

MA477: Data Science
Lesson Outline — 6 January 2026
United States Military Academy, West Point
Instructor: MAJ Patrick Kuiper

1 Introductions

2 Demo of board briefing

- First name or Appropriate Nick name
- Hometown - Houston, TX
- Academic History - PhD: Duke, Masters: Harvard, Bachelors: USMA
- Service History - Armor Officer, last Army job I was an Infantry BN XO, Deployed 4x to Iraq / Afghanistan
- Family - 5 kids: 4-19 years old, eldest just started college, we live in Cold Spring, NY across the river



Figure 1: My Family

2.1 Cadet Introductions

Modified Name Game - Write On the board, brief yours and everyone before you, starting from your right:

- Name and company

- Academic major
- Personal Interest or Hobby
- Tell us about your picture

3 Understanding Data Science

3.1 What Is Data Science?

Go to the board and tell us what Data Science means for you.

3.2 Roles of Data Science in the Army

Discuss how you have heard, experienced, or guessed Data Science is used in the Army.

4 Understanding Statistical Learning / Machine Learning

Record your thoughts on these questions:

- Describe some of the key ways we distinguish between statistical learning techniques
- What are some challenges with statistical learning
- What previous concepts which you have learned at USMA will be used?

5 Course Structure and Administration

5.1 Topics Covered

- Regression
- Classification
- Tree-Based Techniques
- Neural Networks
- Unsupervised Learning and NLP

5.2 Books, Software, and Tools

- Geron and ISLP
- Google Colab and Drive

5.3 Grades.

Table 1: Course Evaluation and Point Distribution

| Graded Event | Points per Event | Number of Events | Total Points |
|-----------------------------|------------------|------------------|--------------|
| AI Certification Assignment | 10 | 1 | 10 |
| Lesson Preparation Checks | 2 | 25 | 50 |
| Quizzes (8, drop lowest) | 50 | 7 | 350 |
| Problem Sets | 70 | 5 | 350 |
| Projects | 80 | 3 | 240 |
| Total | | | 1000 |

5.4 Lesson Preparation Checks.

For lessons with assigned reading, cadets will be randomly selected to provide a brief summary of the material. Each cadet should expect to present a 3-5 briefings during the semester. You may use any handwritten notes during your explanation. Each briefing will be evaluated on a 0–2 scale, and your scores will be averaged and then scaled to a maximum of 50 points.

6 Looking Ahead

6.1 Upcoming Lessons

I will be randomly selecting a student starting next class.

6.2 Preparation for Next Class

Any readings, setup tasks, or preparation required before the next lesson.