

# CS 495 – Machine Learning, Winter 2019

**Instructor:** Michael Kowalczyk

**Office:** 2222 Jamrich Hall

**Office Phone:** 227-1600

**Class Meetings:** 12:00noon – 12:50pm Mon / Wed / Thurs / Fri in room 310 TFA

**Walk-in Office Hours:** 1:00pm – 2:20pm Mon / Wed / Fri

**By-appointment Office Hours:** 9:00 – 9:55 Mon / Wed / Thurs / Fri and 10:00 – 2:20 Tues

You can reserve up to an hour per appointment. Use Starfish in MyNMU to set up a time.

You must log into Starfish before 1:00pm if you want to make a next-day appointment.

**Email:** [mkowalcz@nmu.edu](mailto:mkowalcz@nmu.edu)

**Course Website:** <https://educat.nmu.edu>

**Prerequisite:** CS 222

## Overview:

In this course, we study and implement strategies for writing computer programs that improve with experience. The basic theory of machine learning will be covered, including concepts such as hypothesis space, bias, overfitting, training sets, and testing sets. We will also study specific machine learning techniques, such as decision trees, Bayesian classifiers, instance-based learning, etc. These techniques will be applied to real-world problems. We will be focused primarily on supervised learning, though other approaches (semi-supervised, un-supervised, and reinforcement learning) may be explored as well.

## Course objectives:

The bottom line is to understand most common machine learning algorithms to the point where you could implement any of them, and also be able to deploy these techniques effectively in situations where they may actually be used. Specifically, at the end of the course each student should...

- understand the basic terminology and theory of machine learning,
- know how the most common machine learning techniques work,
- have implemented at least one machine learning algorithm from scratch, and
- have demonstrated the skills involved in applying machine learning algorithms to solve problems.

Evaluation of these learning outcomes will be done through assignments, quizzes, and/or the final exam.

## Textbook:

Our textbook is *Fundamentals of Machine Learning for Predictive Data Analytics* by Kelleher, Namee, and D'Arcy, ISBN 978-0-262-02944-5.

## Grading:

Grades will be based on assignments, quizzes, and a final exam. Assignments and quizzes are weighted based on their size and complexity.

85% Assignments and quizzes

15% Final exam

**Handing in Programs and Late Policy:**

If an assignment is handed in late, but before I have started grading, then I will accept it for full credit. If an assignment is handed in after I have begun my grading session, I can still give feedback but it won't get credit. If for some reason you are having trouble handing something in, you can email it to me as an attachment.

**Exam Dates & Schedule Conflicts:**

The final exam will be on Monday, April 29 from 12:00noon until 1:50pm. Any conflicts with the exam (due to religious observances, other coursework, intercollegiate athletics, etc) must be made known to me as soon as you are aware of the conflict.

**Academic Conduct:**

I work hard, with honesty and integrity; I expect my students to do the same. If a program includes source code that you didn't write, indicate that clearly and provide a link to where you got it from.

**Disability Services:**

If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Dean of Students Office at 2001 C. B. Hedgecock Building (227-1700). Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines.