas	balatas@firat.edu.tr	(424)-2370000-4303

Course description: Machine learning is the interdisciplinary field at the intersection of statistics and computer science which develops such statistical models and interweaves them with computer algorithms. This introductory course gives an overview of many concepts, techniques, and algorithms in machine learning, beginning with topics such as classification and linear regression and ending up with more recent topics such as boosting, support vector machines, hidden Markov models, and Bayesian networks. The course will give the student basic ideas and intuition behind modern machine learning methods as well as a bit more formal understanding of how, why, and when they work. The underlying theme in the course is statistical inference as it provides the foundation for most of the methods covered.

Course objectives: This course is an introductory survey of machine learning. The course will cover an overview of methods whereby computers can learn from data or experience and make decisions accordingly. The topics include: supervised learning, unsupervised learning, reinforcement learning, and knowledge extraction from large databases with applications to science, engineering, and medicine.

In particular, this course is concerned with:

a) classification;
b) optimization;
c) regression;
d) clustering;

e) information theory;
f) Markov models;
g) Bayesian models.

Prerequisite: No

Textbook: Ethem Alpaydin, Introduction to Machine Learning (3rd edition) MIT Press (2014) ISBN-13: 978-0262028189.

Course requirements:

Assignments: Students will be required to complete two search and programming assignments. Students will be given 6 weeks to complete each assignment.

Exams: Two exams, including the final exam, will be given. Students will be given at least one week's notice of the exam dates. All examinations are written examinations. There are no make-up examinations available for any student. If a student has an excused absence exam, the University Regulation will be applied.

Grading plan: Assignments   20%
               First exam   20%
               Final exam   60%

>= 90	$\Rightarrow$	A
>= 80 but < 90	$\Rightarrow$	B
>= 70 but < 80	$\Rightarrow$	C
>= 60 but < 70	$\Rightarrow$	D
< 60	$\Rightarrow$	F

Class participation: In accordance with the university policy, regular attendance is required; however, no points will be awarded or subtracted based on your attendance. You are responsible for all material covered in every class, regardless of whether you attended or not. It is your responsibility to obtain notes, assignments, etc., from fellow class members if you miss the class.

Academic dishonesty: All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the

classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The university and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials. No cheating on an examination or assignments is allowed; a score of zero will be given to the student if such a case occurred.

Rules of conduct: Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. Please turn off or mute your cellular phone and/or pager before class begins. Students are prohibited from eating in class, using tobacco products, making offensive remarks, reading newspapers, sleeping, talking among each other at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Inappropriate behavior in the classroom shall result in a, minimally, a directive to leave class or being reported to the Dean of Students for disciplinary action in accordance with university policy.