

Engineering Faculty Document No. EFD 36-22
December 14, 2021

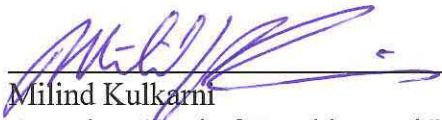
Memorandum

To: The College of Engineering Faculty**From:** The Elmore Family School of Electrical and Computer Engineering**Re:** new Artificial Intelligence/Machine Learning minor

The faculty of the Elmore Family School of Electrical and Computer Engineering has approved the following new minor from the College of Engineering. This action is now submitted to the Engineering Faculty with a recommendation for approval.

Description: The Artificial Intelligence and Machine Learning minor gives students a grounding in the fundamental concepts underlying modern AI and Machine Learning approaches and systems. It covers both the mathematical background as well as programming, and allows students to branch out and draw on courses across the spectrum of AI and ML topics.

Reasons: There is an increasing demand from students for courses in the areas of AI and ML and for credentials that attest to their knowledge. This minor helps give students the fundamentals and the applications of AI/ML techniques.



Milind Kulkarni
Associate Head of Teaching and Learning
Professor of Electrical and Computer Engineering

Artificial Intelligence/Machine Learning

Requirements for the Minor (18 credits)

Required Courses (3 credits)

ECE 20875 Python For Data Science

Cores (6 credits)

Must complete a minimum of two of the following core courses. Total Required, Core and Elective credits must reach at least 18 credits.

ECE 26400 Advanced C Programming
ECE 30100 Signals And Systems
ECE 30200 Probabilistic Methods In Electrical And
Computer Engineering
ECE 36800 Data Structures
ECE 36900 Discrete Mathematics For Computer
Engineering

Electives (6 credits)

Must complete a minimum of two of the following elective courses. Total Required, Core and Elective credits must reach at least 18 credits.

ECE 43800 Digital Signal Processing With Applications
ECE 47300 Introduction To Artificial Intelligence
ECE 49595 Selected Topics In Electrical And
Computer Engineering
[Right] Titles: Data Mining Basic Concepts & Techniques;
Cameras, Images, and Statistical Inverse Problems
ECE 56900 Introduction To Robotic Systems
ECE 59500 Selected Topics In Electrical Engineering
[Right] Titles: Machine Learning; Intro to Deep Learning;
Deep Learning for Computer Vision; Natural
Language Processing; Introduction to Data Mining

Notes

- In addition to the course pre-requisites, the student's cumulative GPA must be a minimum of 3.0 at the time of application. A minimum ECE GPA of 3.0 is required to complete the

minor.

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

APPLICATION TO MINOR IN ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

General Requirements:

- Before applying for the AIML minor, students must have completed MA 16100/16500, MA 16200/16600, PHYS 17200 (or their equivalents), and CS 15900/24000, with a minimum grade of C- in each course. In addition, the student's cumulative GPA at the time of admission to this minor must be at least 3.00.
- Students must apply for the AIML minor in person in MSEE 140 either during walk-ins or by appointment.
- Except for ECE 30100, all pre-requisites for the courses listed for the minor must be met in order to enroll in them. Transfer and AP credit will be accepted for the above-mentioned pre-requisites.

Once all the above requisites are met, the AIML Minor will be added to the students record, and they must proceed to meet the following requirements:

- A minimum overall GPA of 3.00 is required in ECE courses to qualify for the minor. Approval of the AIML minor may be revoked if the ECE GPA falls below 3.00.
- Enrollment in all ECE courses is subject to space availability and students must request an override through the Scheduling Assistant during the registration process, which may be held until 'Open Registration'.

Requirements for the AIML Minor (18 credits)

Required Course (3 credits):

- ECE 20875 Python for Data Science

A minimum of two courses must be completed from each of the below sections; however, combined with the above required course, all must total 18 credits. This means that a third course will need to be completed from at least one of the sections below.

Core courses (6 credits):

- ECE 26400 Advanced C Programming
- ECE 30100 Signals and Systems
- ECE 30200 Probabilistic Methods in Electrical and Computer Engineering
- ECE 36800 Data Structures
- ECE 36900 Discrete Mathematics for Computer Engineering

Selective Courses (6 credits): In addition to the courses list below, VIP (Vertically Integrated Projects) and senior-level research may be taken for a maximum of 3 credits toward the AI/ML minor upon approval of the Associate Head of Undergraduate Programs or Associate Head of Teaching and Learning.

- ECE 43800 Digital Signal Processing with Applications
- ECE 47300 Introduction to Artificial Intelligence
- ECE 49595 Data Mining Basic Concepts & Techniques
- ECE 49595 Cameras, Images and Statistical Inverse Problems
- ECE 56900 Introduction to Robotic Systems
- ECE 59500 Machine Learning
- ECE 59500 Intro to Deep Learning
- ECE 59500 Deep Learning for Computer Vision
- ECE 59500 Natural Language Processing
- ECE 59500 Introduction to Data Mining

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING MINOR APPLICATION

Pre-Application Requirements (C- or higher required in each)

- Calculus I met by _____ (Course) with a grade of _____
- Calculus II met by _____ (Course) with a grade of _____
- Physics I met by _____ (Course) with a grade of _____
- CS 15900/24000 met by _____ (Course) with a grade of _____

Name:

PUID:

Email:

Expected Graduation Date:

Home School/Program:

By signing, I agree to meet the requirements stated above to qualify for a minor in Artificial Intelligence and Machine Learning.

Student Signature:

Date:

Approved by ECE Undergraduate Advisor:

Date: