

# Doctor of Philosophy in Artificial Intelligence

## Admission Requirements

1. Master's degree, normally in a computing, engineering, or science related field or a Bachelor's degree, normally in a computing, engineering, or science related field.
2. An overall GPA of at least 3.0 (on a 4.0 scale) for the bachelor's degree, and master's if applicable.
3. Satisfy the School of Graduate Studies' English Language Proficiency requirements as listed in the Graduate Academic Information section.

The School of Electrical Engineering and Computer Science recognizes that the prerequisite expertise identified above may be acquired in a variety of ways. Students who do not meet all of the requirements may be admitted with provisional status with the obligation to meet the remaining requirements early in their graduate study.

## Degree Requirements

Students seeking the Doctor of Philosophy in Computer Science degree must satisfy all general requirements set forth by the School of Graduate Studies. In addition, they must meet the following requirements set by the School of Electrical Engineering and Computer Science:

1. Completion of 90 credit hours beyond the bachelor's degree.
2. Maintain a GPA of at least 3.0 for all classes completed as a graduate student.

## Requirements for Students with an Approved Master's Degree

Master's degree must be in an approved topic related to computing.

1. Complete 15 credit hours from the list of Core Required Courses
2. Complete 6 credit hours in each of 3 groups of elective courses (18 credit hours total)
3. Complete at least 6 credit hours of EECS 510 Artificial Intelligence Seminar
4. Complete 21 credit hours of Dissertation Research
5. Successfully complete the Qualifying Examination consisting of both the written proposal and an oral defense.
6. Oral Final Examination which includes a defense of the student's dissertation. The oral defense of the student's dissertation must take place at least one semester after satisfactory completion of the comprehensive examination.
7. Submission of the dissertation document, approved by the student's Faculty Advisory Committee.

## Requirements for Students with an Approved Bachelor Degree

1. Complete 9 credit hours of Background Courses
2. Complete 15 credit hours from the list of Core Required Courses
3. Complete 9 credit hours in each of 3 groups of elective courses (27 credit hours total)
4. Complete at least 9 credit hours of EECS 510 Artificial Intelligence Seminar
5. Complete 30 credit hours of Dissertation Research
6. Successfully complete the Qualifying Examination consisting of both the written proposal and an oral defense.
7. Oral Final Examination which includes a defense of the student's dissertation. The oral defense of the student's dissertation must take place at least one semester after satisfactory completion of the comprehensive examination.

8. Submission of the dissertation document, approved by the student's Faculty Advisory Committee.

## Background Courses

Code	Title	Credits
DATA 511		3
DATA 512		3
DATA 513		3

## Core Required Courses

Code	Title	Credits
DATA 530	Artificial Intelligence	3
DATA 532	Applied Machine Learning	3
PHIL 570	Philosophical and Ethical Implications of AI and Emerging Technologies	3
DATA 541		
CSCI 548		

## Elective Group 1: AI Foundations

Code	Title	Credits
CSCI 575	Analysis of Algorithms	3
PSYC 532	Cognitive and Behavioral Foundations in AI	3
POLS 504		
COMM 406	Future of Communication Technology	3
SOC 460	Technology and Society (Technology and Society)	3
HIST 530	History of Technology (History of Technology)	3
PSYC 539	Cognitive Psychology	3

## Elective Group 2: Advanced AI Techniques

Code	Title	Credits
CSCI 543	Machine Learning	3
CSCI 544	Soft Computing: Computational Intelligence I	3
CSCI 554	Applications in AI/Computational Intelligence	3
DATA 525	Data Engineering and Mining	3
DATA 527	Predictive Modeling	3
DATA 540	Data Visualization	3
CSCI 542		
CSCI 549		

## Elective Group 3: Machine Vision and Robotics

Code	Title	Credits
EE 751	Wireless Sensor Networks	3
EE 752	Introduction to Autonomous Systems	3
ME 580	Introduction to Autonomous Robotics	3
ME 566	Introduction to Machine Vision	3
EE 563	Digital Image Processing	3
EE 557	Robotics Fundamentals	3

## Elective Group 4: AI Applications

Code	Title	Credits
BIMD 514	Foundations of Bioinformatics	3
CHEM 534	Quantum and Computational Chemistry	3
COMM 522	Data Mining Analytics for Communication Professionals	3
EFR 530	Learning Analytics	3
COMM 549	Information Communication Technologies	3
EFR 535	Data Analytics and Visualization with R	3

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PSYC 533	Theories of Learning	3
PSYC 540	Foundations of Behavioral Data Analytics	3
PHIL 575	Data Science Ethics	3
PSYC 537	Physiology of Behavior and Psychophysiological Measurement	3