

DATX 5805 - Predictive Modeling Algorithms

Summer 2026 Syllabus, Section 01, CRN 30967,

Credit hours: 3

Instructor

Moon Nguyen

Professional Qualifications:

Ph. D, Financial Mathematics, Florida State University, 2014

Associate Professor

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Communication Expectations:

Email will be answered within 24 hours.

How to Refer to me:

Dr. Moon

Course Description

5805. Predictive Modeling Algorithms. Predictive modeling (also referred to predictive analytics and machine learning) applies statistical techniques in analyzing data to predict outcomes. Through a hands-on approach, this course helps students develop basic skills in predictive analytics. Topics may include (not limited to) k-nearest neighbors, naïve-Bayes, linear and logistic regression models, time-series models, classification and regression trees, Principle Component/Factor Analysis, non-linear models, neural networks, random forests, and cluster analysis among others. Prereq.: Junior standing or higher and GPA of 2.5 or higher. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Required	An Introduction to Statistical Learning with Applications in R (ISLR2), 2nd Edition	James, Witten, Hastie, Tibshirani.	978-1071614174

Free at statlearning.com

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Schedule of Topics and Assignments

Week of	Reading(s)	Proposed Topic	Due/To Prepare for Class
6/29	Chapter 2	Introduction to Statistical Learning, R/ RStudio, Model Assessment	7/5 Practice Quiz (due 7/1) Quiz 1 and Assignment 1
7/6	Chapter 3	Linear Regression Models	7/12 Quiz 2 and Assignment 2
7/13	Chapter 4	Classification and Logistic Regression	7/19 Quiz 3 and Assignment 3

7/20	Chapter 5 and 6	Cross-Validation and Regularization	7/26 Quiz 4 and Assignment 4
7/27	Chapter 8	Tree-Based Methods and Random Forest	8/2 Quiz 5 and Assignment 5
8/3	Chapter 12	Unsupervised Learning: PCA and Clustering	8/9 Quiz 6 and Assignment 6
8/10	Final Project	Final Project Completion and Presentations	8/13 Final Project due at 11:59 pm

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.