

THE UNIVERSITY OF TEXAS AT TYLER
Soules College of Business
CSDA5350.060 – Fundamentals of Machine Learning
Spring 2026 (2026-SPRING7WK2)

Instructor: Nary Subramanian, Ph.D.
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Office Hours: By Zoom (with appointment).

Text (Required): *Machine Learning for Business Analytics: Concepts, Techniques and Applications with JMP Pro, 2nd Edition*, by Galit Shmueli, Peter C. Bruce, Mia L. Stephens, Muralidhara Anandamurthy, Nitin R. Patel. ISBN: 978-1-119-90385-7.

UT Tyler has a library-provided copy of the textbook for your use for free! Use the links in Modules>Textbook section of Canvas to access the textbook.

Catalog Description: Machine learning techniques are introduced including algorithms for implementing various stages of a machine learning system. Various stages include preprocessing, classification, clustering, regression analysis, and post processing. These stages can be implemented using statistical methods, non-parametric methods, neural networks, fuzzy inference systems, fuzzy neural systems.

Course Description: In today's rapidly evolving technological landscape, machine learning empowers computers to learn and adapt from data, enabling them to make intelligent decisions without explicit programming. This course is designed to equip you with the essential knowledge and skills to apply artificial intelligence, where machine learning plays a central role. Understanding machine learning is crucial for professionals across various domains, as it is important in data analysis, predictive modeling, natural language processing, and autonomous systems. In this course we will study various machine learning algorithms and applications which will give you the expertise needed to employ data-driven decision-making in your academic and professional careers. We will be programming using the *no-code* programming environment called **JMP Pro** (download from <https://www.jmp.com/en/academic/jmp-student-edition>) which is free to use for educational purposes and makes our programming rather easy. All course material and videos will be posted on Canvas.

Grading: Grading will be based on homework assignments. Assignments are open book. Assignment submissions should be made electronically to Canvas. Late submissions will not be graded and there is **no** penalty for early submissions. Assignments will be available from 12pm on Sunday and will be due by 8am on Wednesday; only in the last week you will have a *second* assignment that will appear at 8am that Wednesday due 8am that Friday. Each assignment will be worth 20 points and there will be seven assignments in all – the lowest assignment grade will be dropped. Sum of the six best assignment grades (maximum possible score = 120) will be used to compute your final letter grade as per the grading policy given below.

Grading Policy:

Total Points	Letter Grade
≥ 105	A
$\geq 90, < 105$	B
$\geq 80, < 90$	C

Course Objectives:

1. Identify methods for data cleaning, replacing missing data, and normalization.
2. Develop models for supervised classification using linear regression, K-nearest neighbors, decision trees,

logistic regression, and neural networks.

3. Develop clustering models using hierarchical and K-means clustering.

Census and Drop Dates

Census date: March 6th, Drop date: April 10th.

Make-up Policy

There will be no make-ups for missed homework assignments; missed assignments will get a grade of zero.

Tentative Schedule:

<u>Week</u>	<u>Chapter</u>	<u>Topic</u>
3/2 – 3/8	1, 2	Introduction to Machine Learning, Overview of the Machine Learning Process
3/9 – 3/15		Spring Break
3/16 – 3/22	6	Multiple Linear Regression
3/23 – 3/29	7	K-Nearest Neighbors
3/30 – 4/5	9	Classification and Regression Trees
4/6 – 4/12	10	Logistic Regression
4/13 – 4/19	11	Neural Networks
4/20 – 4/25	16	Cluster Analysis

UT Tyler AI Statement

UT Tyler is committed to exploring and using artificial intelligence (AI) tools as appropriate for the discipline and task undertaken. We encourage discussing AI tools' ethical, societal, philosophical, and disciplinary implications. All uses of AI should be acknowledged as this aligns with our commitment to honor and integrity, as noted in UT Tyler's Honor Code. Faculty and students must not use protected information, data, or copyrighted materials when using any AI tool. Additionally, users should be aware that AI tools rely on predictive models to generate content that may appear correct but is sometimes shown to be incomplete, inaccurate, taken without attribution from other sources, and/or biased. Consequently, an AI tool should not be considered a substitute for traditional approaches to research. You are ultimately responsible for the quality and content of the information you submit. Misusing AI tools that violate the guidelines specified for this course (see below) is considered a breach of academic integrity. The student will be subject to disciplinary actions as outlined in UT Tyler's Academic Integrity Policy.

AI Syllabus Information

For this course, AI is encouraged during the course, and appropriate acknowledgment is expected. You can use AI programs (ChatGPT, Copilot, etc.) in this course. These programs can be powerful tools for learning and other productive pursuits, including completing assignments in less time, helping you generate new ideas, or serving as a personalized learning tool. However, your ethical responsibilities as a student remain the same. You must follow UT Tyler's Honor Code and uphold the highest standards of academic honesty. This applies to all uncited or improperly cited content, whether created by a human or in collaboration with an AI tool. If you use an AI tool to develop content for an assignment, you must cite the tool's contribution to your work.