

AMBERTON UNIVERSITY
e-COURSE SYLLABUS

MGT6785.E1 Applied Predictive Analytics
Fall 2026

PROFESSOR INFORMATION:

Professor: Dr. Nicholas Bowersox
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COURSE INFORMATION:

MGT6785.E1 Applied Predictive Analytics
Level: Graduate
Beginning Date of Session: Saturday, September 12, 2026
Ending Date of Session: Thursday, November 19, 2026
Student access available to the Student Portal: Saturday, Enter Date.

Students enrolled in distance learning courses are not assessed any additional fees for security or identity verification.

PREREQUISITES:

MGT6460 Applied Business Analytics

TEXTBOOK(S) AND REQUIRED MATERIALS:

Title: Fundamentals of Predictive Analytics with JMP
Author: Ron Klimberg
Publisher: SAS Institute, Inc.
Year Published: 2023
Edition: 3rd edition
ISBN: 13: 9781685800277

The following textbook is optional. It goes into more detail (and covers a few additional topics) than the textbook above, and thus, may serve as a nice complement for those students looking for more information on data mining/machine learning/predictive analytics.

Title: Machine Learning for Business Analytics: Concepts, Techniques, & Applications with JMP Pro
Author: Galit Shmueli, Peter C. Bruce, Mia L. Stephens, Muralidhara Anandamurthy, Nitin R. Patel
Publisher: Wiley
Year Published: 2023
Edition: 2nd edition
ISBN: 13: 9781119903833
Price: Available at <http://amberton.ecampus.com>

Students should verify enrollment in course before purchasing textbooks. Textbook information and ordering options are available through the Amberton Virtual Bookstore. Since no books are sold on campus, students should plan accordingly and purchase their books in advance of the first day of class, allowing time for shipping.

APA REQUIREMENT:

APA (American Psychological Association) style is most commonly used to cite sources within the social sciences. This resource, revised according to the 7th edition, offers examples for the general format of APA research papers, in-text citations, endnotes/footnotes, and the reference page. For more information, please

consult the Publication Manual of the American Psychological Association, (7th ed.). All coursework at Amberton University will comply with the standards contained in the APA Publication Manual.

COURSE COMPETENCIES:

This course will explore the foundations of predictive analytical and machine learning techniques commonly used to guide the decision-making process in organizations. A variety of crucial topics will be addressed, some of which may include the following: regression (both linear and logistic), decision trees, the k-nearest neighbor algorithm (k-NN), neural networks, random forests, support vector machines, and clustering techniques. Activities include conducting regression and k-NN analysis on various data sets and interpreting results.

UPON COMPLETION OF THE COURSE, THE STUDENT WILL BE COMPETENT IN:

1. Defining the term 'predictive analytics'
2. Differentiating between supervised and unsupervised learning.
3. Discussing the key differences between parametric and nonparametric models.
4. Understanding some of the common obstacles and challenges in using predictive analytics.
5. Comparing and contrasting clustering versus classification algorithms.
6. Conducting a k-means algorithm on a data set using software and interpreting the results.
7. Comparing and contrasting both linear and logistic regression. Understand the similarities and differences.
8. Explaining the results of a decision tree analysis and its implications for decision-making.
9. Conducting a regression analysis (both linear and logistic) on a data set using software and interpreting the results.
10. Conducting a k-NN analysis on a data set using software and interpreting the results.
11. Researching and applying artificial intelligence (AI) models to solve specific business problems, with a focus on machine learning and other subsets of AI relevant to data analytics.

ACQUIRED SKILLS

1. K-means Algorithm
2. K-KN Analysis
3. Analytical Skills
4. Knowledge of Decision Trees

COURSE POLICIES:

The learning environment is one of mutual respect between the professor and student. Please be mindful to adhere to all course policies and procedures. Students are expected to submit all course assignments on time. Assignments are to be submitted on the due date by 11:55 PM (Central Standard Time) via Moodle. Late assignments will not be accepted. Extra credit is not allowed for the course.

STUDENTS' RESPONSIBILITIES:

This syllabus contains information, policies, and procedures for a specific course. By enrolling, the student agrees to read, understand, and abide by the policies, rules, regulations, and ethical standards of Amberton University as contained in the current university catalog and schedule of classes.

ATTENDANCE POLICY:

Regular and punctual class attendance and engagement is expected at Amberton University. In case of an absence, it is the student's responsibility to contact the professor as soon as possible. If a student intends on withdrawing from a course, it is the student's responsibility to follow the university's policy on formally withdrawing from a course. **Ceasing to attend classes does not constitute an official withdrawal.**

Attendance in a lecture course is defined as punctual arrival to, and engagement in, a full lecture session. A Student in a lecture course missing more than 20% (two class periods for weekday classes or one class period for Saturday classes) of the class meetings may be assigned a grade of an "F" or withdrawn at the discretion of Amberton University.

Attendance in a distance learning course is defined as active participation in the weekly online class sessions. "Active participation" can be defined as: submitting an academic assignment, taking an exam, engaging in an

interactive tutorial, participating in an online discussion forum (or chat session), or initiating (or responding to) a communication with a faculty member about an academic assignment or the subject matter of the course. A student not meeting these requirements may be assigned a grade of an “F” or withdrawn at the discretion of Amberton University.

PLAGIARISM POLICY:

Plagiarism is the presentation of someone else’s work as though it were your own. If you use another person’s words, ideas, or information; or if you use material from an outside source – whether a book, magazine, newspaper, business publication, broadcast, speech, or electronic media – you must acknowledge that source. Plagiarism is a violation of the University’s code of student ethical conduct and is one that is taken seriously. Amberton University operates on an honor system; therefore, honesty and integrity are essential characteristics of all who are associated with the institution. All Amberton students are expected to abide by the honor system and maintain academic integrity in all their work. Amberton University and its instructors monitor student work for plagiarism and reserve the right to submit such work to technology-based plagiarism detection services and applications at any time.

Self-plagiarism means reusing work that you have already published or submitted for a class. It can involve:

- Resubmitting an entire paper
- Copying or paraphrasing passages from your previous work

Self-plagiarism misleads your readers by presenting previous work as completely new and original. Students may not submit the same paper in substance in two or more classes without prior written permission of the instructors involved.

Amberton University students who use Artificial Intelligence (AI) generated content must adhere to the following policies:

Originality: Students must avoid presenting AI generated content as their own original work. It is essential to acknowledge the involvement of AI in the content creation process in order to maintain academic and ethical standards.

Paraphrasing: When using AI generated content, students must rephrase and/or modify the generated text. Paraphrased AI generated content should also be properly cited.

Acknowledgement: When using AI generated content in any assignment, proper credit must be given to the AI system that generated the content. <https://apastyle.apa.org/blog/how-to-cite-chatgpt>

Students agree that by taking this course, all required assignments may be subject to submission for a textual similarity review to Turnitin.com for the detection of plagiarism and self-plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism in future papers. Use of Turnitin.com service is subject to the Usage Policy posted on the Turnitin.com website.

Turnitin is a writing improvement and plagiarism prevention tool which uses special algorithms, to compare text-based student submissions to the Turnitin database and other online sources. Turnitin produces a detailed **similarity report** that can be customized and viewed by instructors and students.

Turnitin “Draft Coach” is a Google based add-on to Turnitin which supports students in developing high-quality academic writing; and serves as an integrity coach. Draft Coach helps address errors and improve the quality of student’s writing by highlighting grammar mistakes, identifying incorrectly cited sources, and scanning for similarity across several databases. By providing formative feedback on how to address citation issues, incorrect grammar, and matches with the Turnitin database, Draft Coach provides explanations to help students become more confident writers, capable of producing higher quality work both in academics and in the workplace.

COURSE OUTLINE AND CALENDAR:

This course will focus on the student's academic and professional growth. The classroom activities will include textbook reading, discussions, quizzes, homework, and a final project. These activities are designed to help students acquire knowledge, increase learning, and master course content.

A brief outlay of class is as follows:

- Week 1 serves as an intro to class and a review of statistics, as well as a familiarization with JMP software.
- Weeks 2 and 3 cover predictive techniques and forecasting.
- Weeks 4, 5, and 6 cover various classification techniques. Still, others (that we won't cover) exist such as the Naïve Bayes Classifier and Support Vector Machines (SVM).
- Week 7 covers various clustering algorithms.
- Week 8 covers dimension reduction techniques.
- Week 9 covers basic text mining which is related to Natural Language Processing (NLP).
- Week 10 is a short week and thus serves largely as free time to finish the final project.

Upon completion of the course, you will have grasped many of the fundamental concepts of predictive analytics.

Week	Topic	Assignment	Competencies Covered	Due Date
1	Introduction to JMP Software Chapter 1: Introduction Chapter 2: Statistics Review Chapter 3: Dirty Data Chapter 4: Data Discovery with Multivariate Data Chapter 18: Statistical Storytelling	Read Chapters 1-4 and 18 Do DQ 1 Complete HW 1	1, 2, 3, 4, 11	September 20, 2026
2	Chapter 5: Regression & ANOVA Chapter 8: LASSO & Elastic Net	Read Chapters 5 and 8 Do DQ 2 Complete Quiz 1	7, 9, 11	September 27, 2026
3	Chapter 17: Time Series Forecasting	Read Chapter 17 Do DQ3 Complete HW 2	4, 11	October 4, 2026
4	Chapter 6: Logistic Regression Chapter 10: Decision Trees	Read Chapters 6 and 10 Do DQ 4	5, 7, 8, 9, 11	October 11, 2026

		Complete Quiz 2		
5	Chapter 11: k-Nearest Neighbors Chapter 12: Neural Nets	Read Chapters 11 and 12 Do DQ 5 Complete HW 3	5, 10, 11	October 18, 2026
6	Chapter 13: Bootstrap Forests & Boosted Trees Chapter 14: Model Comparison	Read Chapters 13 and 14 Do DQ 6 Complete Quiz 3	5, 8, 11	October 25, 2026
7	Chapter 9: Cluster Analysis	Read Chapter 9 Do DQ 7 Complete HW 4	5, 6, 11	November 1, 2026
8	Chapter 7: Principal Components Analysis	Read Chapter 7 Do DQ 8 Complete Quiz 4	4, 11	November 8, 2026
9	Chapter 15: Text Mining	Read Chapter 15 Do DQ 9 Complete HW 5	4, 11	November 15, 2026
10	Course Wrap Up	Do DQ 10 Complete Quiz 5 Complete Course Project	1 thru 11	November 19, 2026

GRADING CRITERIA:

There are several types of assignments given in class. All of these are aimed at providing a plethora of various ways that students can meet their learning objectives.

Discussions (DQ) – There is a course discussion each week. Students are required to have an initial post answering the question and a reply post responding to a classmate. More details will be given in each discussion.

Homework (HW) – There are bi-weekly homework assignments in class. These may include a variety of problem types, but the primary focus will be on analyzing datasets in JMP and interpreting the results.

Quizzes – There are bi-weekly quizzes in class and are set on alternating weeks from the homework assignments. These will largely be T/F, multiple choice, simple computations, and/or short answer questions. Note that the final quiz will not cover material but instead will be a short self-reflection/opinion on what you learned in class (no more than 8 to 10 sentences).

Course Project – Students will be required to complete a course project. Several options will be given which may include analyzing a data set of your choice and presenting the results in a narrated PPT, providing a teaching demo (via narrated PPT) on a related topic to class (i.e. Naïve Bayes classifier, Support Vector Machines, etc.), providing a teaching demo (via narrated PPT) on how to analyze a data set (using a technique we learned in class) with a different software (JASP, SPSS, R, Python, etc.), etc. Additional details will be

provided in the course shell. Students will have the entire term to work on this project. Please do not wait until the last minute to start.

Assignment	Quantity	Points	Percent of Total
Discussions	10 (due weekly)	10 pts ea. x 10 = 100	10%
Homework	5 (due bi-weekly)	100 pts ea. x 5 = 500	50%
Quizzes	5 (due bi-weekly)	40 pts ea. x 5 = 200	20%
Course Project	1 (due in Week 10)	200	20%

Graduate

92 – 100 A

82 – 91 B

72 – 81 C

62 – 71 D

Below 62 F

GRADE NOTIFICATION AND INSTRUCTOR FEEDBACK:

Students should review instructor feedback provided through Moodle or Amberton CampusWeb Portal. Final grades are processed approximately one week after the session and may be viewed through the student portal. Grades will not be released by phone or through unsecured channels. University instructors will not leave a message with comments or grades in any type of media that is not secure.

For questions regarding grades after the semester has ended, students should use their university email account and contact the instructor at the faculty email address as provided above in Professor Information area.

INCOMPLETE GRADES:

An "I" (Incomplete) grade is granted only at the professor's discretion for emergencies or illness.

Students have 30 days from the end of the session to complete the course requirements. If the conditions are not met within this 30-day window, the "I" automatically converts to an "F".

HOW TO WITHDRAW FROM A COURSE:

To be official, the class withdrawal must be in writing and signed by the student requesting the withdrawal; no withdrawal is accepted verbally. Please review the "Schedule of Classes" (online or in-print) for procedures for class changes or withdrawals and the refund policy and schedule.

COURSE DELIVERY METHODOLOGY:

This course is delivered through Moodle. Students are expected to have reliable internet access, basic computer skills, the ability to upload/download files, use Amberton email, and submit assignments in the required format. Students needing assistance should use the Amberton SSO support/ticket process.

HOW TO ACCESS YOUR COURSE:

SINGLE SIGN-ON (SSO) INSTRUCTIONS FOR AMBERTON UNIVERSITY:

Students should access Amberton systems through the Single Sign-On portal at <https://sso.amberton.edu>. After logging in, students can access Moodle, Amberton email, CampusWeb, and other assigned applications. Students who need help accessing SSO should submit a support request through the SSO support option or contact support@amberton.edu.

MOODLE TUTORIAL:

Upon successful log in and access to the Moodle learning platform, there is a Student Moodle Tutorial course available, to learn about the basics of Moodle. Simply click on the link for the Student Moodle Tutorial and read through the various learning topics: Navigating; Communicating; Assignments & Exams; Grades; and Student Resources.

COURSE COMMUNICATIONS:

Students will communicate with faculty through the Moodle Learning Platform or the Amberton University email system.

EMAIL COMMUNICATION:

Students are expected to use their Amberton email account and Moodle for course communications. Students must use their official university email account for all university related communication and should check their Amberton emails regularly for course and university notices.

Upon completion of a session, all communication and course specific information is removed from the Moodle system. If a student needs to maintain a record of communications or assignments, the student is strongly encouraged to print out or download these items to a disk for their own records.

FORMAT AND SUBMISSION OF ASSIGNMENTS:

Assignments must be submitted through the appropriate Moodle assignment link unless otherwise directed by the instructor. Students are responsible for submitting files in the format required by the instructor.

INSTRUCTOR/COURSE EVALUATION:

Students will have the opportunity to complete an anonymous course and instructor evaluation near the end of the session. Instructions and dates will be provided through Moodle and/or Amberton email.

RESEARCH RESOURCES:

The Amberton Library provides access to full-text articles, peer-reviewed databases, and research tools, with options like Interlibrary Loan (ILL) and TexShare for items outside its collection. For research assistance, students can connect with library staff during operating hours via email (library@amberton.edu), phone (972-279-6511 ext. 185), "How-to" videos, live online chat, or in person at the Garland campus. The online library is available through Single Sign On (SSO).

MICROSOFT OFFICE 365 EDUCATION:

Amberton University students may access Microsoft 365 Education resources as provided by the university.

GOOGLE WORKSPACE FOR EDUCATION:

Amberton students are assigned a Google Workspace for Education account, including Amberton Gmail, Google Drive, Google Docs, Sheets, and Slides. Students should use their Amberton Google account for course-related work when required.