Program Policy Statement

M.S. in Artificial Intelligence
and
Bachelor/M.S. in Artificial Intelligence 4+1 with the following B.S. and B.A programs

Computer Science/Artificial Intelligence 4+1 (BS/MS)
Computer Science/Artificial Intelligence 4+1 (BA/MS)
Information Systems/Artificial Intelligence 4+1 (INSY-BS/MS)
Biomedical Engineering/Artificial Intelligence 4+1 (BBE/MS)
Chemical Engineering/Artificial Intelligence 4+1 (BChE/MS)
Civil Engineering /Artificial Intelligence 4+1 (BCE/MS)
Computer Engineering/Artificial Intelligence 4+1 (BCpE/MS)
Construction Engineering and Management/Artificial Intelligence 4+1 (BCEM/MS)
Environmental Engineering/Artificial Intelligence 4+1 (BENE/MS)
Electrical Engineering/Artificial Intelligence 4+1 (BEE/MS)
Materials Science and Engineering/Artificial Intelligence 4+1 (BMSE/MS)
Mechanical Engineering/Artificial Intelligence 4+1 (BME/MS)

PART I. PROGRAM HISTORY AND PURPOSE

A. Statement of purpose and expectation of graduate study in the program.

Artificial Intelligence (AI) technologies are transforming sectors such as healthcare, finance, transportation, and entertainment, driving the need for highly skilled professionals who can plan, implement, and manage AI solutions. An MS program in AI will provide students with the theoretical knowledge and practical skills necessary to tackle complex problems, innovate in cutting-edge technologies, and remain competitive in a job market increasingly dominated by AI applications.

The need for highly skilled technical AI experts goes beyond the ability to use existing software libraries and apply out-of-the-box solutions. These advanced professionals are crucial for pushing the boundaries of AI research and development, creating custom algorithms, and optimizing AI models for specific applications. Our students will possess a deep understanding of the underlying principles of machine learning, neural networks, optimization, algorithm design and analysis, and generally applicable algorithms and models in such areas as natural language processing, computer vision, and networks (to mention just a few), enabling them to innovate and solve problems that pre-packaged solutions broadly used today cannot address. Such experts are essential for advancing AI capabilities, ensuring systems are more efficient,

accurate, and capable of handling complex, real-world challenges. In our MS program in AI, we train these high-level professionals who will lead the future of AI innovation and drive progress in various fields, from developing new AI methodologies to creating sophisticated solutions tailored to national needs.

The MS in AI degree will offer both thesis and non-thesis options to accommodate diverse student goals and career paths.

The MS in AI degree will be hosted by the Computer and Information Sciences (CIS) department which will leverage the department's established expertise in artificial intelligence. With a significant number of faculty members ready to teach and supervise, the CIS department offers an excellent environment for cutting-edge research and innovative teaching. This alignment ensures a robust educational foundation and engagement through established industry and academic partnerships, enhancing both the learning experience and career preparedness of students. Recent career fairs, prominently attended by companies interested in AI, along with the active participation and organization of AI-based hackathons by CIS faculty and students, as well as strategic hires, new AI-relevant courses, and planning within the department, demonstrate the CIS commitment to the proposed MS in AI degree.

B. Date of Permanent Status (or current status).

New program proposal.

C. Degrees offered

- Master of Science in Artificial Intelligence
- Computer Science/Artificial Intelligence 4+1 (BS/MS)
  Computer Science/Artificial Intelligence 4+1 (BA/MS)
  Information Systems/Artificial Intelligence 4+1 (INSY-BS/MS)
  Biomedical Engineering/Artificial Intelligence 4+1 (BBE/MS)
  Chemical Engineering/Artificial Intelligence 4+1 (BChE/MS)
  Civil Engineering /Artificial Intelligence 4+1 (BCE/MS)
  Computer Engineering/Artificial Intelligence 4+1 (BCpE/MS)
  Construction Engineering and Management/Artificial Intelligence 4+1 (BCEM/MS)
  Environmental Engineering/Artificial Intelligence 4+1 (BENE/MS)
  Electrical Engineering/Artificial Intelligence 4+1 (BEE/MS)
  Materials Science and Engineering/Artificial Intelligence 4+1 (BMSE/MS)
  Mechanical Engineering/Artificial Intelligence 4+1 (BME/MS)

D. Term when first students may enroll.

Fall 2025

E. Factors that identify the student demand for the program (market research results).

1) According to their essays, a significant part of our graduate program applicants are interested in AI and planning their careers in this field.
2) Numerous discussions with the CIS advisory council that includes JPMorgan Chase, DuPont, IBM, Cisco, Capital One, Meta, Labware, NIST, Microsoft, Incyte, General Motors and other companies including local and national.
3) Career fairs conducted by CIS in recent years.
4) Careers pursued by our alumni.
5) Numerous reports on the status of AI in worldwide and domestic industry. Here are several examples. A 2023 McKinsey report reveals that 55% of organizations now use AI (including generative AI) in at least one business unit or function, up from 50% in 2022 and 20% in 2017. The AI Index Report 2024 (https://aiindex.stanford.edu/report/) indicates a significant growth in the industry demand: "The migration of AI PhDs to industry continues at an accelerating pace. In 2011, roughly equal percentages of new AI PhDs took jobs in industry (40.9%) and academia (41.6%). However, by 2022, a significantly larger proportion (70.7%) joined industry after graduation compared to those entering academia (20.0%). Over the past year alone, the share of industry-bound AI PhDs has risen by 5.3 percentage points, indicating an intensifying brain drain from universities into industry." This indicates the demand of high-skilled technical experts in the AI field which is precisely the goal of our program.
   In the report "Artificial Intelligence Market Size, Share, Growth Report 2030" by Grand View Research (https://www.grandviewresearch.com/industry-analysis/artificial-intelligence-ai-market), the study indicates "The global artificial intelligence market size was estimated at USD 196.63 billion in 2023 and is projected to grow at a CAGR of 36.6% from 2024 to 2030. The continuous research and innovation directed by tech giants are driving adoption of advanced technologies in industry verticals, such as automotive, healthcare, retail, finance, and manufacturing." The Market Research Future also indicates that "... compound annual growth rate (CAGR) of 37.0% during the forecast period (2024 - 2032)" (https://www.marketresearchfuture.com/reports/artificial-intelligence-market-1139).

F. Identify the College and Department/School in which the program will reside.

Department of Computer and Information Sciences / College of Engineering

PART II-A. ADMISSION (M.S. Program)

A. Admission Requirements

Admission to the program is competitive. Those who meet stated minimum requirements are not guaranteed admission, nor are those who fail to meet all those requirements necessarily precluded from admission if they offer other appropriate strengths.

Minimum requirements:
1) The equivalent of a bachelor's degree at the University of Delaware. A minimum grade average of 3.2 in the major field of study and an overall cumulative index of 3.0 is recommended.
2) Scholarly competence in mathematics and computer programming is required. Applicants are expected to know the material covered by at least one undergraduate course in each of the following topics: structured high-level language programming, data structures, computer architecture, operating systems, and analysis of algorithms.
3) Applicants must have completed the equivalent of at least four undergraduate courses in the following topics: calculus, discrete mathematics, probability and statistics, mathematical logic, or comparable formal subjects, such as theory of computation.
4) Applicants must have completed at least one undergraduate course in such areas as machine learning, data mining, AI, or data science.
5) Minimum GRE scores of 153 for the verbal section, 155 for the quantitative section, and 4.0 for the analytical writing section. The GRE subject test is not required.
6) A satisfactory level of proficiency in the English language. For international applicants, the University of Delaware requires an official TOEFL score of at least 79 on the Internet-based test or IELTS test score of 6.5 overall with no individual Speaking sub-score below 6.0. A TOEFL score of at least 100 or IELTS score of 7.0 overall is required to be considered for a teaching assistantship.
7) Three letters of recommendation from professors (preferably), employers, or others that assess the applicant's potential for success in the program.
8) Essay. The clarification can be found at https://www.udel.edu/academics/colleges/grad/prospective-students/grad-admissions/application-essays/.
9) Curriculum vitae

B. Prior degree requirements.

Please see the general admission requirements.

C. Application deadlines.

For admission for Fall semesters, all application materials must be received by July 1 or by February 1 for priority consideration.

For admission for Spring semesters, all application materials must be received by December 1.

Applicants should submit all required materials using the University's graduate application website.

D. Special competencies needed.

As described in section B.

E. Admission categories

Regular

F. Other documents required

See admission requirements

PART II-A. ADMISSION (4+1 Programs)

A. Admission Requirements

A1. Eligibility

The program is limited to UD undergraduates in the following majors:

Computer Science (BS or BA)
Information Systems (BS)
Biomedical Engineering (BBE)
Chemical Engineering (BChE)
Civil Engineering (BCE)
Computer Engineering (CPEG)
Construction Engineering and Management (BCEM)
Environmental Engineering (BENE)
Electrical Engineering (BEE)
Materials Science and Engineering (BMSE)
Mechanical Engineering (BME)

Applicants must be full-time students at the time of application. Students must have completed at least 75 credits toward their undergraduate degree before applying. Students must have completed 90 credits before enrolling in the graduate level courses.

A2. Minimum Requirements

Admission to the program is competitive. Those who meet stated minimum requirements are not guaranteed admission, nor are those who fail to meet all those requirements necessarily precluded from admission if they offer other appropriate strengths. Applications will be considered on a rolling basis.

No application fee is required for the 4+1 program applicants.

Minimum requirements:
1) A minimum grade average of 3.2 in the major field of study and an overall cumulative index of 3.0 are recommended.
2) Scholarly competence in the following areas of computer science and mathematics:
   a) structured high-level programming (for example, CISC106, CISC 108, or equivalent)
   b) systems programming (for example, CISC210 or equivalent)
   c) data structures (for example, CISC 220 or equivalent).
   d) calculus (for example, MATH 241 or equivalent), statistics (for example, STAT200 or MATH 205 or equivalent), and discrete math (for example, MATH 210 or equivalent)
3) Students must have completed by the end of their last year of BS/BA:
   a) CISC 320 Introduction to Algorithms or its equivalent or more advanced course in algorithms and computer science theory. The goal is to demonstrate the readiness for the graduate level course in algorithms.
   b) At least one course in such areas as machine learning, data mining, AI or data science. The goal is to demonstrate the readiness for the graduate level courses in AI.
4) Required documents:
   A. Three letters of recommendation from professors (preferably), employers, or others that assess the applicant's potential for success in the program. The applicant should consult with the graduate program director or graduate advisor to determine whether the letters must be sent directly to the admissions committee or not.
   B. Transcripts from prior and current degrees.
   C. Essay. The clarification can be found at https://www.udel.edu/academics/colleges/grad/prospective-students/grad-admissions/application-essays/. The applicant should consult with the graduate program director or graduate advisor to determine whether the essay must be sent directly to the admissions committee or not.
   D. Curriculum vitae. The applicant should consult with the graduate program director or graduate advisor to determine whether the curriculum vitae must be sent directly to the admissions committee or not.
   E. A completed and approved graduate course approval form for 4+1 admission application https://www.udel.edu/content/dam/udelImages/grad-college/graduate-college-pdfs/4+1_Aproval.pdf
   F. Applicants should utilize the specialized 4+1 application form following all instructions and upload requests (including uploading the above mentioned form and an unofficial UD Transcript).

B. Prior degree requirements.

Please see the general admission requirements.

C. Application deadlines.

The deadline for the 4+1 program applicants is February 1. See Section II-A.A1 for eligibility.

D. Special competencies needed.

The applicants must follow the same requirements as in Part II-A.A.

E. Admission categories

Regular

F. Other documents required

G. Admission to the graduate program is competitive. Those who meet stated requirements are not guaranteed admission, nor are those who fail to meet all of those requirements necessarily precluded from admission if they offer other appropriate strengths.

PART III. ACADEMIC

A1. Degree Requirements - Non-thesis track

The coursework requirement comprises five categories. *The Fundamentals of AI and Computing* (Category 1) ensures that all students are introduced to the necessary technical background for AI and the subsequent categories. The *Topics in Mathematics and Theoretical Computer Science Closely Related to AI* (Category 2) ensures a deeper understanding of the mathematical methods underlying AI and machine learning algorithms. The *Topics in AI* (Category 3) contains fundamental technical courses focused on one or more subfields of AI that are generally applicable in many different domains. The *Electives* (Category 4) are either fundamental technical CS courses generally applicable in many different domains of AI or application/domain specific courses in which AI plays a crucial role. The *Seminar* (Category 5) prepares students to successfully complete the MS and exposes them to broader issues such

as professional and ethical responsibilities and the impacts of computer and information sciences on society.

The MS in AI requires a total of 30 credits with the following constraints:

- Twelve (12) credits must be taken in Category 1.
- Three (3) credits must be taken in Category 2.
- Nine (9) credits must be taken in Category 3. At least three (3) of them must be at the 8xx level.
- Six (6) credits must be taken in Category 4. For the thesis option, all six credits must be taken as research credits under the supervision of one of the CIS faculty.
- Each semester, all graduate students must be enrolled in CISC890 Departmental seminar to satisfy the requirement of Category 5.
- All courses in Categories 1-4 must be taken using the standard grading option (i.e., letter grades).

Courses in Category 2 may satisfy Categories 3 and 4. Courses in Category 3 may satisfy Category 4. However, the same course may not be used to satisfy more than one Category.

Category 1: Fundamentals of AI and Computing (12 credits)
1. CISC 684   Introduction to Machine Learning
2. CISC 681   Artificial Intelligence
3. CISC 621   Algorithm Design and Analysis
4. CISC 889   Ethics in AI

Category 2: Topics in mathematics and theoretical computer science closely related to AI and machine learning (3 credits)
1. MATH 612   Computational Methods for Equation Solving and Function Minimization
2. MATH 631   Introduction to Stochastic Processes
3. MATH 630   Probability Theory and Applications
4. STAT 603   Statistical Computing and Optimization
5. STAT 617   Multivariate Methods and Statistical Learning
6. CISC 604   Logic in Computer Science

Category 3: Topics in AI (9 credits)
1. CISC 642   Introduction to Computer Vision (or ELEG 604 Imaging and Deep Learning)
2. CISC 686   Introduction to Multi-Agent Systems
3. CISC 688   Introduction to Natural Language Processing
4. CISC 689   Topics in AI
5. CISC 683   Introduction to Data Mining
6. CISC 822   Graph Mining (or STAT 622 Statistical Network Analysis)
7. CISC 817   Large Scale Machine Learning (or cross-listed ELEG 817)

8. CISC 820   Quantum Algorithms
9. CISC 886   Multi-Agent Systems
10. STAT 619   Time-Series Analysis
11. ELEG 602   Advanced Machine Learning
12. CISC 889   Advanced Topics in AI
13. Other fundamental technical courses related to generally applicable in different domains AI that we could approve in the future. Requires formal consent of the adviser or program director.

Category 4: Electives (6 credits)
1. QSEG 851   Advanced Topics in Quantum Information
2. BINF 620   Big Data Analytics in Healthcare
3. BINF 644   Bioinformatics
4. BINF 695   Computational Systems Biology (or cross-listed ELEG 697)
5. CISC 844   Computational Biomedicine (or cross-listed BMEG 844)
6. CISC 682   Introduction to Human-Computer Interaction
7. CISC 685   Modeling and Simulation for Bioinformatics Systems
8. CISC 601   Elements of the Theory of Computation
9. CISC 848   Computing and Data Science for Soft Materials Innovation (or cross-listed MSEG 848, ELEG 848)
10. MEEG 671   Introduction to Robotics
11. CISC 649   Introduction to Autonomous Driving
12. CPEG 657   Search and Data Mining
13. ELEG 601   Optimization for signal processing, machine learning and data science
14. ELEG 630   Information Theory
15. CISC 830   Combinatorial Optimization and Advanced Algorithms
16. LING 604   Structure of Language
17. CGSC 696   Psycholinguistics
18. CGSC 670   Elements of Cognitive Science
19. AINT 699   Industry or academic internship for up to 3 credits. See Section Internships for the details.

Courses CISC889 (Advanced Topics in AI) and CISC689 (Topics in AI) can be taken multiple times as they offer different sections, each corresponding to different subjects within AI. The same subjects cannot be taken under both CISC889 and CISC689. Students with questions or doubts about the similarity between subjects offered across these courses should consult with the program director or adviser to ensure the course selections align properly with the academic goals and program requirements.

The Department recognizes the dynamic nature of the AI field and emphasizes that new relevant courses may (and most likely will) be offered in Categories 3 and 4. It is the Department's intention to verify and approve the relevant courses. Taking other courses that are not specifically listed in this document requires formal consent of the adviser or program director.

Ethics in AI

This course belongs to Category 1. In the first two offerings, the course will be given as a section in CISC889 Advanced Topics in AI. A proposal for a separate course will be submitted later. Current status: The syllabus is ready. This course is developed jointly by Rahmat Beheshti, Christopher Rasmussen and Xi Peng. It includes strong technical components to ensure that students not only know what are the ethics problems in AI but can also resolve them algorithmically and implement the solutions

Internships

The MS in AI program offers an optional internship component, allowing students to gain hands-on experience in real-world environments. This practical engagement can take place either in academia, industry or national laboratories, depending on the student's career aspirations and the opportunities available. To ensure that the internship aligns with the educational goals of the program and contributes meaningfully to the student's academic progress, participation *must be approved* by the student's advisor or the program director.

This approval process involves a review of the internship's scope, relevance to AI, and professional development opportunities it offers. The goal is to integrate the practical experience seamlessly with the student's academic curriculum, thereby enhancing their learning and professional growth. The number of credits awarded for the internship can vary, but it will not exceed 3 credits in total towards the degree. The specific number of credits awarded and grading details will be determined by the student's advisor or the program director in consultation with the internship host, ensuring that the internship's academic value justifies the credit allocation.

If the internship will be counted towards the degree, the students should use the AINT 699 Graduate Internship in AI course.

A2. Degree Requirements - Thesis track

The students should follow the coursework requirements in Categories 1, 2, 3 and 5 of the non-thesis track. The six (6) credits in Category 4 should be replaced with the thesis requirement.

Thesis Component: Students must complete 6 credits of Master's Thesis using AINT 869 Master's Thesis in AI course.

Thesis Examination: Students must pass the thesis examination. The thesis examination ensures that students have the ability to perform research in a chosen area of AI. The rules for thesis examination must be the same as for those in the Department of CIS.

Thesis committee: Each student must establish a thesis committee. The thesis committee must be approved by the Department of CIS. The rules for establishing the thesis committee must be the same as for those in the Department of CIS.

Each student must author a thesis that describes the results of original research in a chosen area of AI.

Each student's advisory committee must assess the student's ability to conduct and report the results of basic research in both oral and written form. The assessment must include a public, oral defense of the thesis.

The outcome of the thesis examination is decided by the student's advisory committee. A majority vote in favor is needed to pass. If a student does not pass the thesis examination, an option of transition to the non-thesis track will be available. In this case, the student can request enrollment in an additional 6 credits to fulfill the degree requirements of the non-thesis track.

A3. Degree Requirements - 4+1 pathway

Students should follow the requirements outlined in A1 and A2 sections of Part III.

Shared credits

Students in undergraduate programs who have been granted "provisional admission" through the 4+1 pathway may begin taking graduate courses if they have completed 90 credits and if they have permission from their advisor.

Shared credits in 4+1 programs may depend on the curriculum and major in the undergraduate degree and must be determined at the time of the 4+1 application. Depending on the undergraduate program pursued, up to nine (9) credits may be able to be double counted (i.e., counted toward a student's undergraduate and graduate degree), with prior permission from their undergraduate advisor and approval from the MS in AI program graduate advisor or program director. Students can enroll in more than nine credits of graduate courses but they can not double count for their undergraduate degree and their graduate degree.

Taking graduate courses while an undergraduate gives the student a jump start when officially activated as a graduate student in the MS in AI program. These courses must be grades of B or better to be approved to be transferred into the MS in AI degree requirements.

Part IV. Assessment Plan

The evaluation of the MS in AI program will be conducted systematically to ensure that the program meets its educational objectives and remains responsive to the needs of the industry and academic standards. The evaluation will be performed by the CIS graduate committee. The evaluation process will involve multiple components:

1) Student Feedback: Regularly collected feedback from students through surveys, focus groups, and course evaluations will provide insights into their learning experiences and satisfaction with the curriculum.
2) Graduate Success: Tracking the career progression of graduates will help assess the program's effectiveness in preparing students for successful careers in AI. This includes monitoring employment rates, types of industries employed in, and advancements in their professional roles.
3) Academic Performance: Analysis of academic outcomes, such as grades, project completions, and research contributions, will help measure the academic rigor and relevance of the program.
4) Industry Consultation: Ongoing dialogue with our advisory board and industry partners will provide feedback on the relevancy of the program's curriculum to current and emerging AI technologies and practices.
5) Faculty Assessments: Input from faculty involved in the program will be crucial for evaluating teaching methods, curriculum structure, and the overall academic environment.

These diverse evaluation mechanisms will be integrated into a continuous improvement process to adapt and enhance the curriculum, teaching methods, and resources, ensuring that the MS in AI program remains cutting-edge and effectively prepares students for the challenges of the AI field.

Part V. Program Educational Goals

The M.S. Degree in Artificial Intelligence (the MS) program is designed for students who are interested in obtaining a technical graduate-level understanding of artificial intelligence and its essential underlying components including but not limited to machine learning, algorithms and mathematical foundations.

The non-thesis track is intended for students who view the MS as a terminal professional degree. The thesis track is intended for students who are also interested in research in computer and information sciences and may consider pursuing a PhD.

Students begin the program following the non-thesis track. Admission does not guarantee that a student can follow the thesis track. Entry to the thesis track occurs once the student's advisory committee is approved by the Department.

Students who are confident in their interest in AI are encouraged to apply to the PhD degree program.

Students who believe they have already satisfied a degree requirement (e.g., by taking prior graduate-level coursework) may submit a degree requirements modification request.

After completing the MS in AI, graduates will be able to:

1) summarize the professional and ethical responsibilities related to AI as measured by the successful completion of Responsible Conduct of Research training and the seminar component of the coursework requirements
2) identify, analyze, and solve a broad range of AI problems using appropriate tools, techniques, approaches, and algorithms as measured by the successful completion of the coursework requirements in Categories 1, 2 and 3.
3) demonstrate a deeper understanding of a chosen area of AI as measured by successful completion of the elective component of the coursework requirements in Category 4.
4) assess the impacts of AI on society and a chosen discipline as measured by the successful completion of the seminar component of the coursework requirements
5) optionally, if they enter the thesis track, plan, conduct, present, and defend a research project as measured by the successful completion of the thesis examination

Part VI. Financial aid

Entering and continuing students are eligible for several types of financial aid. However, the Department prioritizes supporting PhD students; only occasionally are exceptional MS students offered financial aid in the form of assistantships on a competitive basis. Additional information can be found at https://engr.udel.edu/graduate-programs/graduate-funding-financial-aid/ and https://www.udel.edu/academics/colleges/grad/current-students/funding/. To apply for a research assistantship, students should contact departmental faculty directly.

Part VII. Departmental Operations

The MS in AI Program will be administered by the Department of CIS, with leadership from the MS in AI graduate program director and a committee composed of UD faculty with expertise in AI. The committee members and the program director will be determined and approved according to the CIS bylaws. The current committee members are: Kathleen McCoy, Xi Peng, Ilya Safro (committee chair), Vijay Shanker, and Guangmo Tong.

The following subsections describe the processes and procedures that Students (the Student) in the Department of Computer and Information Sciences (the Department) at the University of

Delaware (the University) should follow. The keywords MUST, MUST NOT, SHOULD, SHOULD NOT, and MAY should be interpreted according to [RFC2119](#).

Degree Requirements Modification Request Process

To request a modification to their degree requirements, the Student MUST contact the Graduate Education Committee.

Degree requirements modification requests SHOULD be made as soon as possible after the Student matriculates.

Degree requirements modification requests based on prior graduate-level coursework MUST include a copy of the Student's transcript that includes the name, number of credits, and grade received for the prior coursework. Additional information, such as syllabi, assignments, examinations, etc., may be necessary.

The Graduate Education Committee MUST update the Student's degree audit to indicate any approved modifications.

Course Substitution Request Process

To request a course substitution, the Student MUST contact the Graduate Education Committee.

Course substitution requests MUST include (1) a copy of the Graduate Catalog entry for the course the Student is requesting to take and (2) a brief explanation of how the course relates to the Student's dissertation research or career goals.

Course substitution requests MUST be made prior to the Student enrolling in the course.

The Graduate Education Committee MUST update the Student's degree audit to indicate any approved substitutions.

Curricular/Optional Practical Training (CPT/OPT) Approval Request Process

CPT/OPT requests are specific to visa holders. Therefore, students MUST begin by contacting UD's Office of International Students and Scholars to review their particular status and eligibility (https://www.udel.edu/academics/global/isss/students/undergrad-grad-students/). Upon receiving clearance from the Office of International Students and Scholars, to request approval for CPT and/or OPT, the Student MUST contact the Graduate Education Committee.

CPT and OPT requests MUST include (1) contact information for the employer who will supervise the training and (2) a brief description of the training and how it will relate to the Student's degree or career goals.

If a request is approved, the Student MUST register for 1 credit of Graduate Internship (CISC699) and follow the [University's application procedures](#).

Thesis Examination Process

The purpose of the Thesis Examination is to ensure that the Student has the ability to perform basic research in a chosen area of AI.

The Student MUST undertake all of the following steps with the help and guidance of their Advisory Committee.

Step 1: Establish the Area

The Student MUST determine the area of the research (the Area). The [ACM Computing Classification System](#) or the [Computer Science Ontology](#) may be of use for this task.

Step 2: Identify the Chairperson

The Student MUST identify the Chairperson for the Thesis Examination. Multiple faculty MAY, jointly, fill the role of Chairperson.

The Chairperson:
- MUST be a tenure-track faculty member of the University with greater than 5% appointment in the Department
- MUST have an established track record of publication in the Area

Step 3: Define the Project

The Student MUST collaborate with the Chairperson to define the Thesis Examination Project (the Project).

The Project:
- MUST be approved by the Chairperson
- MUST include a thorough literature search and a summary of the relevant literature in the Area
- MUST make an original contribution
- SHOULD have a reasonable expectation of leading to a publication in an appropriate venue

Step 4: Establish the Committee

The Student MUST consult with the Chairperson to establish the Thesis Examination Committee.

The Thesis Examination Committee MUST comprise at least two Committee Members.

The Chairperson MUST be a member of the Thesis Examination .

The Thesis Examination Committee MUST include a Secondary Member. The Secondary Member:

- MUST be a full-time faculty member of the University with greater than 5% appointment in the Department
- MUST NOT have an established track record of publication in the Area

In addition to the Chairperson and the Secondary Member, the Thesis Examination Committee MAY include Additional Members.

The Thesis Examination Committee MUST be approved by the Department. The Student MUST request Departmental approval of the Thesis Examination Committee by contacting the Graduate Coordinator..

Step 5: Author the Thesis

The Student MUST author a thesis (the Thesis). The Student decides the format and content of the Thesis, but it:

- MUST describe the Project and its results
- MUST adhere to the expectations established by the Area's research community, as communicated by the Chairperson
- MUST be written in English and in a scholarly and competent manner

Step 6: Assessment

The Thesis Examination Committee MUST assess the Student's ability to conduct and report the results of basic research in both oral and written form. The form of the assessment is decided by the Thesis Examination Committee but it MUST include a public, oral defense of the Thesis, conducted in English.

The Student decides the time and date of the oral defense but it:

- MUST be acceptable to all members of the Thesis Examination Committee
- SHOULD be during business hours (9am to 5pm EST, Monday through Friday)
- SHOULD take approximately one hour

The Student MUST provide the Thesis Examination Committee with a copy of the Thesis at least two weeks prior to the date of the oral defense. The Student MUST provide the Graduate Coordinator with a copy of the Thesis and the time, date, and location of the oral defense at least two weeks before it occurs. The Graduate Coordinator will announce the date, time, and location of the oral defense to the Department.

Step 7: Outcome of the Examination

The outcome of the Thesis Examination is decided by the Thesis Examination Committee. The Thesis Examination Committee SHOULD strive to achieve consensus concerning the outcome. In case of dissenting votes, a majority vote in favor is needed to pass the Thesis Examination.

If the outcome is Pass, the Chairperson of the Advisory Committee MUST update the Student's degree audit to indicate that the Dissertation Examination requirement is satisfied.

Graduate Degree Application Process

To apply for the MS degree, the Student MUST email a completed copy of the [Advanced Degree Application](#) (AAD) to the Graduate Staff Advisor.

The Graduate Staff Advisor will:
1. review the submitted AAD
2. verify that the Student has satisfied or, by the end of the current semester, will satisfy the Degree Requirements
3. complete Section 6 of the AAD by obtaining the necessary signatures and approvals
4. provide a copy of the completed AAD to the Student and the Graduate College

Instructions for Completing the AAD

The Student MUST read the 8 numbered items under the PLEASE NOTE heading on the first page.

In Section 1:
- The Student MUST enter "Artificial Intelligence" under MAJOR and MUST leave CONCENTRATION blank.
- The Student MUST enter the sum of the credits of the courses listed in Section 5 under TOTAL CREDITS REQUIRED FOR THE DEGREE.

In Section 3, the Student MUST check only the box for MS Master of Science.

In Section 4:
- If they are on the non-thesis track, the Student MUST check only the box for Non-Thesis Option
- If they are on the thesis track, the Student MUST check only the box for Master's Thesis

In Section 5:
- The Student MUST list only courses that appear on their transcript
- The Student MUST list only courses that satisfy a degree requirement (i.e., the courses that are listed on the corresponding coursework checkout sheet). Enter the grade for the course under GR and the number of credits under CR. Courses in which the Student is currently enrolled MUST be listed; leave the grade blank.

In Section 6:
- If they are on the non-thesis track, the Student MUST leave all signatures blank.
- If they are on the thesis track, the Student MUST have the Chairperson of their advisory committee sign as advisor.