MINOR IN APPLICATIONS OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

The interdisciplinary minor in Applications of Artificial Intelligence and Machine Learning will equip undergraduate students with skills and knowledge to use AI and ML to solve problems in engineering, humanities, and social sciences. The curriculum is designed to also provide students with the insight to describe and discuss current ethics and policy frameworks related to AI and machine learning.

The minor is open to students majoring in participating Schools in the Ivan Allen College of Liberal Arts and the College of Engineering. In the future, other Schools may be joining; for up-to-date information on which majors are eligible to participate, as well as contact info for the corresponding advisers, please see the website https://sites.gatech.edu/apps-ai-ml-minor/. The minor consists of two tracks. Any student admitted to the minor is eligible to choose either track. No "mix and match" is allowed between the tracks, so students are strongly encouraged to discuss with their academic advisor which track best matches their interest and career goals, and which is most compatible with major requirements.

The Minor in Applications of Artificial Intelligence and Machine Learning has the following Learning Outcomes:

Upon completion of this minor, all students will be able to:

1. Describe and discuss current ethics and policy frameworks relating to AI/ML, in the United States and internationally.

Additionally, students in the Engineering track will be able to:

1. Describe methods in probability and statistics and apply them to solve engineering and/or math problems.
2. Describe models and algorithms of AI/ML and apply them to solve engineering problems.

Additionally, students in the Ivan Allen College track as well as those from Engineering track (if they take Ivan Allen elective course(s)) will be able to:

1. Describe methods in probability and statistics and apply them to solve problems in humanities and social sciences.
2. Describe models and algorithms of AI/ML and apply them to solve problems in humanities and social sciences.

Guidelines for Minor:

- Students from a major with a required Probability and Statistics course should talk to their academic advisor to check if the option to replace the Core 1 course with an additional 3 Credits of Elective course(s) applies.
- Research credits must be related to AI/ML to count for the minor. Each Unit will designate a specific person to review and approve applicability of a student's research credits towards the minor. Only 3 credit hours of research may be counted as an elective for this minor.
- IAC students choosing the Engineering track and taking BMED 2400 for the minor can fulfill the BMED 2400 pre-requisites with MATH 1712 and CS 1315.
- At least two courses must be taken outside of the student's home school. Cross-listed courses cannot count as being "outside the home school" for any of the students who are from the schools that cross-list that course.
- Courses must be taken from two or more schools.
- All courses from the minor must be passed with a grade of C or higher.
- A minimum of 9 credits must be at the 3000-level or above.
- No course counted towards this minor can be used for any other undergraduate minor or certificate.
- It is the **major advisor's** responsibility to verify that students are using only courses from the designated block(s) from the student's major field of study that are allowed to satisfy a minor program, that they are not using any Core IMPACTS courses (including humanities and social sciences), and that they are not using any courses for more than one minor or certificate. Any free elective course used to satisfy the course requirements of the student's major degree program may also be used to satisfy the course requirements for a minor.

Engineering Track

Code	Title	Credit Hours
Core Courses		
PHIL 3101	AI Ethics and Policy	3
Select one from the following:		3
BMED 2400	Introduction to Bioengineering Statistics	
ISYE 3770	Statistics and Applications	
ECE 3077	Prob/Stats for ECE	
MATH 3670	Probability and Statistics with Applications	
Select one of the following:		3
ME/MSE 4803	Special Topics in Mechanical Engineering (Data Foundations for Engineering Applications of Machine Learning)	
CHBE 4745	Data Analytics for Chemical Engineers	
ECE 4252	Fundamentals of Machine Learning (FunML)	
BMED 3201	Introduction to Machine Learning for Biomedical Engineers	
Elective courses		
Select two of the following:		6
BMED 4478	Biomed-AI and Health Informatics	
BMED/ECE 4783	Introduction to Medical Image Processing	
BMED 3211	Introduction to Bioinformatics	
CHBE 4746	Data-Driven Process Systems Engineering	
ECE 2026	Introduction to Signal Processing	
ECE 3251	Optimization for Information Systems	
ECE 4258	Digital Image Processing	
ECE 4270	Fundamentals of Digital Signal Processing	
ECE 4271	Applications of Digital Signal Processing	
ECON 4161	Machine Learning for Economics	
PHIL 4752	Philosophical Issues in Computation	
LING 3100	Applications of Linguistics	
LING 4100	Language & Computers	
INTA 2040	Science, Technology, and International Affairs	
LMC 3451	Race, Gender, and Digital Media	
ME 4012	Modeling and Control of Motion Systems	

ME 4451	Robotics	
Research Credit (3 hours max with approval)		
Total Credit Hours		**15**

Ivan Allen College Track

Code	Title	Credit Hours
Core Courses:		
PHIL 3101	AI Ethics and Policy	3
Select one of the following:		3
ECON 2250	Statistics for Economists	
PUBP 3120	Statistical Analysis for Public Policy	
Select one of the following:		3
ECON 4803	Special Topics in Economics (Introduction to Data Science for Economics)	
PUBP 3042	Data Science for Public Policy	
Elective Courses:		**6**
ECON 4161	Machine Learning for Economics	
PHIL 4752	Philosophical Issues in Computation	
LING 3100	Applications of Linguistics	
LING 4100	Language & Computers	
INTA 2040	Science, Technology, and International Affairs	
LMC 3451	Race, Gender, and Digital Media	
Research Credit (3 hours max with approval)		
Total Credit Hours		**15**