BUAN 6341 Course Syllabus

Course Information

Course Number/Section	BUAN 6341.002
Course Title	Applied Machine Learning
Term	Spring 2019 (Jan. 14 – May 11, 2019)

Professor Contact Information

Professor	Dr. Nassim Sohaee
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Course Pre-requisites, Co-requisites, and/or Other Restrictions

BUAN 6356 and OPRE 6301

Course Description

This course covers machine learning models for business data including supervised and unsupervised modeling, non-linear regression models, resampling methods and advanced neural networks and artificial intelligence-based models for data-driven analytics. The course will be taught using Python language.

Student Learning Objectives/Outcomes

By the end of this course, students will be able to

1. Identify the difference between a supervised (classification) and unsupervised (clustering) technique.
2. Identify which technique they need to apply for a particular dataset and need, engineer features to meet that need, and write python code to carry out an analysis.

Required Textbooks and Materials

Required Texts

No text book is required for this course. Supporting material will be provided through eLearning course page.

Required Hardware and Software

Latest Python 3– Additional packages you need to have for this course are numpy, scipy, sklearn, pandas, matplotlib, seaborn, graphviz, TensorFlow, and keras.

Recommended Texts

Title	**Introduction to Machine Learning with Python**
ISBN	978-1-4493-6941-5

Publisher	O'Reilly Media, Incorporated

Title	**An Introduction to Statistical Learning**
Author	Gareth James; Trevor Hastie; Robert Tibshirani; Daniela Witten
ISBN	978-1-4614-7137-0
Publisher	Springer

Textbooks and some other bookstore materials can be ordered online or purchased at the UT Dallas Bookstore http://www.bkstr.com/texasatdallasstore/home.

Communication

This course utilizes online tools for interaction and communication. Some external communication tools such as regular email and a web conferencing tool may also be used during the semester.

Student emails and discussion board messages will be answered within 3 working days under normal circumstances.

Student Assessments

Grading Criteria:

In line with the applied nature of this class, a large portion of the assessment will be made through homework. There will be approximately 3 project assignments. The homework will contain some theory questions but the majority of the material will involve implementing the different methods that we cover in class using the computer package. There will be two online exams. The breakdown will be:

Project 1	20
Project 2	20
Weekly Labs	40
Exam 1	10
Exam 2	10
Total	100

Grading Scale:

A	94 – 100
A-	90 – 93
B+	87 – 89
B	84 – 86
B-	80 – 83
C+	77 – 79
C	74 – 76
C-	70 – 73

D+	67 – 69
D	64 – 66
D-	60 – 63
F	< 60

Accessing Grades:

Students can check their grades by clicking “My Grades” on the course menu after the grade for each assessment task is released.
Projects:

There are 2 group projects for this course. Each group will have maximum of 2 members. The Group Signup Sheet will be available on eLearning.

Labs:

There are 7 Labs as individual assessment activities. Students will study the lab documents and when ready, take the lab quiz. Students will have the unlimited attempts until the due date of each lab.

Exams:
There are two online exam for this course, they are both timed. Questions are combination of conceptual and coding problems.

Proctored Final Exam Procedures:

Both exam will be taken online and proctored at the UTD Testing Center or at an outside testing location. If you’re taking the exam at UTD Testing Center, you will need to make reservation using “Reserve Your Seat” tool at least 72 hours prior to the exam time. Please see the UTD Testing Center web pages https://ets.utdallas.edu/testing-center/ for more information. Please be sure to review the Testing Center Student Guidelines.

For distance learning students who are taking the exam using an outside testing service, please see information here: https://ets.utdallas.edu/testing-center/distance-learning and follow the procedures to make exam proctoring arrangements. Proctor Exam Application needs to be submitted at least 15 days before the exam date.

If any student needs special accommodations, please seek the instructor’s approval in advance. For any general questions, please email the Testing Center infotestingcenter@utdallas.edu, and for any off-site proctored exam questions, please email tcdl@utdallas.edu.

Course Outline/Academic Calendar

WEEK/ DATES	TOPIC/LECTURE	ASSESSMENT / ACTIVITY	DUE DATE
1/14/2019	Course Introduction Module 1: Introduction to Pandas		
1/21/2019	MLK day - No class	Lab 1	2-Feb
1/28/2019	Module 2: Introduction to Machine Learning	Lab 2	10-Feb
2/4/2019	Module 3: Supervised Learning	Lab 3	24-Feb
2/11/2019	Module 3 continued	**Project 1 – Posted**	
2/18/2019	Module 3 continued	Lab 4	3-Mar
2/25/2019	Module 3 continued		
3/4/2019	**Exam 1** Take the exam at UTD Testing Center		
3/11/2019	Module 4: Model Evaluation and Selection	Lab 5	24-Mar
3/18/2019	(Spring Break week)	**Project 1 - Due**	24-Mar
3/25/2019	Module 5: Ensemble Learning	**Project 2 Posted** Lab 6	7-Apr

4/1/2019	Module 6: Dimensionality Reduction	Lab 7	14-Apr
4/8/2019	Module 6 continued		
4/15/2019	Module 7: Neural Networks		
4/22/2019	Module 7 continued	**Project 2 due**	28-Apr
4/29/2019	Review and **Exam 2** Take the exam at UTD Testing Center		

Course Policies

Make-up exams

No makeup exam is allowed in this course.

Extra Credit

There is not extra credit activity for this course.

Late Work

Late submissions will be penalized by 2 point for each hour after due date.

Special Assignments

All assignments are programming/coding assignments.

Class Participation

Class participation is encouraged.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to http://go.utdallas.edu/syllabus-policies for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.