AI Prelim Requirements and Timeline

The AI Prelim examination has two components – one component based on coursework and the other component based on an original paper by the student. This document describes (A) the prerequisites for taking the AI preliminary exam, (B) the process of applying to take the AI preliminary exam, (C) composition of the AI Examination Committee, (D) the original paper component of the exam, and (E) the two possible formats of the coursework component of the exam.

(A) Prerequisites for taking the AI Preliminary Examination:
1) The student must currently be enrolled in the CS Ph.D. program.
2) The student must have completed at least one semester as a graduate student at Vanderbilt in the CS program.
3) The student must have completed CS 6360 Advanced Artificial Intelligence and two advanced AI courses (from CS 6358, CS 6362, CS 6364, CS 6366, AI advanced special topics courses, and other approved courses). The credit for courses taken at another institution can satisfy this requirement, in whole or in part, with approval of the Director of Graduate Studies (DGS).

(B) Applying to take the AI Preliminary Examination
1) The student must submit to the Computer Science Director of Graduate Studies (DGS) and their adviser: (a) the three advanced intelligent systems courses that the student wishes to have considered as the AI courses, of which one must be CS 6360, along with who taught the courses, and (b) the name of the student’s research adviser. These items are to be submitted by the deadline announced by the DGS for submitting “intent” to take the exam.
2) The DGS will assemble an examination committee for the student, in consultation with the student’s research adviser, if the exam prerequisites have been satisfied. The constituents of this committee are described below. The first task for the examination committee is deciding whether or not to accept the student’s examination request. A unanimous consensus among the committee members is needed for acceptance. This decision shall be made, and communicated to the student.

(C) The AI Examination Committee
1) Once the student’s request to take the preliminary examination is received, the DGS, in consultation with the student’s research adviser, will form an examination committee for the student that is chaired by the student’s advisor.
2) An AI Preliminary Examination committee shall consist of three faculty members from the AI area and a fourth member who is a tenured faculty member from outside of the AI group.
3) Committee membership may vary with each student.

(D) The Original Paper Component of the AI Preliminary Exam
For this component of the AI Preliminary Exam, the student will write an original paper from specifications provided by the AI Exam Committee, followed by an oral examination of the student by the committee on the contents of the paper, and foundational material, including source papers and AI coursework as it relates to the student’s original paper.

D.1 Structure of the Student’s Original *Paper*

1) The AI Preliminary Examination requires the preparation of a written original paper by the student (henceforth, the *examination paper*).
2) The examination committee shall present the student with a written specification for the examination paper. This specification will be made available to the student in a timely manner after the formation of the AI Examination Committee.
3) The examination paper specification will list approximately three research papers, and it will ask the student to generate a thoughtful comparative analysis of the material discussed in these papers. The examination paper will also be expected to address the questions posed by the committee. Typical examination paper specifications will require the student to focus on particular themes or address specific questions in the examination paper.
4) In preparing the paper, the student is welcome to draw on literature beyond those papers explicitly referenced in the examination paper specification.
5) The written examination paper must be no more than 5,000 words in length, not counting tables, figure captions, or bibliographic entries. Most successful papers will approach this length.
6) References should be appropriately cited. Care should be taken with regard to spelling and grammar and other aspects bearing on clear exposition.
7) The examination paper must be the student’s own work, with no direct assistance provided by any other individual, including the student’s adviser and fellow students.
8) The examination paper is to be completed within the 14 days that follow the delivery of the specification to the student. An explicit due date and time shall be indicated in the specification document.
9) The examination paper is to be submitted by email, with the time stamp on the received email considered the submission time.
10) Within 7 days after the submission of the examination paper, the committee will notify the student of the day, time, and location of the oral exam of the original paper (see D.2)
11) Within 14 days after the submission of the examination paper, the committee will provide the student with written comments on the submitted examination paper.

D.2 Structure of the *Oral Examination*

1) The AI Preliminary Examination includes a mandatory oral examination of the student by the examination committee, covering the topics addressed in the student’s examination paper.
2) The date of the oral examination will be communicated to the student within 7 days after the submission of the examination paper.
3) The oral examination shall take place no earlier than 2 working days after the delivery of written comments on the examination paper to the student.

4) The oral examination will be approximately 90 minutes in duration. During this exam, the student will be expected to respond to questions posed by members of the examination committee. The content of the oral component will include questions concerning the examination paper that was prepared by the student. Often, questions will address points of intersection between class work, the issues addressed in the examination paper, and the student’s chosen research topic and activities. Thus, students need to be prepared to respond to questions requiring the integration of knowledge from multiple sources.

(E) The Coursework Component of the AI Preliminary Examination
The second component of the AI Preliminary Examination requires successful completion of three advanced AI courses (one of these must be CS 6360) or satisfactory grasp of concepts taught in these courses. The student is assessed on each of the three advanced courses.

E.1 Allowable Formats
1) If the student has done adequately well in 3 advanced AI courses (one of these must be CS 6360), then the AI Examination Committee will indicate that course performance alone satisfies that course’s competency requirement. Thus, a student who has done adequately well in all three advanced courses in the opinion of the AI Examination committee, need not do anything further to satisfy the coursework component of the exam, other than adequately address any course material relevant to the examination paper (see D.2, point 4).

2) An alternative means to satisfy the coursework examination requirement for any subset of the three AI courses for which adequate course performance was not achieved, is to pass a written examination composed of questions relating to that subset of courses (see E.2).

E.2 Structure of the Written Coursework Examination (if applicable)
1) On the day that the written examination paper is due to the committee, the student will receive the written exam document.
2) The written coursework exam must be completed 3 days after it has been received (including weekends), and submitted to the examination committee chair. Late submissions will not be considered.

Summary Timeline of the AI Preliminary Examination
1) The student must submit a request to take the AI Preliminary Examination to the Director of Graduate Studies (DGS) no later than the deadline announced by the DGS for submitting “intent” to take the exam.
2) Once the AI faculty receive the examination request, they will respond with an acceptance or rejection decision, which will be communicated to the student.
3) The examination committee will provide the student with a written specification for the examination paper in a timely manner after the accept/reject decision is made.
4) The examination paper is to be completed by the student within the 14 days that follow the delivery of the specification.

5) Within 14 days after the submission of the examination paper, the committee will provide written feedback on the examination paper that is to be addressed during the oral examination.

6) The oral examination shall take place no earlier than 2 work days after the delivery of written comments on the examination paper to the student.

(F) Results of the AI Preliminary Examination will be conveyed to the student by the Director of Graduate Studies (DGS) after the CS program faculty have met to evaluate the student’s performance. The result may be:

a) Pass
b) Repeat (Full Examination)
c) Repeat the Original Paper Component Only (the student passed the coursework component)
d) Repeat the Coursework Component Only (the student passed the research component)
   • When given any one of the three “Repeat” results, a student has one semester to satisfy the requirements of the examination committee in order to pass the exam.
e) Fail – may not retake the examination

After the results are announced, the student may meet individually with the members of the examination committee to obtain more details regarding examination performance.

Suggestions

1) It is strongly recommended that students take the AI Preliminary Examination in the 4th semester after joining the program, but no later than their 5th semester after joining the graduate program with a B.S. degree. Many students will be in a position to take the exam much earlier than their 5th semester.

2) A student should establish a relationship with a research advisor in year 1 of their graduate program. The research advisor will be the examination chair (and integrally involved in developing the requirements for the research paper portion of the exam) and can provide the student with specific advice on preparing for the AI Preliminary Examination.

3) Remember that committee membership and content of the examination will vary with student.