



## **Course Syllabus: Machine Learning Applications**

Dillard College of Business Administration

BUAD 5643

Spring 2026

### **Contact Information**

Instructor: Dr. Andrew Holt

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Office hours: 11am – 1pm Tuesdays, Wednesdays, and Thursdays.

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### **Course Description**

This is a graduate course intended to introduce you to the field of statistical learning. Students will learn about a variety of statistical learning techniques and how to implement them using Python.

General Learning Goals: Students will be asked to demonstrate their critical thinking and problem-solving skills by applying statistical learning techniques in their homework assignments and exams. This course aims to contribute to developing students' ability to communicate their analyses in a professional manner. Students will have to integrate the statistical knowledge they acquire from this course with multiple business disciplines.

Course Specific Learning Goals: Students will learn topics including Linear Regression, KNN Regression, Classification, Resampling, Ridge and Lasso Regressions, and Dimension Reduction techniques. While we will mostly focus on intuition this class will also be useful as an introduction to Python coding.

### **Textbook & Instructional Materials**

- We will use the following textbook: [Introduction to Statistical Learning Python Edition](#)
- You will need to download [Python 3](#) onto your computer.
- You will need to submit python scripts for homework. I recommend using Spyder on [Anaconda](#).
- You will need a working webcam to use Lockdown Browser and Respondus Monitor.

## Student Handbook

Refer to: [Student Handbook](#)

### Academic Misconduct Policy & Procedures

Academic Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individual's to whom credit is given). Additional guidelines on procedures in these matters may be found in the Office of Student Conduct. [Office of Student Conduct](#)

### Moffett Library

Moffett Library provides resources and services to support student's studies and assignments, including books, peer-reviewed journals, databases, and multimedia materials accessible both on campus and remotely. The library offers media equipment checkout, reservable study rooms, and research assistance from librarians to help students effectively find, evaluate, and use information. Get started on this [Moffett Library webpage](#) to explore these resources and learn how to best utilize the library.

### Grading

*Table 1: Points allocated to each assignment*

Assignments	Points
Quizzes (5 at 2 pts each)	10
Coding Homework (4 at 1pt each)	4
Exam 1	20
Exam 2	20
Final Project	20

*Table 2: Total points for final grade.*

Grade	Points
A	66.6 or greater
B	59.2 to 66.6
C	51.8 to 59.2
D	44.4 to 51.8
F	Less than 44.4

## **Coding Homework**

Coding Homework will be due on Fridays of Week 2, 4, 6, and 11 at 11:59pm. They are worth 1 point each. You will need to upload a Python script to the appropriate place in D2L.

## **Quizzes**

Quizzes will be due on Fridays of Week 2, 3, 5, 9, and 10 at 11:59pm. They are worth 2 points each. These quizzes will be similar to exam questions. You should treat them like homework. You will take the quizzes online on D2L.

## **Exams**

There will be 2 online exams. The midterm exam will be during week 7 and the final exam will be during week 12. Each exam will be worth 20 points each. You will be given roughly 1 hour to complete an exam. You will have to use Lockdown Browser as well as Respondus Monitor during the exam.

## **Final Project**

Students are expected to create teams of 1-4 students for final projects. Project proposals, progress reports, and final reviews will be part of the process. All people in groups are expected to contribute. This is your opportunity to demonstrate what you have learned in ways that reach beyond the simple coding assignments. Students commonly find a unique, complex dataset and associated learning problems and apply the techniques presented in the class. The goal is to create a coherent, completed project for presentation at the end of class. Ask yourself what you would want to show an employer in order to demonstrate what you have learned in this course. The Project will be divided into five parts: Brainstorming, Proposal, Update 1, Update 2, and the Final Report. The first four parts are worth 2 points each and the final report is worth 12 points.

## **Late Work**

I do not accept late work after the answers have been posted.

## **Make Up Work/Tests**

If you miss the midterm exam, your final exam score will replace the midterm.

## **Important Dates**

- Last day for term schedule changes: Check date on [Academic Calendar](#).
- Deadline to file for graduation: Check date on [Academic Calendar](#).
- Last Day to drop with a grade of W: Check date on [Academic Calendar](#).
- Refer to: [Drops, Withdrawals & Void](#)

## Desire-to-Learn (D2L)

Extensive use of the MSU D2L program is a part of this course. Each student is expected to be familiar with this program as it provides a primary source of communication regarding assignments, examination materials, and general course information. You can log into [D2L](#) through the MSU Homepage. If you experience difficulties, please contact the technicians listed for the program or contact your instructor.

## Online Computer Requirements

Taking an online class requires you to have access to a computer (with Internet access) to complete and upload your assignments. It is your responsibility to have (or have access to) a working computer in this class. ***\*Assignments and tests are due by the due date, and personal computer technical difficulties will not be considered reason for the instructor to allow students extra time to submit assignments, tests, or discussion postings.*** Computers are available on campus in various areas of the buildings as well as the Academic Success Center. ***\*Your computer being down is not an excuse for missing a deadline!!*** There are many places to access your class! Our online classes can be accessed from any computer in the world which is connected to the internet. Contact your instructor immediately upon having computer trouble. If you have technical difficulties in the course, there is also a student helpdesk available to you. The college cannot work directly on student computers due to both liability and resource limitations however they are able to help you get connected to our online services. For help, log into [D2L](#).

## Change of Schedule

A student dropping a course (but not withdrawing from the University) within the first 12 class days of a regular semester or the first four class days of a summer semester is eligible for a 100% refund of applicable tuition and fees. Dates are published in the Schedule of Classes each semester.

## Refund and Repayment Policy

A student who withdraws or is administratively withdrawn from Midwestern State University (MSU) may be eligible to receive a refund for all or a portion of the tuition, fees and room/board charges that were paid to MSU for the semester. HOWEVER, if the student received financial aid (federal/state/institutional grants, loans and/or scholarships), all or a portion of the refund may be returned to the financial aid programs. As described below, two formulas (federal and state) exist in determining the amount of the refund. (Examples of each refund calculation will be made available upon request).

## **Services for Students with Disabilities**

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable accommodations to ensure equal opportunity for qualified persons with disabilities to participate in all educational, social, and recreational programs and activities. After notification of acceptance, students requiring accommodations should make application for such assistance through Disability Support Services, located in the Student Wellness Center, (940) 397-4140. Current documentation of a disability will be required in order to provide appropriate services, and each request will be individually reviewed. For more details, please go to [Disability Support Services](#).

## **College Policies**

### *Campus Carry Rules/Policies*

Refer to: [Campus Carry Rules and Policies](#)

### *Smoking/Tobacco Policy*

College policy strictly prohibits the use of tobacco products in any building owned or operated by WATC. Adult students may smoke only in the outside designated-smoking areas at each location.

### *Alcohol and Drug Policy*

To comply with the Drug Free Schools and Communities Act of 1989 and subsequent amendments, students and employees of Midwestern State are informed that strictly enforced policies are in place which prohibits the unlawful possession, use or distribution of any illicit drugs, including alcohol, on university property or as part of any university-sponsored activity. Students and employees are also subject to all applicable legal sanctions under local, state and federal law for any offenses involving illicit drugs on University property or at University-sponsored activities.

### *Campus Carry*

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes has prohibited. The new Constitutional Carry law does not change this process. Concealed carry still requires a License to Carry permit, and openly carrying handguns is not allowed on college campuses. For more information, visit [Campus Carry](#).

### Active Shooter

The safety and security of our campus is the responsibility of everyone in our community. Each of us has an obligation to be prepared to appropriately respond to threats to our campus, such as an active aggressor. Please review the information provided by MSU Police Department regarding the options and strategies we can all use to stay safe during difficult situations. For more information, visit [MSUReady – Active Shooter](#). Students are encouraged to watch the video entitled “Run. Hide. Fight.” which may be electronically accessed via the University police department’s webpage: ["Run. Hide. Fight."](#)

### **Grade Appeal Process**

Update as needed. Students who wish to appeal a grade should consult the Midwestern State University [MSU Catalog](#). \***Notice:** Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor.

### **Course Schedule:**

Week	Dates	Topic	Assignments	Project
1	Jan 20 <sup>th</sup> – Jan 24 <sup>th</sup>	Statistical Learning		
2	Jan 25 <sup>th</sup> – Jan 31 <sup>st</sup>	Statistical Learning	Quiz 1 and Coding 1 Due	
3	Feb 1 <sup>st</sup> – Feb 7 <sup>th</sup>	Linear Regression	Quiz 2 Due	
4	Feb 8 <sup>th</sup> – Feb 14 <sup>th</sup>	Linear Regression	Coding 2 Due	
5	Feb 15 <sup>th</sup> – Feb 21 <sup>st</sup>	Classification	Quiz 3 Due	
6	Feb 22 <sup>nd</sup> – Feb 28 <sup>th</sup>	Classification	Coding 3 Due	
7	Mar 1 <sup>st</sup> – Mar 7 <sup>th</sup>		Exam 1	
8	Mar 8 <sup>th</sup> – Mar 14 <sup>th</sup>	Spring Break		
9	Mar 15 <sup>th</sup> – Mar 21 <sup>st</sup>	Resampling	Quiz 4 Due	Brainstorming Due
10	Mar 22 <sup>nd</sup> – Mar 28 <sup>th</sup>	Shrinkage and PCA	Quiz 5 Due	
11	Mar 29 <sup>th</sup> – April 4 <sup>th</sup>	Shrinkage and PCA	Coding 4 Due	
12	Apr 5 <sup>th</sup> – Apr 11 <sup>th</sup>		Exam 2	
13	Apr 12 <sup>th</sup> – Apr 18 <sup>th</sup>			Proposal Due
14	Apr 19 <sup>th</sup> – Apr 25 <sup>th</sup>			Update 1 Due
15	Apr 26 <sup>th</sup> – May 2 <sup>nd</sup>			Update 2 Due
16	May 3 <sup>rd</sup> – May 9 <sup>th</sup>			Project Report Due
17	May 10 <sup>th</sup> – May 16 <sup>th</sup>			