

DATX 6905 - Predictive Modeling Algorithms

Fall 2026 Syllabus, Section 01, CRN 43056,

Credit hours: 3

Instructor

G. Jay Kerns

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Public Instructor Information

Instructor Title: Professor

Instructor Professional Qualifications:

- Ph. D., Mathematics, Statistics Specialization, Bowling Green State University
- M.A., Mathematics, Bowling Green State University
- B.A. Ed., Music, Mathematics, Science, Glenville State College

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Course Description

6905. 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, Principal Component/Factor Analysis, non-linear models, neural networks, random forests, and cluster analysis among others. Credit will not be given for both DATX 5805 and DATX 6905. Prereq.: Graduate Standing. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Required	An Introduction to Statistical Learning	Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani	978-1-0716-1420-4

The textbook is freely available at <https://www.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
8/24	Ch2: Sections 1&2	Statistical Learning, Assessing Model Accuracy, Introduction to R	Quiz 1 & Assignment 1
9/7	Ch3: Sections 1-6	Linear Regression Models	Quiz 2 & Assignment 2
9/21	Ch4: Sections 1-3, 6	Classification, Logistic Regression, Generalized Linear Models	Quiz 3 & Assignment 3
10/5	Ch5: 1-3, excluding 5.3.4	Cross-Validation, The Bootstrap	Assignment 4
10/19	Ch6: Sections 1-5	Linear Model Selection and Regularization	Quiz 4 & Assignment 5
11/2	Ch8: 1-3 excluding 8.2.4, 8.2.5, and 8.3.5	Tree-Based Methods	Quiz 5 & Assignment 6
11/16	Ch12: 1-2, 4-5, excluding 12.5.2	The Challenge of Unsupervised Learning, Principal Components Analysis, Clustering Methods	Quiz 6

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.