

# MINOR IN MACHINE LEARNING

Machine learning (ML) is the science of creating algorithms that learn from data. ML systems are everywhere, from cars and smartphones to various home devices. Businesses of all sizes are investing in ML technology. ML is also ubiquitous across the sciences: Many areas of science generate large amounts of data and rely on ML to assist in making new discoveries in fields ranging from particle physics to medicine.

The ML minor provides students a path that includes introductory and advanced machine learning courses along with the necessary foundational coursework and skills in computing, math, and statistics.

Computer Science has competitive entrance requirements. Please contact a department advisor for more information.

## Learning Objectives

Upon successful completion of this program, students will be able to:

1. Develop ML approaches for complex real-world problems.
2. Use a broad range of ML tools, techniques, and algorithms.
3. Apply ML tools in an ethical and socially responsible manner, with an awareness of biases that can result from their indiscriminate use.
4. Communicate results of complex analyses using appropriate visualization techniques.

## Requirements Effective Fall 2022

A minimum grade of C (2.000) is required in all courses required for the minor.

Additional coursework may be required due to prerequisites.

Students must satisfactorily complete the total credits required for the minor. Minors and interdisciplinary minors require 12 or more upper-division (300- to 400-level) credits.

Code	Title	Credits
CS 165	CS2--Data Structures	4
CS 220	Discrete Structures and the Applications	4
CS 345	Machine Learning Foundations and Practice	3
CS 445	Introduction to Machine Learning	4
Select one course from the following:		2-4
CS 162	CS1--Introduction to Java Programming	
CS 163	CS1---No Prior Programming Experience	
CS 164	CS1--Computational Thinking with Java	
Select one course from the following:		3-4
DSCI 369	Linear Algebra for Data Science	
MATH 369	Linear Algebra I	
Select one course from the following:		1-3
STAT 301	Introduction to Applied Statistical Methods	
STAT 302A	Statistics Supplement: General Applications	

STAT 303/ ECE 303	Introduction to Communications Principles
STAT 307	Introduction to Biostatistics
STAT 315	Intro to Theory and Practice of Statistics

**Program Total Credits: 21-26**